Makoce
Agriculture Development

2023

Food Systems Study

Exploring the Local Food Economy of the Oglála Lakȟóta Oyáte

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SWEET GRASS
CONSULTING

Executive Summary

Many consider our homelands, including by federal designation, a food desert. We know there is a food oasis surrounding our people.[1] In 2022, we at Makoce Agriculture Development (Makoce Ag) devised a plan to work with Sweet Grass Consulting (Sweet Grass) to conduct a food systems study throughout our land, known more generally as the Pine Ridge Reservation, to better understand how we can garner existing resources, cultivate new ideas, and harvest the benefits of a local food system. **This report, and many other connected deliverables from this study, document our findings to be used by like-minded organizations to create a thriving food economy for our people and the region for generations to come.**

Methods

Though many of the data collection methods overlapped through time, they are listed below in the approximate order in which they were deployed, as well as the number of respondents (where applicable).

Literature Review and Existing Data
100+ books, articles, and other materials

Primary and Secondary Data
USDA, HUD, FDA, BLS, US Census, ACS, Native Land Information System

Interviews
12 Ag leaders and other knowledge holders, 7 institutional food buyers, 3 ranchers/farmers/producers, 3 elders

Case Studies
12 Native-led and/or regenerative Ag-related entities

Agriculture Land Mapping
Courtesy of Village Earth

Makoce Ag Capacity Assessment
Assessment of initiatives and personnel

Recommendations

Recognizing the interconnectedness of a food system and the complexities of developing regenerative solutions to enhance our food economy, the recommendations derived from this study cover a vast array of possibilities and require the help of partners and ally organizations.

Recommendations Summary

Policy

Page 58 | Food Sovereignty Legislation

Land

Page 77 | Strategic and Succession Planning

Page 79 | District Leasing and Community Wealth Building

Training Programs

Page 84 | Beginner Farmer-Rancher Development Program

Page 102 | Apprenticeship Program

Page 138 | CDL and Other Workforce Development

Partnerships

Page 85 | Associations, Convergences, and Resource Sharing

Markets and Food Access

Page 92 | Marketing and Production

Page 107 | Retail and Wholesale Modeling

Page 116 | Location-Based Marketing

Page 169 | Food Distribution and Purchasing

Schools

Page 100 | Starting Small and Scaling

Page 107 | Local Purchasing Procurement

Page 138 | Farm to School Position

Page 102 | Other Opportunities and Recommendations for Working with Schools

Production

Page 133 | Enhance Poultry Production

Conclusion

"By creating a local food system, we will create uses of our own lands that will build our local economy and strengthen our community and relationship to the natural environment."[2]

There is a food oasis surrounding our people, and this report documents that well. It also captures ideas and presents next steps to regenerate the existing food system through new innovations and strengthened partnerships.

"When we use the word Makoce we are talking about a place and the land that is the foundation of who we are, that which created us, a relative past that we will not forget, and the future that is ours to create."[3]

We know that our food sovereignty did not begin with Makoce Ag or many of the federal or local policies from the past or present. It began with the ingenuity and just the very 'being' of our ancestors. That ingenuity has been carried on through the knowledge of agricultural mentors like Leslie Henry, buffalo caretakers like Edward Iron Cloud III, ally entrepreneurs like Mark Tilsen, and young learners like us and the youth that convene in our spaces.

We will cultivate a viable, regional food system by forming partnerships to strengthen our work, adopting new policies for continued equity, building new infrastructure, fostering entrepreneurship to spur fresh economic activity, and securing monetary resources to support our ideas.

Our ability to grow the vision of those before us, use the lands that have long provided for us, and unite the youngest and eldest of generations to work together is greater than any time before.

We are not colonized. We are not confined.

As individuals, families, and communities, we grow.

For a more extensive executive summary, read the *Makoce Agriculture Development Food Systems Summary*.


WHOLE
TURKEY
HOMEGROWN
PORK + POULTRY
Pork
Chops - $12/lb
Ribs - $9/lb
Side Pork - $9/lb
Roasts - $6.50/lb
Steaks - $6.50/lb
Ground - $6.50/lb
Whole Duck - $7.50/lb
Chicken
Whole - $4.25/lb
Gizzards - $5/lb
Hearts/Livers - $4.50/lb
Feet - $4/lb
Necks - $2.75/lb
Turkey
All - Natural
CHICKEN
PORK
TURKEY


TRIBE CALLED RED
NATION

The American Indian is of the soil, whether it be the region of forests, plains, pueblos, or mesas. He fits into the landscape, for the hand that fashioned the continent also fashioned the man for his surroundings. He once grew as the wild sunflowers; he belongs just as the buffalo belonged.[4]

– Lalá Luther Standing Bear[5]

Introduction

"Makoce in the Lakȟóta Language means 'Homeland.' This word encompasses what it means to identify with a place. Throughout history, Lakȟóta people have always been identified as the 'People of the Plains' or 'The People of the Black Hills,' but the reality is that we have always identified with any place(s) we called home. Our traditional homelands are the Northern Great Plains and the Black Hills region, but the places we called home began to change with the 1851 and 1868 Fort Laramie Treaties and the unceded territory of our homelands. These treaties outlined areas of land that are still relevant to us today, and we continue to have a relationship with the traditional territory and all that it provides to our relationship as a sovereign people. Our land continued to be taken from us with the establishment of five reservations across South Dakota. Today we call our modern homelands the Pine Ridge Indian Reservation (est. 1889) which resides in the southwest corner of what is now known as the state of South Dakota. This reservation is home to the Oglála Lakȟóta Oyáte (People) and its [over] 25,000 tribal citizens and its nine districts. As Lakȟóta people, we have always valued the origins that root us back to our history and our relationship to Uŋčí Makhá (mother earth), through our culture and spirituality. When we use the word Makoce we are talking about a place and the land that is the foundation of who we are, that which created us, a relative past that we will not forget, and the future that is ours to create."[6]

Many consider our homelands, including by federal designation, a food desert. We know there is a food oasis surrounding our people.

In 2022, we at Makoce Agriculture Development (Makoce Ag) devised a plan to work with Sweet Grass Consulting to conduct a food systems study to explore the oasis among the plains, to better understand how we can regenerate the "oasis," cultivate new ideas, and harvest the benefits of a local food system. This report, and many other tangential deliverables, document our findings to be used by many like-minded organizations to create a thriving food economy for our people and the region for generations to come.

Makoce Agriculture Development

Makoce Agriculture Development is a 501(c)3 non-profit operating in Porcupine, South Dakota, on the Pine Ridge Reservation. Our local professionals operate in the following five initiatives:

- Food Systems Institute
- Food Hub
- Regenerative Production Farm
- Hemp Production
- Oceti Sakowin Food Systems Alliance

> In South Dakota we have some of the best soils west of the Missouri River, yet our people are starving and malnourished, and we live in what is classified as a 'food desert.' [. . .] In addition to unsustainable resource management, the forced reliance on commodity foods and the adoption of nontraditional foodways perpetuates food colonization and contributes to high rates of preventable illness, such as type 2 diabetes, among Indigenous communities.[7]
> *– Lekší Richard T. Sherman, Oglála Lakȟóta Elder and Ethnobotanist*[8]

"The Oglála Lakȟóta people thrived for centuries as a self-sustaining community. In modern times, 95% of food and basic goods are hauled onto the Oglala Lakota Nation [Oglála Lakȟóta Oyáte] by trucks, perpetuating a phenomenon known as a 'food desert.' Often the food that is sold locally is expensive and consists of 'junk foods.' Many families drive over 75 miles to access fresh produce and affordable foods. While we have a huge land base here, 95% of all our food is shipped onto the reservation. This primarily comes in the form of 'junk foods' for the nine local convenience stores/gas stations. We need to work to improve policies around land access for Native producers, education on healthy growing practices, and develop the infrastructures and processors for agriculture and food production. For so long, the communities have been disconnected from where their food comes from. This is impacting the childhood obesity rates because youth are eating the food available to them through commodities, convenience stores, concessions at sports, and community events. By creating a local food system, we will create uses of our own lands that will build our local economy and strengthen our community and relationship to the natural environment."[9]

Oglála Lakȟóta Food Sovereignty

We have been systematically disadvantaged, but now is the time for real local systems change designed and developed with our own place-based ideas and solutions. Agriculture and food systems development will always be a foundational focus for human life, economy, community, and health. Makoce Ag is a modern organization focused on developing modern food systems with the principles of holistic environment connection and regenerative agricultural practices. Our focus is to utilize our lands, our people, and our traditional thoughts and systems to bring ourselves to be a thriving Oglála Lakȟóta Oyáte. Makoce Ag focuses on diverse food systems development. We will work with market research, a large land base, large workforce, development of tribal lands, local markets, business and job creation, and partner with existing and new local producers to develop a local food system. We will develop a central location called The Food Hub & Business District that will be a farm designed to educate, train, collaborate, and exist for the local community to visually see and participate in.

With the legalization of hemp in the 2018 Farm Bill, Makoce Ag will help develop opportunities for local growers and create processing outlets for

local supply. Makoce Ag will be a central location for local poultry and hemp producers as an access point for their local produce. We will lease out and develop infrastructure and facilities as a local needed investment for the benefit of developing access, economy, and entrepreneurship. Makoce Ag is leading a local and grassroots effort focused on developing the needed infrastructure and resources to create local agriculture and a local food system for the betterment of the environment and community.[10] With the help of partners like Tanka Fund, Oyate Teca, One Spirit, Sicangu Food Sovereignty Initiative, and others, they "are combining efforts to dedicate more and more lands for traditional uses, buffalo stewardship, and the foraging and local sales of traditional food sources."[11] Partners and potential partnerships are mentioned throughout this report. See Appendix A for an extensive list of partners and potentials. Appendix B details funding related partners and opportunities.

Like so much of our lifeways being appropriated in the market today—the velvet "prairie princess" for sale on the truck stop wall, dream catchers in grocery store claw machines, and the plumes adorned by non-Indians, the agricultural and food-ways practiced by our relatives, once labeled as savage, backwards, and irrational have been turned into billion-dollar industries. The label of irrationality imposed on us by white settlers years ago is now being praised and dollarized under the names of sustainability and regenerative agriculture. We aim to ensure these are not buzz words we have grasped onto for mere economic profits in modern times. These are the teachings that our ancestors planted and cultivated. We are modifying and adapting them as we live our lives, tell our stories, actuate self-determination in the homelands, and exert our sovereignty as the Oglála Lakȟóta Oyáte.

We know that our food sovereignty did not begin with Makoce Ag or many of the federal or local policies from the past or present. They began with the ingenuity and just the very "being" of our ancestors and have been carried on today through the knowledge of agricultural mentors like Leslie Henry, buffalo caretakers like Edward Iron Cloud III, ally entrepreneurs like Mark Tilsen, and younglearners like us and the youth that convene in our spaces.

However, we do want to highlight three seminal documents that contributed to the very foundations of Makoce Ag and provide impetus and specific information to carry ourselves and our food systems in a sovereign way. One, the Oyate Omniciyé completed a strategic plan in 2012, The Oglala Lakota Plan, for our Tribe developed in a community-driven, Lakota way like none other before it. Roughly translated, Oyate Omniciyé means "the circle meetings of the people."[12] The Oyate Omniciyé, though spearheaded by Thunder Valley Community Development Corporation also helped further develop Thunder Valley and many other programs and services for our Tribe for nearly 15 years. The Oglala Lakota Plan specified recommendations for regional planning, governance, youth and young ones, model community, education, land use, environment, communications, and transportation that Makoce Ag still uses today. Two, when Nick Hernandez, our CEO, was the Food Sovereignty Director at Thunder Valley, he worked with Sweet Grass on the study, *Wakígnakapi: Developing a Food Hub and Grocery Store for the Oglala Lakota Oyáte*. This feasibility study outlined the Oglála Lakȟóta needs, strengths, potentials, partners, and next steps, further iterating the need for a regional agriculture entity like Makoce Ag. That study has helped plan and direct our creation and has led to much of the direction of this new study. Third, the energy and planning that the Native American Agriculture Fund brought to everyone's attention, highlighting the need for regional food hubs, initiated by Native Nations, has been paramount to our planning and efforts. Their publication, *Reimagining Native Food Economics: A Vision for Native Food and Agriculture Infrastructure Building and Recovery*, put our relatives and our organizations at the forefront of being food change makers.[13]

We will begin by delving into the knowledge of our ancestors and the suffering they endured to carry us to where we are today.

When I was young, my mother always said: 'Wóyute kiŋ wakȟáŋ inapiškaŋ sní yo,' food is sacred so don't waste it. Broken down, the word for food is: wó (collectively) and yute (eat), collectively in a group you partake in food. My mother would say, 'Tuwéni išnála wótA sní yelo,' no one eats alone.

– Richard Šúŋka Núŋpa,
Oglála Lakȟóta Elder and Healer

Food for Thought

From Sovereignty to the Distaste of Red Tape and Back Again

The Oglála Lakȟóta and Knowing Food on the Prairie

In the Teton dialect, all who were related were called Lakȟóta, or 'allied.'[14] The Lakȟóta or Thíthȟuŋwaŋ (Teton), along with our close Dakhóta and Nakota relatives, are divided into seven socio-political groups known collectively as The Očhéthi Šakówiŋ, or seven council fires. The Lakȟóta are additionally comprised of seven bands, the largest of which is the Oglála, which represents the majority population on Pine Ridge.

Despite constant social, political, and economic changes across the Plains and Great Lakes regions, the Lakȟóta successfully adapted over generations. However, our enclosure within militarily enforced reservation boundaries and decades of paternalistic US policies eventually led to changes that restricted our capacity to continue to adapt.

Even today, we continue to be squeezed by a socio-economic system that places our natural resources and other capital above the human being, further constricting our capacity to change, thrive, and regenerate.

Until the mid-seventeenth century, most of the Očhéthi Šakówiŋ inhabited the coniferous forests around Mille Lacs in present day Mnísota, known as Minnesota, the grasslands and forests surrounding the Mississippi and Minnesota Rivers, the tall-grass prairies of present western Minnesota and eastern North and South Dakota.[15] Many of our closest relatives emerged from Wašúŋ Tȟáŋka (Wind Cave), in the southeast fringe of the Sacred Ȟesápa (Black Hills).

Even before then, we engaged in an economy—a lifeway of reciprocity—that cannot be classified by the simple farmer/forager dichotomy that historians and media have long used to simplify Indigenous peoples. Some Lakȟóta bands were horticulturalists, though most subsisted from hunting, gathering, fishing and trading hides for produce from the horticultural tribes of the Missouri River Valley.[16] The Lakȟóta acknowledged the importance of extensive trade relations with the Mandan and Hidatsa horticultural communities.[17] The corn and grains our relatives acquired through trade for buffalo hides broadened their dietary range and increased their adaptation to environmental pressures such as droughts, blizzards, and bison herd fluctuations. The High Plains were inhospitable without a multifaceted economy. We have always relied on trade and regional networks. Our ancestors knew this to be more environmentally and socially sustainable.[18]

Iroquois westward immigration instigated by the encroachment of European settlers forced the migration of Lakȟóta people across the Missouri River, though several Očhéthi Šakówiŋ bands remained near the Mississippi River and west of the Missouri, practicing subsistence horticulture until the nineteenth century.[19] Among the Lakota horticultural relatives were the Mnikȟáŋwožu which translates as 'plant at water'; the Bdewákhaŋthuŋwaŋ (Mdewakanton) who cultivated corn and beans on the Minnesota and Missouri Rivers; and the Ihánkthuŋwaŋna (Yanktonai) of eastern North and South Dakota, who, according to an 1803 witness were already "tillers of the soil."[20] Additionally, Jesuits recounted that Lakȟóta relatives "till[ed] the soil [. . .] and harvest[ed] Indian corn and Tobacco."[21]

Before settling on the High Plains, our relatives utilized environmental processes that favored horticultural production; however, except in the river valleys, and without modern advancements and adaptations, horticulture was not a viable option for food production on the High Plains.

From a distance, the High Plains resemble a homogeneous expanse of grasses, a dry expanse of grasses depending on the season and adverse effects of climate change. This mental picture undoubtedly helps the mind wander towards thoughts of a food desert. A closer look, however, reveals an abundance of subsistence opportunities, a food oasis, as described by Reginaldo Haslett-Marroquin, author, and CEO of Tree Range Farms. While bringing his expertise of regenerative agriculture and knowledge of tree-range farming to our circle for over a decade, Regis has made the abundance of our oasis clear in his discussions of our land stewardship and guidance for our planned systems.

The Great Plains provided a fresh abundance of reliable food sources as well as dependable resources for clothing, shelter, and culturally significant items such as porcupine quills, an art and utilitarian medium prior to the introduction of European glass beads. Like previous inhabitants of the central and northern Plains, our relatives subsisted on vast buffalo herds of up to sixty million, pronghorn antelope, deer, and an array of wild plants. Careful attention to astrological patterns, bird migrations and other environmental indicators, enabled the Lakȟóta to strategize subsistence practices on the Plains.[22] Ecological phenomenon often dictated the occurrence of subsistence events and mobility patterns. As a traditional Lakȟóta knowledge holder taught, "When the buffalo followed the stars and we followed the buffalo we had the harmony of not living in sedentary villages [. . .] huge contaminated waste sites. Our people knew that the land has [a] level of tolerance [and] that you can only use it for a certain amount of time and then you have to move."[23]

Our Lakȟóta relatives adapted to ecological occurrences and geographical position. Bison hunts, annual wild plant harvests, and the defense, shelter, and knowledge of animal habitats within eco-tonal boundaries were utilized as subsistence strategies.[24]

They Were "Destined" for Land Theft

The premise of Manifest Destiny was that westward expansion across the North American continent was ordained by God, the Creator, as defined by western Christian belief. Federal policies and social ideologies followed this. Additionally, if a man left land uncultivated it was deemed "more than he knew what to do with, or his industry could reach to."[25] These words were adhered to by individuals, and the US government further marketed the entitlement of western lands and resources toward non-Indians. Like the economist John Locke before them, settler colonialists assumed that cultivation and extraction of natural resources maximized benefits. They disregarded spiritual benefits and less ecologically degrading extractions such as seasonal hunting and gathering as primitive and wild (as opposed to sustainable, local, and balanced). Thus, to adherents of Manifest Destiny, the Lakȟóta ancestors were considered 'irrational' for not engaging in intensified agricultural practices aimed to strengthen the US credibility in the global market. Today, terms like sustainable, local, and balanced—terms that described the motivation of our people for centuries—have been adopted and marketed to the tune of billions of dollars.[26]

As aristocrats and common people labeled us as savage, they used their perceptions of our 'irrationality' to further steal our land base and sever us from economic and sacred resources. Thus, the US created dependent relationships across the western frontier whereby Indigenous Nations needed US intervention for the basic needs of food and shelter. As our dependency increased, newly conquered territories furthered the United States' access to valuable resources (i.e., furs, gold, and farmland) for the emerging global market economy.

The US accumulated their capital wealth from the same lands we buried our relatives massacred by US soldiers and citizens.

When our Indigenous relatives used conflict to halt US land expansion capitalist profiteers received political backing in the way of armed military forces and the implementation of new laws. The US political system was continually being restructured through treaty abrogation to "gain advantages in the marketplace." "People before profit" soaked the plains long before the slogan.[27]

Treaty of 1851

The Fort Laramie Treaty of 1851—one of the first federal regulations forced upon the Lakota—delegated unreserved tribal boundaries for hunting and gathering purposes to our close relatives and several other Indigenous Nations. These boundaries encompassed most of present-day South Dakota west of the Missouri River, and included sections of Nebraska, Montana, Wyoming, and North Dakota. The treaty was the first to bind us with foreign land policy and alienate us from the lands we stewarded. By alienating us from our lands—from the backbone of our traditional lifeways—the US was able to maximize natural resource values within the global market economy.

In 1903, Red Cloud reminisced and reprimanded, "The Great Spirit made us, the Indians, and gave us this land we live in. He gave us the buffalo, the antelope, and the deer for food and clothing. We moved on our hunting grounds from the Minnesota to the Platte and from the Mississippi to the great mountains. No one put bounds about us. We were free as the winds and like the eagle, heard no man's command [. . .] Where the tipi was, there we stayed, and no house imprisoned us. No one said, "To this line is my land, to that is yours. The white man came and took our lands from us. They put [us] in bounds and made laws for us [. . .] the white man-made laws to suit themselves and they compel us to obey them."[28]

Before the Treaty of 1851 and the prior wave of western immigration, our people utilized over 1,000,000 square miles of Turtle Island (present day North America).

According to federal legislatures, the '51 treaty sought to preserve intertribal peace as well as peace with non-Indians but concurrently permitted road construction across the expansive Dakota Territory though road construction and travel was already commonplace in the area.[29] Only 165 miles separated the cities of Pierre and Rapid City, South Dakota, yet horseback through the unreserved tribal boundaries was the only feasible thoroughfare. Nearly one thousand miles separated the cities by nearest roadway.[30] Despite US promises to end settler colonialism, the main automobile thoroughfare from Pierre to Mnilúzahaŋ-Otȟúŋwahe (Rapid City) in the Ȟesápa was cut through the area. This furthered our loss of mobility, prime hunting grounds, trade routes, and sacred connections with place. As covered wagons dotted the prairie along the Platte River, known as the Thukí-Wakpá or Shell River to our people, the few wild buffalo that weren't massacred retreated northward.[31]

Homestead Act of 1862

As policy and extraction paved the way for land encroachment, southern cattle barons and homesteaders expanded westward.[32] Immigrant homesteaders populated the region after southwestern cowboys, politicians, and the military christened the plains with laws, railroads, and businesses.[33] As migration increased, The Homestead Act of 1862 allotted land to non-Indian homesteaders eager to engage in agricultural production. According to a 2006 study conducted in counties in North Dakota and South Dakota, 60% of the farmer and rancher participants acquired their land from ancestor beneficiaries of the Homestead Act.[34]

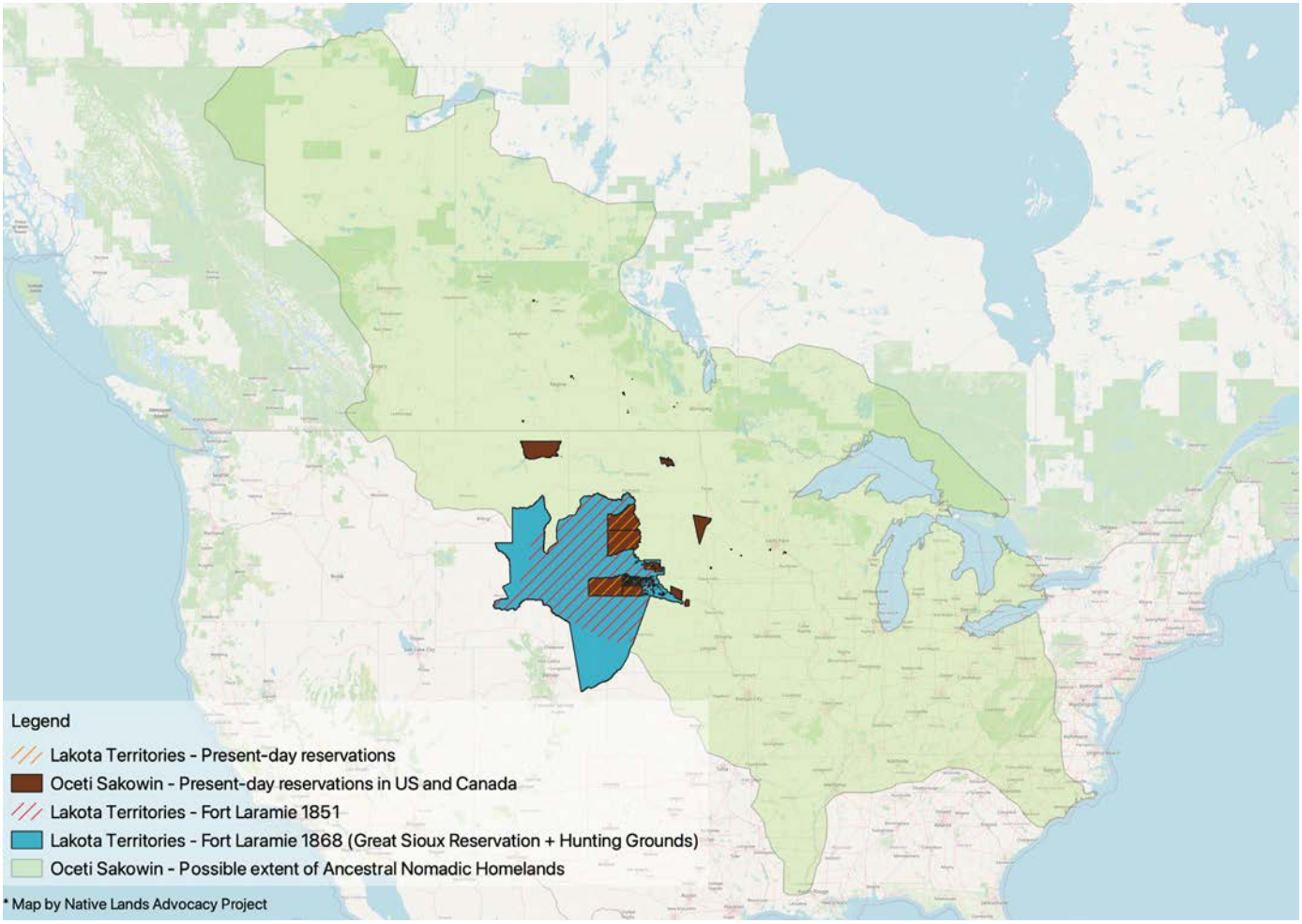
Treaty of 1868

As mutual distrust between our ancestors and settler colonists intensified, the federal government flaunted its power of position through increased treaty abrogation. The Fort Laramie Treaty of 1868 abrogated the 1851 treaty and guaranteed the Lakȟóta "absolute and undisturbed use and occupation" of Indian lands labeled the Great Sioux

Reservation (93,750 mi^2 or 60,000,000 acres of ancestral hunting lands and valuable wilderness) while confiscating surrounding lands and hunting territories in exchange for annuities, rations, and land cessions.[35] Lakȟóta mobility and thus utility of migratory game hunts and plant harvests were confined to present day South Dakota west of the Missouri River and north to the Heart River in North Dakota, with "red-taped" hunting grounds extending into adjacent territories.[36]

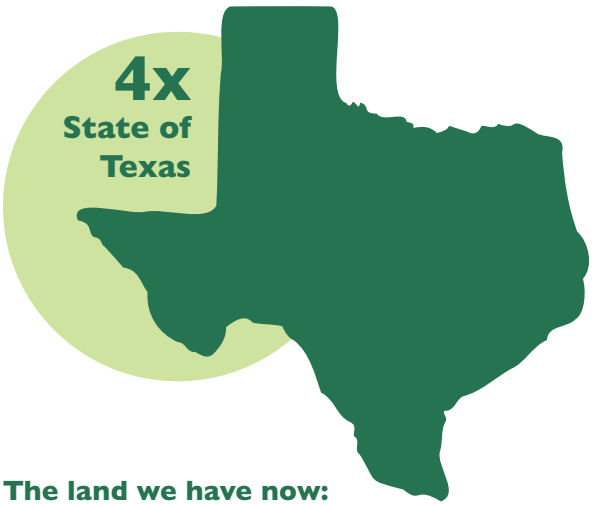
Stealing Ȟesápa

History continually repeats itself if lifeways do not go unchecked from a critical, ethical, and equitable lens. As American lust for land security and economic prosperity heightened, hunting grounds and useful resources from the Thukí-Wakpá (Shell River) west to Wyoming's Powder River were considered invaluable to US capital wealth building. A federal land seizure shortly after gold discoveries between 1871 and 1874 included the resource rich and spiritually important Ȟesápa. An incessant urge for governmental control of the region prompted migrant trespassing on our ancestral homelands.[37] Political and social maneuvers by the US during this time implied that the further our people were pushed the more of a nuisance we had become. The Great Sioux War of 1876–1877 ensued as federal forces again encroached on our Lakȟóta hunting grounds, spiritual sites, and lifeways—areas the US had continually politicized as ours. Concluding the



war, our Lakȟóta relatives succumbed to reservation confinements.[38] Lakȟóta lands shriveled to 43,000 square miles (nearly 2.8 million acres), less than half of the 93,750 square miles that the Fort Laramie Treaty of 1868 had designated for the "absolute and undisturbed use and occupation" of Lakȟóta people, less than 5% of the 1,000,000 square miles (640 million acres) that the parents of our great-great grandfather Míla YatáŋpikA—Knife Chief—stewarded.[39]

The land we once had:



The land we have now:

> There is not and never has been a human attitude taken toward the Indian; no acknowledgment of his virtues; no friendly acceptance of his native abilities. He has been made to feel segregation. Since the Indian wars ended the white man has so busied himself wresting riches from the land that its people have been forgotten.[40]
> *– Lalá Luther Standing Bear*

Dawes Act of 1887

The General Allotment Act, or Dawes Act of 1887, parceled 160 acres to individual heads of households within reservation boundaries undermining the Lakȟóta communal landscape in favor of the checkerboarding that plagues Native Nations today.[41] The term 'agriculture' throughout the Dawes Act signified federal expectations for use of the Dakota prairie. Future policies would fully support such expectations for an 'agricultural' prairie society. A competency clause within the 1906 Burke Act enabled the Secretary of Interior to deem elderly and those not 'agriculturally productive' as incompetent, which provided reason enough for further land seizures. There have been stories of people not wanting to use a plow, or of relatives with a crossed eye, being deemed incompetent on those traits alone so their land could be re-stolen. Lakȟóta who were deemed competent were provided fee patents by the Act, granting them ownership of their allotments and forcing them into tax status, a status not understood by our people at the time.[42] Competency commissioners scoured the prairie, removing Lakȟóta lands from trust status. At the same time, "Dakota land boomers" rallied on the East Coast awaiting land dispossessions by our relatives unable to pay the coerced taxation on their newly acquired land.[43] Sadly, with few economic reserves, many of our families defaulted and hastily sold their lands to non-Indian ranchers, further fragmenting the land base.[44]

According to Locke, "As much land as a man tills, plants, improves, cultivates, and can use the product of, so much is his property."[45] Reconstructing the Lakȟóta social and environmental landscape according to capitalist principles strengthened the US political system while simultaneously weakening our lifeways. As noted by Oglála Ethnobotanist Richard T. Sherman, "Like most other Indigenous groups worldwide, Lakota people have suffered severe land loss. One result of having our natural resources taken

from us is the depletion of our traditional food and medicinal plants and animals. Overgrazing eventually became a palpable problem on Lakota lands. When cattle were removed from the range at the end of the summer, there was neither food nor cover for wildlife, particularly, when they needed it the most in order to gain weight and fat for the winter."[46]

The relinquishment of Lakȟóta communal property rights devastated the reservation economy and complicates issues of tribal sovereignty even today.[47] Individual land ownership and provisions of American citizenship (another ambiguous and irrelevant concept to our ancestors) ensured by Article VI of the Dawes Act were also means to degrade our people and fracture our existence.[48] Our ancestors, one broken treaty at a time, were coerced into sedentism and disconnected from much of the spaces we stewarded.

Distrust grew for white men as treaty commissioners brought gifts and annuities to councils while divesting our ancestors of their lands and freedoms through treaties and lies.[49] Agriculture was not presented to our Lakȟóta relatives as an alternative subsistence practice; it was a tool for land cession and cultural genocide, a forced conversion and a divergent lifestyle. Gall of the Húŋkpapȟa conceptualized the oppressive nature of conversion:

[We] have been taught to hunt and live on the game. You tell us that we must learn to farm and live in one house, and take on your ways. Suppose the people living beyond the great sea should come and tell you that you must stop farming and kill your cattle, and take your houses and lands; what would you do?[50]

Gall leaves a lot to ponder. What would have happened had buffalo been left to roam freely? The commerce that would have occurred across Indigenous Nations and extended to other nations such as those represented by colonists would have been incalculable. The labor and resources that would have been saved is unfathomable. Instead, those resources were spent murdering nearly the entire pté-oyáte (Buffalo Nation), shipping cattle across treacherous waters in which people often could not survive, diverging water sources, clearing land, and building millions of miles of fences for crops and animals that oftentimes cannot even survive today without intensive chemical inputs. Now, global organizations like the World Wildlife Fund, strive to fund small glimpses of the buffalo open herd dream.

Twentieth-Century Land Theft Politics

> As the world's population moves increasingly onto marginal land—and already more than half a billion people live in deserts or semiarid places—and as unfavorable shifts in climate appear likely, even in temperate zones, the need for ecologically adaptive cultures becomes all the more crucial. Capitalism cannot fill that need; all its drives and motives tend to push the other way toward overrunning a fragile earth. Man, therefore, needs another kind of farming by which he can satisfy his needs without making a wasteland.[51] – *Donald Worster*

Though farming—the diversion of natural systems and processes to fulfill human goals—sustained Indigenous communities and landscapes for millennia, agriculturally-inspired settlement of the Great Plains during the 1870s and the commodification of land led to unprecedented ecosystem and cultural

devastation.[52] Governmental thieving of Indigenous lands during the nineteenth century enabled non-Indian farmers in search of economic opportunities access to land parcels and entrepreneurs continually commoditized Indian land via mineral extraction, railroading, and agriculture during the Dakota migration boom from 1878–1887.[53] In 1870, the population of Dakota Territory was 12,887 but it had risen to more than 328,000 by 1890.[54]

In 1889, the opening of 11 million acres of Lakȟóta lands provided cattle ranchers with opportunities to double their herds within three years, initiating a period of unsustainable land use practices that continues today.[55] By 1900, the Indian Office had approved 53,168 land allotments across Turtle Island, yet they deemed nearly 66 million acres of land as surplus and handed them over to non-Indians.[56] To avoid starvation or further land seizures, many Lakȟóta, stripped of our communal landscapes, spiritual sites, and socio-political structures, succumbed to farming and cattle ranching. By 1902, our relatives on the Pine Ridge Reservation were successful, owning 31,000 head of cattle.[57]

> The truth is that the Sioux have been disinherited; there is no reservation. The fence that once surrounded it, defining its territory, has been torn down. White cattleman has been allowed to bring their cattle on Sioux grazing ground on the promise to pay twenty-five cents a head for pasturage. But it was not long after the white man's cattle came that the Indian's cattle began to disappear, and the white man's herd began to increase. The Indian herds have now ceased to exist.[58] – *Lalá Luther Standing Bear*

World War I

As cattle ranching declined during World War I, Indigenous farmers were encouraged to sell their herds for high war-time price. White ranchers consequently leased the lands, and by 1921, most of Pine Ridge was in non-Indian hands.[59] The value of wheat prices rose, and subsistence-based Lakȟóta and non-Indian wheat farmers, aware of economic opportunities, delved into the global market economy.[60] Within two decades, however, non-Indian industrial operators, backed by discriminatory policies, snuffed Lakȟóta profitability. Economic relations played out strikingly similar to political relations; the US and state governments, lucrative cattle corporations and international financiers were cut-throat allies in the global market economy, having little or no sympathy for small scale farmers.[61] With limited options to compete in the global market system, many of the remaining Lakȟóta ranchers sold or devoured their herds and leased out to non-Indians.[62] Chief Black Horn, when visiting with Luther Standing Bear once said, "There was a time when all the Indians had plenty of cattle, but after the white man was allowed to bring his stock in on our reserve there was much confusion. We would like to raise cattle, but it's useless to try in the present condition of things."[63]

New Deal, Same Premise

At the close of World War I, economic and ecological impacts of the 1930s inspired new alternatives to conventional agriculture. As part of Roosevelt's New Deal, agricultural and land use councils were established to assess and address the social and ecological devastation caused by intensified agricultural production on the Great Plains. In what was touted as efforts to prevent the further demise of prairie ecosystems, councils emphasized conservation land use practices, subsistence farming, decentralized grassroots land policy initiatives,

decreased 'factory farming,' and controlling capital concentration.[64] Despite the shift toward "New Deal thinking," agricultural policy change and agricultural economic restructuring was unsubstantial and lacked support from the USDA and Congress, being touted as ideas "devised by intellectuals [and] wholly impractical."[65] The US bureaucracies had not yet envisioned how regenerative agricultural practices were the best way forward for our families, local economies, and ecosystems.

Indian Reorganization Act

Despite a lack of support for many New Deal policies, the Indian Reorganization Act was passed during this time period. The act ended further allotments.

47 years under the Dawes Act had already led to the confiscation of 86,000,000 acres of Indian lands, 60% of Indigenous peoples 'secured' land base.[66] This also became the era when many of our Indigenous relatives were cornered into adopting the westernized style of governments that have contributed to our internal and lateral oppression today.

Another Attempt at Termination

The Lakȟóta continually suffered federally derived hardships during the post-war era. The termination era, from 1953–1970, when the US government attempted to end trust agreements in an effort to rid US taxpayers from what they considered "the Indian problem," sought in new subtler ways to assimilate our people and simultaneously expand federal access to natural resources to fuel post-war consumption. Separating Indigenous peoples from reservations would provide uninhibited access to gas, oil, timber, and farmland. "During this time, three million acres of tribal lands were relinquished."[67] House Concurrent Resolution 108 passed in 1953 and called for termination "at the earliest time possible" of various tribes.[68] The resolution sought to end the reservation system, cease federally mandated responsibility for Indian well-being (the mandate had never been actualized), and acculturate American Indians as US citizens.[69]

They Undervalue(d) Our Worth

In the 1950s, land collateral paved the way for non-Indian land acquisition, and dishonest bankers failed to collateralize Lakȟóta trust lands. This is still an ongoing, racist impediment today for the development of housing, agriculture, tourism, and more in Indigenous communities. In addition, trust lands could not be collateralized to acquire the technological upgrades necessary to expand production and decrease unit costs. Non-Indian agriculturalists thrived within the same economic conditions that left Indigenous farmers plagued by fragmented lands, leasing, and inadequate access to capital.[70] As a result of discriminatory policy, only 21.4% of Pine Ridge Indians were engaged in agriculture by 1956.[71] Though they made up the largest rural minority, the number of Indigenous farmers decreased from 45% of the total in 1945 to 10% in 1960.[72] Like previous periods of forced assimilation, the termination era heightened Lakȟóta economic, political, and environmental alienation.

By 1970, increasing inaccessibility to credit and loans led to the selling of Lakȟóta lands to non-Indians at a rate of 30,000 acres a year. Non-Indians, state, and county governments owned 45.6% of the Pine Ridge Indian Reservation by 1971. Like today, most agriculturalists at the time practiced grazing or dry land farming. In an effort to reacquire Lakȟóta lands

and promote economic development, the tribal government initiated the Oglala Sioux Farm and Ranch Enterprise, although profitability was minimal as 51% of the reservation continued to be leased to non-Indians. The land necessary to successfully graze livestock and economically secure a household was unavailable due to the fragmentation of the land base.[73]

By the 1980s several programs had been developed to assist Indians lacking collateral to obtain loans. Still today, most people have never heard of them, and entities like the South Dakota Native Homeownership Coalition works tirelessly to build partnerships with lenders and policy makers to create innovative lending strategies on Native lands. As never before, water access motivated land acquisition in the later 20th century; increasing the non-Indian land base would simultaneously increase federal and state-supported water rights adjustments to non-Indians.[74] Therefore, with continual frustrations and failing agricultural policies, Indian farming declined in the 1980s. Sadly, a symbol of the devastating effects of global capital expansion and the expropriation of resources, cattle numbers reached 28 million in 1992, equaling a conservative estimate of the buffalo populations with which our relatives had lived symbiotically prior to European contact.[75] In 2009, cattle and calf numbers reached 94.5 million nationwide.[76] In the beginning of 2010, cattle and calves in the United States totaled 93.9 million.[77]

There has been an attempted genocide of our people; we see it in the eyes, feel it in the air, and witness it in our homelands every day. We are not colonized. We are not confined. As individuals, families, and communities, we grow.

Now, we will delve into how we collected the information for this study.

Methods

Literature Review and Existing Data

Over 100 books, articles, pamphlets, and other materials from university-led studies, agriculturalists, food hubs, Lakȟóta ethnobotanists, cultural anthropologists, and federal and state reports were read and analyzed. This information was used to fully understand the components of a food systems approach, digest lessons learned, guide our methods and report outline, and further situate this study within the parameters of self-determination and sovereignty. Of particular use was the *Oyate Omniciyé*—The Oglala Lakota Plan—completed in 2012, Thunder Valley Community Development Corporation's 2018 *Wakígnakapi: Developing a Food Hub and Grocery Store for the Oglala Lakota Oyate*, and Native American Agriculture Fund's *Reimagining Native Food Economics: A Vision for Native Food and Agriculture Infrastructure Building and Recovery*.

Primary and Secondary Data Review and Analysis

Data from the US Department of Agriculture (USDA), US Department of Housing and Urban Development (HUD), Food and Drug Administration (FDA), Bureau of Labor Statistics (BLS), and US Census, American Community Survey (ACS), among others were used. The Native Land Information System (NLIS)—"a repository of learning resources, information, and data to help defend and protect Native lands for the benefit of Native peoples"—developed by the late David Bartecchi was used extensively for Oglála Oyáte-specific and Indigenous lands data. The motto of NLIS: "Our Future is in Our Lands" is paramount to our sovereignty and self-determination due to the continued land theft, as contextualized in the sections above.[78]

Key Opinion Leaders

To deepen our understanding of the landscape of food production, distribution, and consumption in our communities, we identified and interviewed several community members with personal and professional ties to the food system(s) in and around Pine Ridge. In total, 22 key opinion leaders (KOLs) were interviewed either via Zoom video chat or by phone. Of these 22 individuals, 12 are agriculture leaders, seven are institutional food buyers, and three are ranchers, farmers, and/or producers. These interviews explored each KOL's involvement in the food system and their unique perspective on its strengths and weaknesses, as well as favorable opportunities. The organizations represented by KOL interviewees are listed below.

12 Agriculture Leaders and Other Knowledge Holders

- Black Hills Farmers' Market (x2)
- KLJ Engineering & Planning Services
- Native American Natural Foods
- One Spirit
- OST Buffalo Program
- OST Credit and Finance Program
- OST Transportation
- Pine Ridge Area Chamber of Commerce
- Regenerative Agriculture Alliance
- Tanka Fund
- World Wildlife Fund

7 Institutional Food Buyers

- Kyle Early Head Start
- Meade County School District
- Oglala Lakota County Schools
- Pine Ridge Elderly Nutrition Program
- Rapid City Area Schools
- Red Cloud Indian School
- Wall School District

3 Ranchers/Farmers/Producers

- Charging Buffalo Meat House
- Hometown Pork and Poultry
- Meeks Ranch

Wakȟályapi Interviews

Richard Iron Cloud, Makoce Ag employee and elder from the Porcupine District, had coffee visits with other elders to discuss food and all things food-related such as Grandma's recipes, growing and preserving foods, climate change, policy, life stories related to snacks from elders' childhoods, and more.

Some questions used as prompts were as follows:

- What are some of your favorite memories of food?
- What do you miss the most about when you were young?
- What are some things happening today that remind you of when you were young?
- Describe some foods and food-related goods (e.g., homemade soap) you had when you were young that you wish you had more of today.
- What are some changes, for better and worse, that you have seen over your lifetime regarding our communities' ability to provide food for their families?

Economic Multiplier Effect

We used Keynesian multiplier theory to create estimates of a dollar multiplier as local money is circulated and recirculated based on agriculture production, sales, agriculture-related jobs, increased health, the community expense associated with diabetes, and more. There is an old saying: "Every dollar spent locally multiplies 7 times." That is not necessarily true, but using an economic multiplier effect formula helps us to gain reasonable estimates.

Case Studies

12 Native-led and/or regenerative agricultural-based initiatives were studied to better understand key takeaways, challenges, and opportunities that will be useful for the further development of Makoce Ag.

Agricultural Land Mapping

Village Earth assisted Sweet Grass with the maps in this report. ESRI mapping software was used to create the maps in this study. David Bartecchi of Village Earth also created story maps from many of the maps used in this study. Land use and land cover maps were calculated using the USDA's Cropland Data Layer (CDL). The CDL is an agriculture-specific land cover geospatial product developed by the Spatial Analysis Research Section (SARS). SARS uses several inputs to develop a CDL. According to SARS, accuracy is from 80% to 90%.[79]

In Memoriam

Dave Bartecchi
1975–2023

A friend, a colleague, a researcher, a systems designer, a historian, a land connector, a friend to many, a husband and a father passed on from this world doing what he loves but also being a hero to others. Big thanks to all you have done and all your spirit will continue to do!

Natural Resources Conservation Services (NRCS) Soils Crop Productivity Index was used to determine the highest quality agriculture land in South Dakota. To help distinguish the Oglála Oyáte's best farmlands, the NRCS's Gridded Soil Survey Geographic (gSSURGO) database which, with few categories, gives a clearer picture of the quantity and location of farmlands.

The Natural Agricultural Statistic Service (NASS) JAS segments and Farm Services Agency (FSA) Common Land Units (CLU) data were used for vector inputs. "JAS is an annual sample survey conducted by NASS to measure the planted acreage of crops and number of livestock."[80]

- Raster (a technical term for a type of graphic) inputs were received from:
- IRS Resourcesat-1 raw Advanced Wide Field Sensor (AwiFS) Spring/Summertime (i.e., info

from "an advanced remote sensing satellite built by Indian Space Research Organization");[81]

- National Aeronautics and Space Administration (NASA) Terra Moderate Resolution Imaging Spectroradiometer (MODIS) 16-day Normalized Vegetation Indices (NDVI);
- United States Geological Survey (USGS) National Land Cover Database (NLCD);
- USGS NLCD 2001 Impervious and Canopy; and
- USGS National Elevation Dataset (NED) Elevation.

Makoce Agriculture Capacity Assessment

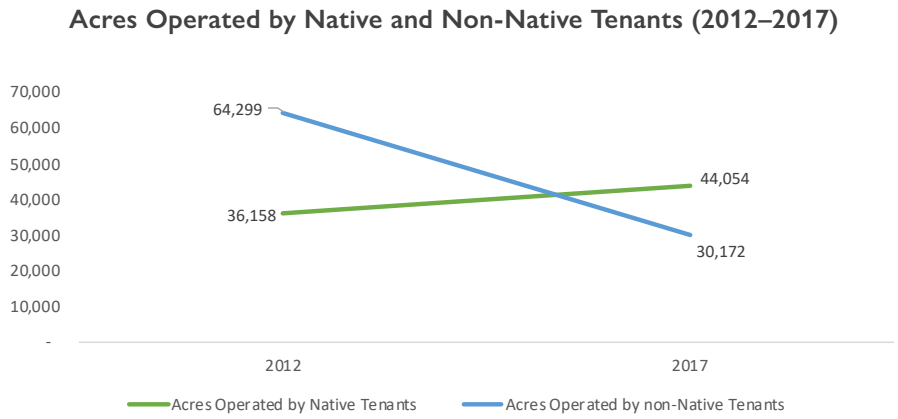
A short survey was developed for each Makoce Ag employee to fill out. Along with personal identifiers such as age and position, the survey asked about each employee's main duties, objectives, initiatives they focus on, and skills they hope to learn. In total, the CEO, eight employees, and one intern completed the survey. This information, along with the other information compiled in this study, was used to determine Makoce Ag's existing and potential internal and partnership capacity to accomplish objectives related to our five initiatives.

Agriculture in the Homelands

Over 2.8 million acres make up the Pine Ridge Reservation.[82] The chart below shows the change in the number of farms and land used as cropland in the 2001, 2012, and 2017 Census of Agriculture for Pine Ridge Reservation.

	2001 Census		2012 Census		2017 Census	
Characteristics	**Total**	**AIAN-Operated Farms**	**Total**	**AIAN-Operated Farms**	**Total**	**AIAN-Operated Farms**
Farms (number)	463	266	363	200	380	223
Land in farms (acres)	2,231,399	1,505,512	2,130,289	1,320,397	2,001,323	1,312,916
Average size of farms (acres)	5,014	5,660	5,869	6,602	5,267	5,888
Reservation acres on farm (acres)	1,851,850	1,337,698	1,549,736	1,163,332	1,416,104	1,090,221
Total cropland (farms)	287	118	204	79	251	117
Total cropland (acres)	270,065	63,525	248,283	0,021	236,262	65,050
Harvested cropland (farms)	252	99	182	70	229	100
Harvested cropland (acres)	190,430	45,347	169,526	32,641	174,660	48,766

From 2012 to 2017, the percentage of acreage operated by Native tenant farmers increased by 22% and the percentage operated by non-Native tenant farmers decreased 53%. In 2012, non-Native tenant farmers controlled 28% more land than Native tenants, whereas in 2017, Native tenants managed 19% more acreage than non-Native tenant farmers.[83]

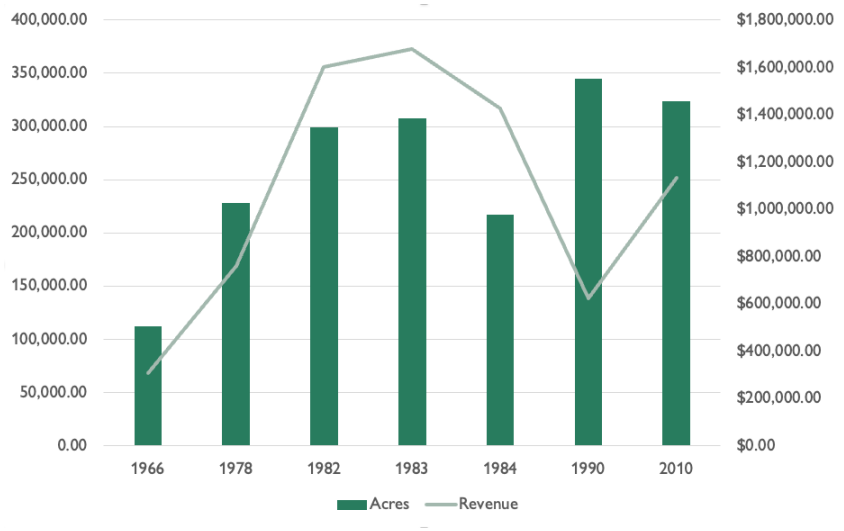


The legal status and ownership of the land varies, as does its classification as trust or fee land. Allotted, Tribal Government, and Tribal Reserve land are held in trust by the federal government for the Oglala Sioux Tribe and tribal members. Fee lands are areas within the Reservation's boundaries but have a status of "fee simple." They are not held in trust by the federal government. Fee lands that are within Reservation boundaries can be purchased by non-tribal members, unlike trust lands. Fee lands are also subject to property taxes. Government lands also make up the Reservation, which are owned by the US government. Most trust land on Pine Ridge is allotted land. Allotted land refers to parcels that were "allotted" to individual tribal members under the General Allotment Act (Dawes Act) of 1887. Allotted lands are held in trust by the US government[84] and, as such, are not taxed, but the process to transfer ownership is also more complicated than that for fee simple lands.[85] This data has changed since Land Buy Back, however, as of fall 2022, the Oglala Sioux Tribe does not have the most up-to-date map and accompanying data.

Land Classification	Total Acres
Allotted to individuals (trust)	1,056,730.80
Fee (deeded)	1,073,486.75
Government	8,626.14
Tribal Government (trust)	663,480.23
Tribal Reserve (trust set aside for schools, towns, etc.)	2,586.71
Total land classified acres	2,804,911.89[86]

Village Earth has worked with the Indian Land Tenure Foundation to reconstruct the history of land leasing on Native reservations, including Pine Ridge. However, they have found only a few government reports with historical data, shown in the chart* below.[87] In general, there has been an increase in lands leased for agriculture on the Pine Ridge Reservation since 1966; however, this data set does not specify whether leases were made to non-Natives, Oglala Sioux Tribe tribal members, or Natives of another tribe. For the 25 years preceding 1995, the general trend across Native lands was a removal and distancing of natural resources and land from Native American control.[88]

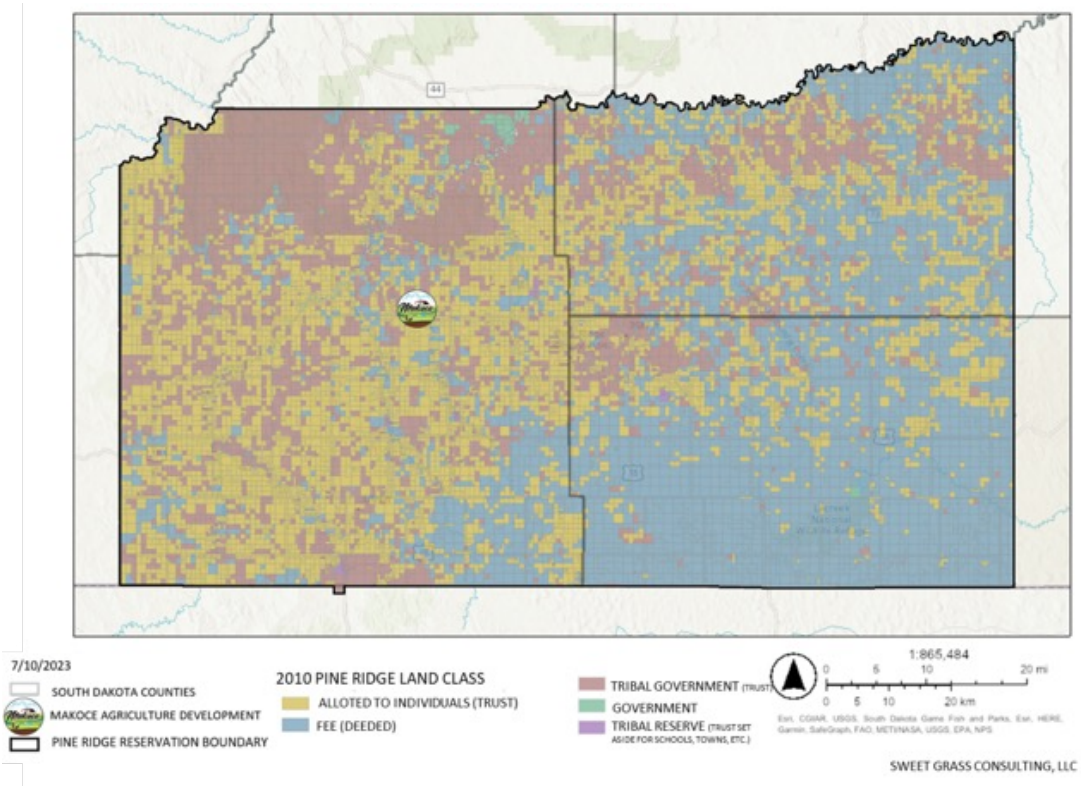
Pine Ridge Agricultural Acres Leased and Revenue



The map on page 30 shows how land within the boundaries of the Pine Ridge Reservation was classified as of 2010.

*Credit of: Carmody et al. (2005). Native Strategic Land Planning: Now and For Future Generations. Indian Working Group, via Thunder Valley Community Development Corporation. (2018). Wakígnakapi: Developing a Food Hub and Grocery Store for the Oglala Lakota Oyáte. pg. 53.

Oglala Lakota Land Classification

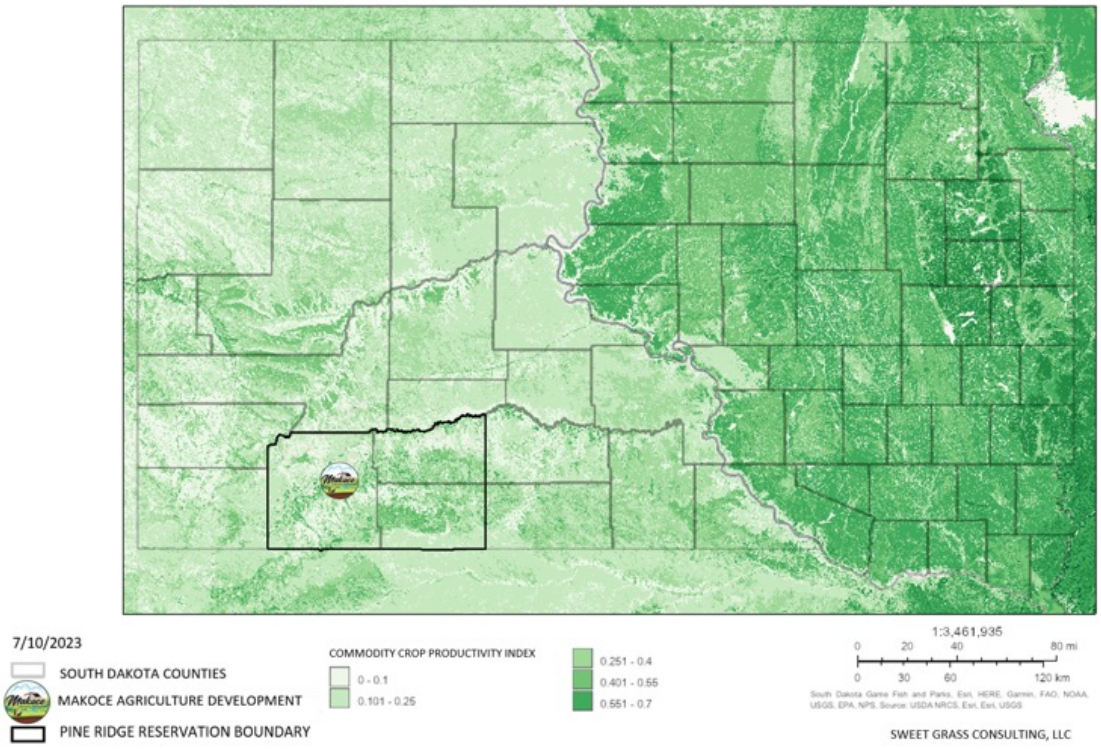


The actual status of each parcel of land is even more complicated than these figures can represent. While the map above assigns a classification to each parcel of land, each parcel can have several different owners, including individuals, the Oglala Sioux Tribe, and other governmental bodies. The classification represented on the map is assigned based on which classification has majority ownership. This is what is referred to as "undivided" lands and is the outcome of over a century of documenting the transfers of ownership "on paper," without subdividing the land.

This has created a huge problem for individual members of the Tribe who would like to use their land to build a house, start a business, farm, or ranch. They cannot simply get a surveyor to go and stake out their land. Rather than being assigned a specific parcel or tract, landowners only own an "interest" in the land. In fact, most landowners on Pine Ridge (and other reservations in the West) have inherited interests in multiple parcels, but for them to live on or use a parcel, they are required to get 51% of the other landowners to approve their request to subdivide the land. This process can be extremely time consuming.[89] As mentioned, this creates a barrier for tribal members to use their land for anything, including farming or ranching development.

Generally, the highest quality agriculture land in South Dakota is located east of the Missouri River. According to the Environmental Systems Research Institute (ESRI) "The National Commodity Crop Productivity Index (NCCPI) ranks the inherent capability of soils to produce agricultural crops without irrigation."[90] The ranking classifies soils on a scale from 1–100, 100 being the most prime lands for agriculture (see images below). Darker green areas signify higher scored land or higher potential for crop production. Pine Ridge is in the southwestern portion of the state, in which conditions are drier with sandier soils. Yet, according to the US Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) Soils Crop Production Index (below), the three counties that make up the Pine Ridge Reservation—Oglala Lakota, Jackson, and Bennett Counties—have an average NCCPI rating of 16.67. This is a better ranking than eight of the 11 bordering counties.[91]

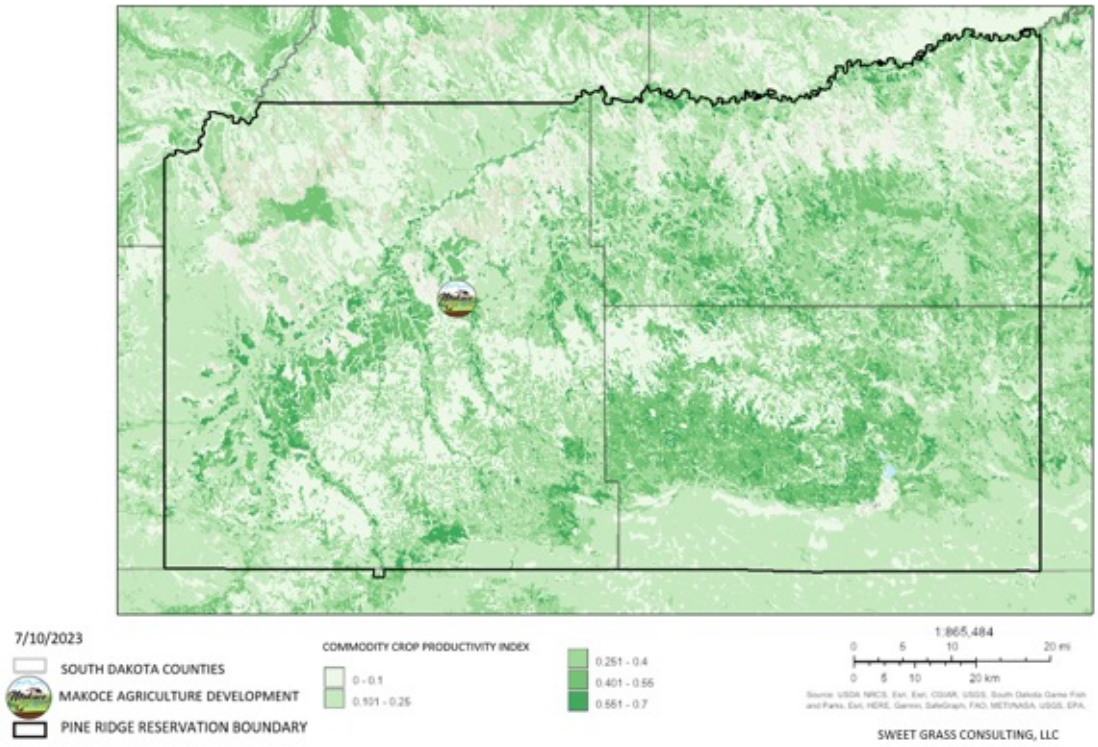
U.S. National Commodity Crop Productivity Index (South Dakota)



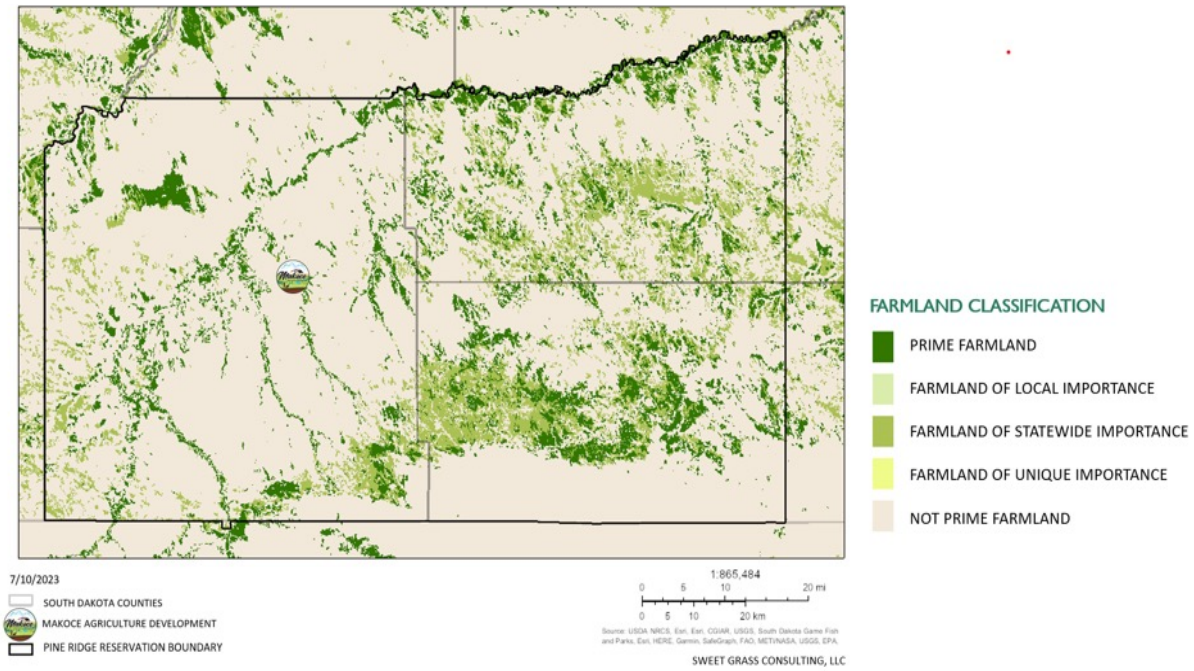
The NRCS Gridded Soil Survey Geographic (gSSURGO) database also classifies the quality of farmland, specifically by its importance for agriculture production. With a few categories, gSSURGO gives a clearer picture of the quantity and location of farmlands on the Pine Ridge Reservation. According to NRCS, "the gSSURGO

classification system considers factors such as landscape location, slope, depth of soil, and texture of soil. High erosion and runoff, excess water, shallow soils, hardpan layers, and climate are the main factors that can limit agricultural capability."[92]

U.S. National Commodity Crop Productivity Index (Oglala Lakota)



Oglala Lakota Land Classification



According to gSSURGO data, the best farmland on the Pine Ridge Reservation is in the southeastern corner of Bennett County, extending into Jackson County directly north. While there are areas of good agricultural land on the western half of the Reservation in Oglala Lakota County, they are primarily located along rivers and creeks and in an area just south of the Badlands known as Cuny Table.

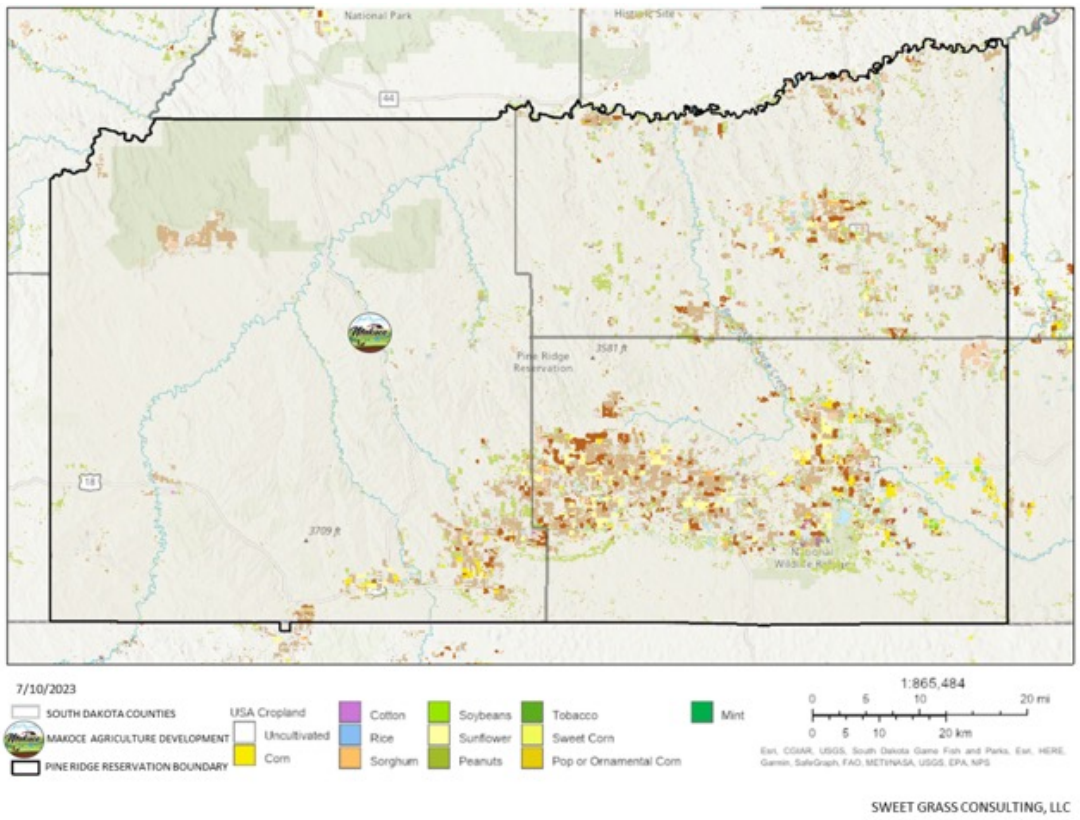
However, as stated before, many of the best farmlands on the Reservation were liquidated through cessions of so-called "surplus lands" and through the issuance of forced fee patents. In 2017, Village Earth analyzed the distribution of fee-patented lands on the Pine Ridge Indian Reservation relative to prime agriculture lands, as classified by the NRCS Land Capability Data, and discovered that "even though fee lands account for less than 31% of lands on Pine Ridge they occupy over 53% of the prime agriculture lands."[93] The Village Earth data is consistent with findings of Federal Policy and Indian Land: Economic Interests and the Sale of Indian Allotments 1900–1934, which also argued that the issuance of fee patents prior to 1934 was not random but rather a mechanism to liquidate prime agricultural lands to white settlers.[94] Throughout the Pine Ridge Reservation, the majority of the best agricultural lands were systematically stripped from the Lakȟóta and made readily available to non-Indians. The total acreage for each gSSURGO Farmland Classification for the Pine Ridge Reservation is outlined in the table on page 35.

gSSURGO Farmland Classification	Acres	% of Total
All areas are prime farmland	13,174	0.005%
Farmland of statewide importance	309,003	11.09%
Not prime farmland	2,157,984	77.44%
Prime farmland, if drained	563	0.0002%
Prime farmland, if irrigated	305,815	10.97%
Total gSSURGO farmland classified acres	2,786,539	100%

Pine Ridge Land Cover and Use

Land use and land covers were calculated using the USDA's Cropland Data Layer.[95]

Pine Ridge Reservation Cropland Data Layer



The USDA Cropland Data Layer for the Pine Ridge Reservation was used to calculate the total acreage for each type of land cover and crops. The results are shown via a map of the reservation on page 34, including county borders, and in the table below.[96]

CDL Classification	Type	Acres	% of Total
Grassland/pasture	Rangeland	1,940,300	69.796%
Barren	Barren	242,981	8.740%
Evergreen forest	Forest	88,025	3.166%
Other hay/non-alfalfa	Cropland	86,514	3.112%
Alfalfa	Cropland	56,989	2.050%
Corn	Cropland	50,933	1.832%
Winter wheat	Cropland	47,613	1.713%
Sunflower	Cropland	33,345	1.199%
Herbaceous wetlands	Herbaceous wetlands	31,598	1.137%
Fallow/idle cropland	Cropland	28,873	1.039%
Shrubland	Rangeland	27,288	0.982%
Millet	Cropland	27,157	0.977%
Developed/open space	Developed	26,403	0.950%
Woody wetlands	Woody wetlands	14,007	0.504%
Oats	Cropland	13,798	0.496%
Developed/low intensity	Developed	11,207	0.403%
Spring wheat	Cropland	10,008	0.360%
Deciduous forest	Forest	9,733	0.350%
Open water	Open water	9,470	0.341%
Sorghum	Cropland	9,069	0.326%
Peas	Cropland	4,170	0.150%
Safflower	Cropland	2,274	0.082%

CDL Classification	Type	Acres	% of Total
Mixed forest	Forest	2,254	0.081%
Triticale	Cropland	1,960	0.071%
Soybeans	Cropland	1,436	0.052%
Developed/medium intensity	Developed	891	0.032%
Buckwheat	Cropland	652	0.023%
Other crops	Cropland	435	0.016%
Rye	Cropland	284	0.010%
Developed/high intensity	Developed	114	0.004%
Dry beans	Cropland	109	0.004%
Sod/grass seed	Cropland	32	0.001%
Barley	Cropland	23	0.001%
Double crop: winter wheat/sorghum	Cropland	8	0.000%
Double crop: winter wheat/corn	Cropland	6	0.000%
Flaxseed	Cropland	4	0.000%
Switchgrass	Rangeland	3	0.000%
Canola	Cropland	2	0.000%
Lentils	Cropland	1	0.000%
Durum wheat	Cropland	0	0.000%
Total		2,779,970	100%

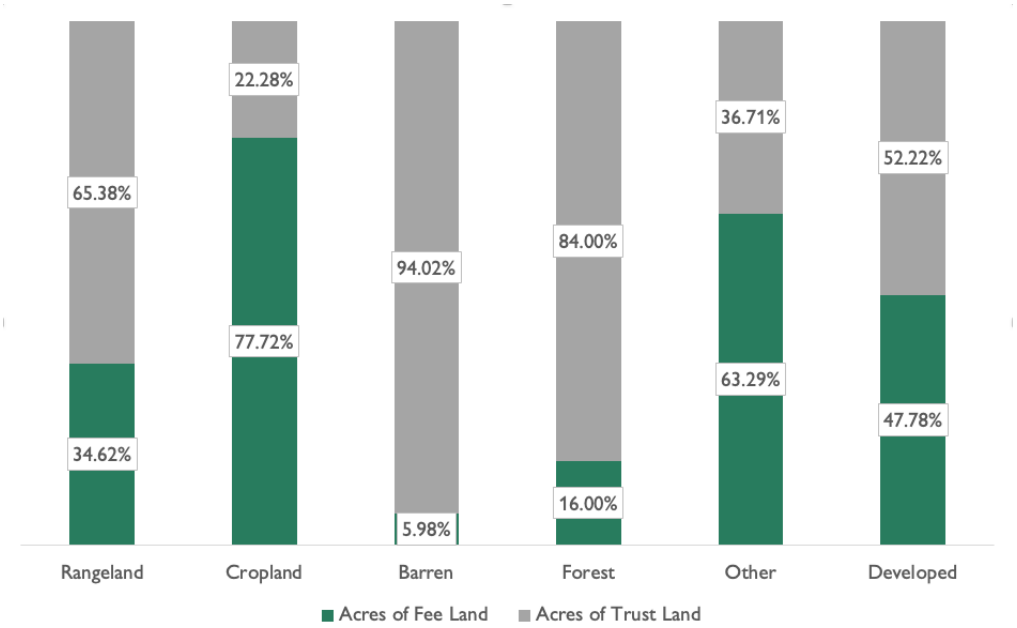
These land classification types as a proportion of total Pine Ridge acreage are shown in the table on page 38, along with the percentages of trust and fee land that make up each type. Together, rangeland, cropland, and barren lands make up more than 93% of the Reservation's land. 71% of the Reservation is rangeland, 13.6% is cropland, and 8.8% is barren. Only 1.39% of the Reservation is developed.[97]

Type	Total Acres	% of Total Acres	Acres of Trust Land	Acres of Fee Land
Rangeland	1,967,591	71.02%	1,281,512	678,628
Cropland	375,696	13.56%	83,670	291,935
Barren	242,981	8.77%	227,968	14,511
Forest	100,011	3.61%	83,948	15,987
Developed	38,615	1.39%	20,146	18,431
Herbaceous wetlands	31,598	1.14%	7,845	23,480
Woody wetlands	14,007	0.51%	9,333	4,659
Open water	9,470	0.34%	2,868	6,426
Total	2,770,500	100%	435,778	1,047,631

The chart on page 39 presents the data from the table above as a percentage for trust land versus fee lands. The chart makes evident the amount of barren and forested land in trust, while a higher percentage of the more fertile lands used for cropland and rangeland are in fee status. Increasing silvopasture on the Reservation, a method of land use management that combines production of forests, livestock, and forage,[98] can help the Oglala Sioux Tribe and other organizations and individual stakeholders on the Pine Ridge Reservation sustainably increase agricultural production on agricultural land that is deemed 'non-productive' by US policy and data tracking methods. The concept that some lands are "barren" neglects the ecological importance of these lands and role they play in the ecosystem and represents a colonized conception of both productivity and agriculture.

In their 2022 National Native Agriculture Market Study, Akiptan Community Development Financial Institution defined Native Agriculture as "Native communities using their own lands to feed themselves, food sovereignty and local food economies, small to large scale food production, farming, ranching, fishermen, foraging, hunting, value-added, gardening, livestock transportation, processing/packaging facilities, and food hubs."[99] This definition includes an understanding of agriculture as inclusive of other food related activities that are not solely geared towards the production of profit or commodities for the national and global markets. In a more holistic understanding of a local food system, there is no land that is barren, it just may not be useful for for-profit generating activities.

Percent Land Cover and Use Type by Fee and Trust Lands



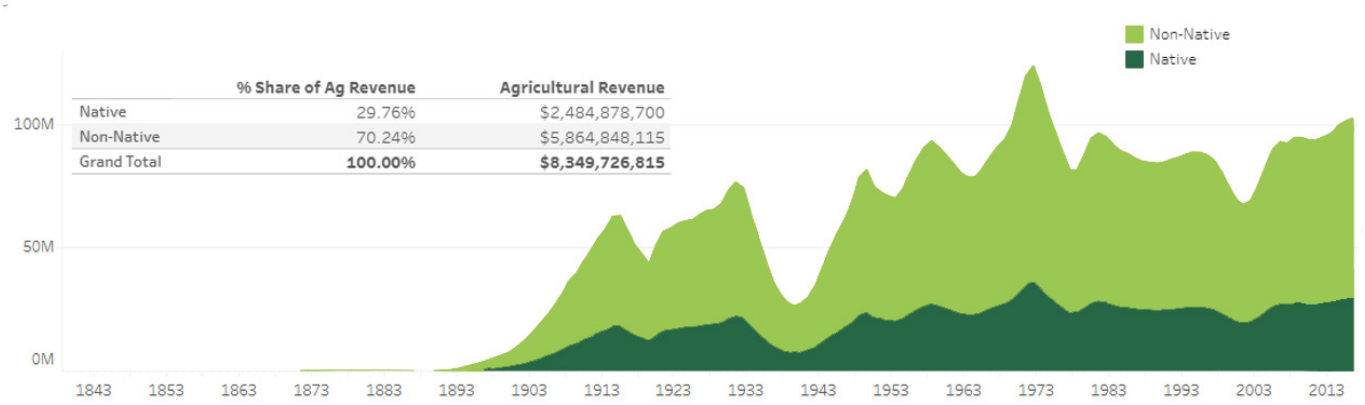
The USDA has been collecting data for every county in the United States every five years since 1840. However, since Native American reservations often overlap counties, and even state borders, it was difficult for the public to parse statistics just for reservations. The USDA recognized the lack of available data on Native American farming and ranching, and in 2002, began conducting a special census for American Indian reservations. The first year was only a pilot study that included reservations in Montana, South Dakota, and North Dakota. It was then expanded in 2007 and 2012.

Agricultural Political Economy on the Pine Ridge Reservation

Lost Agriculture Revenue

The chart below includes data through 2017 and demonstrates how over 70% of agricultural revenue on the Pine Ridge Reservation at that time was earned by non-Native farmers and ranchers. **Only 29.76% of agricultural revenue was earned by Native agricultural producers.**

Total Agricultural Revenue by Race After Inflation on the Pine Ridge Reservation[100]



	% Share of Ag Revenue	Agricultural Revenue
Native	29.76%	$2,484,878,700
Non-Native	70.24%	$5,864,848,115
Grand Total	**100.00%**	**$8,349,726,815**

Agriculture Revenue and Expenses for the Pine Ridge Reservation

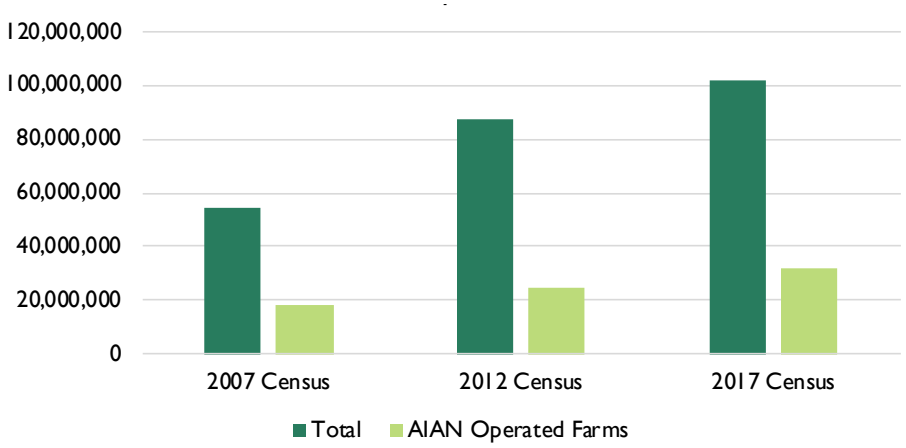
In 2017, the value of agricultural products produced on the Pine Ridge Reservation totaled $102,174,000. This value was an increase of over $14 million from 2012. Of that total, only $31,712,000 (31%) was produced on farms operated by Native Americans. While this disparity between Native and non-Native producers existed for farming and ranching, the largest disparity in revenue was found in crop production. In 2017, AIAN-operated farms produced only 23% of the value for all agricultural, nursery, and greenhouse crops sold, while they produced 33% of the total value of livestock and their products.

The table on page 41 shows agriculture revenue and expenses for the Pine Ridge Reservation from 2007 to 2017.

	2007 Census		2012 Census		2017 Census	
Characteristics	**Total**	**AIAN-Operated Farms**	**Total**	**AIAN-Operated Farms**	**Total**	**AIAN-Operated Farms**
Market value of agricultural products sold	$54,541,000	$17,835,000	$87,731,000	$24,981,000	$102,174,000	$31,712,000
Average per farm	$117,800	$67,047	$241,683	$124,906	$268,879	$142,204
Market value of crops, including nursery and greenhouse crops	$11,655,000	$1,672,000	$26,906,000	$2,695,000	$21,177,000	$4,932,000
Market value of livestock, poultry, and their products	$42,886,000	$16,162,000	$60,825,000	$22,286,000	$80,997,000	$26,780,000
Total farm production expenses	$47,802,000	$16,903,000	$66,692,000	$22,789,000	$84,581,000	$24,794,000

101

Change in Market Value of Agricultural Products Sold: Total vs. AIAN-Operated Farms[102]



Though the value of agricultural production on the Pine Ridge Reservation totaled more than $31 million in 2017, the agriculture industry by share was relatively small. It only employed 9% of the Reservation population and accounted for 1.08% of the total personal income generated for the three-county area (Oglala Lakota, Jackson, and Bennett Counties).[103]

The Carrying Capacity of the Oglála Lakȟóta Oyáte

Foodshed mapping is used to identify producers capable of filling local demand to minimize the distance that food travels and maximize the amount of money that can stay in our communities. In this section, we explore available agricultural resources, starting with what is available locally and then regionally. Once we have identified producers of all the necessary foods, we can map their locations to better understand the foodshed. When defining a foodshed, one must also consider the unique political and cultural context of our communities, particularly the tension between political sovereignty and dependence on external resources. This tension raises the question of the current potential for the Oglála Lakȟóta Oyáte to build a self-sufficient, sovereign local food system.

Most people producing food on Oglála Lakȟóta land are non-Indian. This is not unusual on reservations. About 95% of the Pine Ridge Reservation's residents are American Indian, depending on which source is used. Yet, according to the USDA, just less than half of the farm and ranch operators are American Indian.[104]

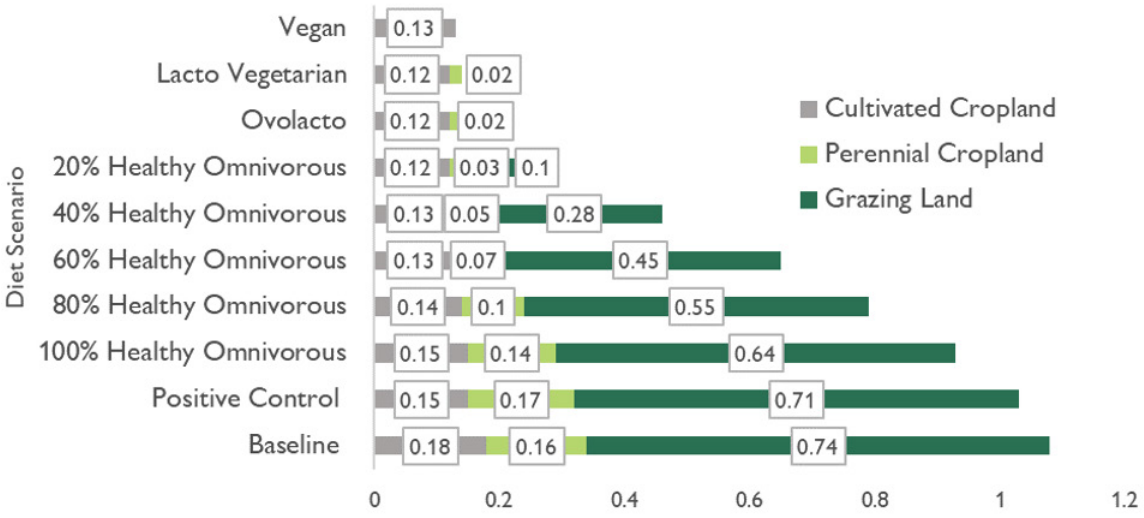
Data demonstrates that our communities have the agriculture capacity (farm and grazing land) to sustain a population of at least 13.5 times the current population (Native and non-Native). Even if just farming and grazing on trust lands, the agricultural sector on Pine Ridge could sustain a population over eight times larger than the current number of residents.

However, the current food system cannot even sustain the current population. Feeding people requires a diverse basket of fruits, vegetables, grains, legumes, meats, and dairy. At present, these are not being produced in enough quantity on the Reservation to sustain even a small fraction of the local population. The 2012 Census of Agriculture data indicated that no acres on the Reservation were planted in vegetables, orchards, berries, melons, or squash. Instead, the planted acreage focused on wheat. Approximately 50% of US wheat is currently exported to other countries, which doesn't promote food sovereignty for the Pine Ridge Reservation.

However, the fact that there was no acreage on the Reservation recorded as producing vegetables indicates inaccuracies in the USDA Census of Agriculture's data collection process. The data collection process excludes organizations such as Oyate Teca, which provides gardening education and offers produce for sale in a mobile market. Other small-scale agricultural operations that are playing a growing role in the Reservation's food system that were not included in the Census of Agriculture include Red Cloud Indian School, a community garden in Batesland, South Dakota, Homegrown Pork and Poultry, and Thunder Valley Community Development Corporation.

Carrying capacity is an important consideration when discussing the economics of localizing food production and the extent to which food sovereignty is possible given resource and land constraints. Carrying capacity is the "potential population that could be fed from an agriculture land base," and understanding carrying capacity can help conceptualize the potential for localization of the food system.[105]

Basic calculations of carrying capacity must consider population, diet, and the available agricultural resources. Using a process published by researchers Peters et al. in 2016, we will consider residents' standard American diets, assume American agricultural practices, and base our calculations on the Cropland Data Layer.[106] Agriculture land requirements were calculated based on ten diet scenarios, and "[a]nnual per capita land requirements ranged from 0.13 to 1.08 hectares (.32 to 2.67 acres) per person per year across the ten diet scenarios."[107]



Credit of: Peters, C. J., Picardy, J., Darrouzet-Nardi, A. F., Wilkins, J. L., Griffin, T. S., & Fick, G. W. (2016). Carrying capacity of US agricultural land: Ten diet scenarios. Elementa Science of the Anthropocene, 2 (1), 12. Accessed from: https://www.elementascience.org/articles/10.12952/journal.elementa.000116/#

They categorized their results by land types from (see chart above): 68% grazing land and 32% cropland for high meat diets all the way to 100% cropland for vegetarian diets. The table on page 44 from Peters et al. includes the ten diet scenarios defined in their study.[108]

Breakdown of Estimated Land Required for One Person Across Ten Diet Scenarios

Group	Description	Name	Symbol	Key Attributes
Current consumption	Based on USDA estimates of per capita loss-adjusted food availability	Baseline	Bas	Food intake equals loss-adjusted food availability for individual food commodities.
		Positive control	Pos	As above, except intake of fats and sweeteners is reduced to make diet energy-balanced.
Healthy diet, omnivorous	Compiles with 2010 dietary guidelines for Americans, Includes animal flesh	100% healthy omnivorous	Omni 100	100% of person-meals follow an omnivorous healthy diet pattern.
		80% healthy omnivorous	Omni 80	80% of person-meals follow and omnivorous healthy diet pattern and 20% follow an ovo-lacto vegetarian healthy diet pattern
		60% healthy omnivorous	Omni 60	60% of person-meals follow an omnivorous healthy diet pattern and 40% follows an ovo-lacto vegetarian healthy diet pattern.
		40% healthy omnivorous	Omni 40	40% of person-meals follow an omnivorous healthy diet pattern and 60% follow an ovo-lacto vegetarian healthy diet pattern.
		20% healthy omnivorous	Omni 20	20% of person-meals follow an omnivorous healthy diet pattern and 80% follow an ovo-lacto vegetarian healthy diet pattern.
Healthy diet, vegetarian	Complies with 2010 dietary guidelines for Americans, excludes animal flesh	Ovolacto	Ovo	Includes both eggs and dairy products.
		Lacto vegetarian	Lac	Includes dairy products. Excludes eggs.
		Vegan	Veg	Excludes all livestock products.

There are over 1,933,476 acres of rangeland and over 346,424 acres of cropland on the Pine Ridge Reservation. Divided by the relative per-person acreage requirement for each land type, the land base on Pine Ridge is theoretically capable of sustaining a population of at least 309,588 on the OMNI 100 diet scenario. The limited amount of cropland on the Pine Ridge Reservation is the primary barrier to the land's ability to sustain a larger population. This analysis focuses on current land use and does not take into consideration land use potential (such as converting unused or barren lands to productive agricultural land). Based on these estimates, the Pine Ridge Reservation has an agricultural capacity based on current land use that can feed at least 13.5 times the current population.[109]

Pine Ridge Reservation Farm and Ranch Characteristics

According to the USDA, a farm or ranch is any place where "$1,000 or more worth of agricultural products are produced and sold, or normally would have been sold, during the census year."[110] Using this definition, in 2017 there were 380 farms on the Pine Ridge Reservation operating on a collective 2,001,323 acres. 223 (59%) of the farms were operated by American Indian or Alaska Native (AIAN) individuals, an increase of approximately four percentage points from 2012. However, AIAN farms operated 1,312,319 (66%) of the farmed acres on the Reservation in 2017, which was a 1% decline from the number of total acres managed by AIAN farms in 2012. The total cropland in acres that was managed by AIAN farms increased from 20% of all reservation cropland in 2012 to 27.5% of all reservation cropland acreage in 2017.

Comparison of Total Farms and AIAN-Owned Farms in Pine Ridge Boundaries (2007, 2012, and 2017)

Cropland is defined by the USDA as land that is "harvested, other pasture and grazing land that could have been used for crops without additional improvements, cropland on which all crops failed or were abandoned, cropland in cultivated summer fallow, and cropland idle or used for cover crops or soil improvement but not harvested and not pastured or grazed."[111] The 2017 Census of Agriculture found that 251 farms within Reservation boundaries were operating 236,262 acres of cropland. 117 (47%) of those farms were operated by American Indians, which made up only 28% of the total farmed cropland on the Reservation.

	2007 Census			2012 Census			2017 Census		
Characteristics	**Total**	**AIAN-Operated Farms**	**% AIAN-Operated**	**Total**	**AIAN-Operated Farms**	**% AIAN-Operated**	**Total**	**AIAN-Operated Farms**	**% AIAN-Operated**
Farms (number)	463	266	57.45%	363	200	55.10%	380	223	58.68%
Land in farms (acres)	2,321,399	1,505,512	64.85%	2,130,289	1,320,397	61.98%	2,001,323	1,312,916	65.60%
Average size of farms (acres)	5,014	5,660	112.88%	5,869	6,602	112.49%	5,267	5,888	111.79%
Reservation acres on farm (acres)	1,851,850	1,337,698	72.24%	1,549,736	1,163,332	75.07%	1,416,104	1,090,221	76.99%
Total cropland (farms)	287	118	41.11%	204	79	38.73%	251	117	46.61%
Total cropland (acres)	270,065	63,525	23.52%	248,283	50,021	20.15%	236,262	65,050	27.53%
Harvested cropland (farms)	252	99	39.29%	182	70	38.46%	229	100	43.67%
Harvested cropland (acres)	190,430	45,347	23.81%	169,526	32,641	19.25%	174,660	48,766	27.92%

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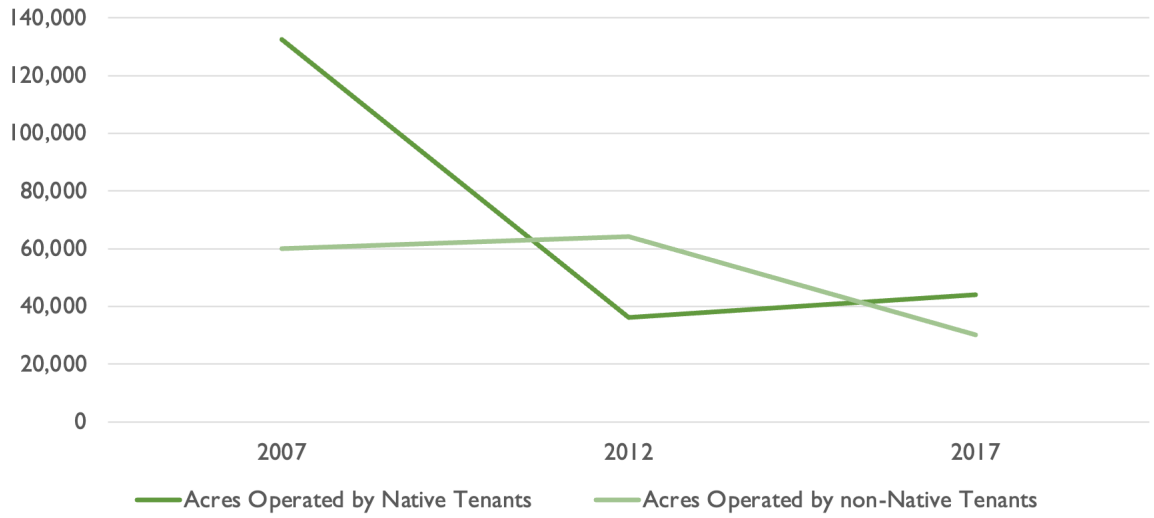
The 2012 Agriculture Census report classified all farms by the tenure of their operators. "The classifications used were: full owners operated only land they owned, part owners operated land they owned and also land they rented from others, and tenants operated only land they rented from others or worked on shares for others. For the 2012 Census of Agriculture, operations are classified as tenant farms when the only land they operate is permit land on the reservations."[113]

According to these classifications, in 2017, 150 farms on the Pine Ridge Reservation were operated by their owners; 119 (79%) were owned by Native Americans. From 2007 to 2012, there was a 29% decline in the number of full owner-operated farms and a 32% decline in farms operated by AIAN owners. From 2012 to 2017, there was a 28% increase in the total number of farms operated by full owners and a

63% increase in farms operated by Native American full owners. Acreage operated increased 8% from 2007 to 2012, but the amount of Native American-operated acreage decreased 1% over the same period. In 2012, 924,398 acres were operated by full owners and in 2017, that number grew to 966,107. 821,465 of those acres were operated by AIAN individuals. These figures demonstrate a 5% increase in the total acreage operated by on the Pine Ridge Reservation from 2012 to 2017 and a 9% increase in acreage operated by Native Americans during the same period.

Acres Operated by Native and Non-Native Tenants: 2007, 2012, and 2017



Tenant farmers are producers who operate on the Reservation with a farm/pasture or range unit lease. In 2012, 44 tenant farmers operated 100,457 acres of land. 22 (50%) were Native Americans who operated 36,158 acres of land, which was 36% of all acreage operated by tenant farmers.[114] In 2017, there were only 39 tenant farmers operating 74,226 acres of land, including 16 (41%) Native Americans operating 44,054 acres. That year, Native American tenant farmers operated 59.4% of all land operated by tenant farmers of land.[115] **While the percentage of Native tenant farmers has declined, the amount of land under Native tenant farmer control has increased almost 24%.** Together, these figures indicate both a return to Native control over Native lands and farm consolidation on the Pine Ridge Reservation. Overall, there was an 11% decrease in the total number of tenant farmers and a 27% decrease in Native American tenant farmers. This decline was accompanied by a 26% total decline in acreage farmed by tenant farmers, but a 22% increase in acreage operated by Native American tenants.

	2007 Census			2012 Census			2017 Census		
Characteristics	**Total**	**AIAN-Operated Farms**	**% AIAN-Operated**	**Total**	**AIAN-Operated Farms**	**% AIAN-Operated**	**Total**	**AIAN-Operated Farms**	**% AIAN-Operated**
Full owners (farms)	164	106	64.63%	117	73	62.39%	150	119	79.33%
Full owners (acres)	851,722	755,848	88.74%	924,398	751,382	81.28%	966,107	821,465	85.03%
Part owners (farms)	233	114	48.93%	202	105	51.98%	191	88	46.07%
Part owners (acres)	1,277,240	617,134	48.32%	1,105,434	532,857	48.20%	960,990	447,397	46.56%
Tenants (farms)	66	46	69.70%	44	22	50.00%	39	16	41.03%
Tenants (acres)	192,437	132,530	68.87%	100,457	36,158		74,226	44,054	59.35%
Place of residence:									
On farm-operated	623	306	49.12%	526	257	48.86%	491	263	53.56%
Not on farm-operated	93	42	45.16%	63	19	30.16%	114	35	30.70%

116

Selected Crops Harvested on the Pine Ridge Reservation

Most of the cropland on the Pine Ridge Reservation is used to grow commodity crops, including corn, wheat, beans, and sunflower seeds. The table on page 49 shows the most commonly grown crops, the number of farms that grow such crops, and the total volume of production in 2007, 2012, and 2017, both overall and for AIAN-operated farms. The current practice of monocropping for global commodity production will not help create a sovereign food system for our communities and future generations.

	2007 Census		2012 Census		2017 Census	
Characteristics	Total	AIAN-Operated Farms	Total	AIAN-Operated Farms	Total	AIAN-Operated Farms
Corn for grain (farms)	20	4	44	11	53	12
Corn for grain (acres)	6,949	688	20,205	7,521	33,003	7,786
Corn for grain (bushels)	240,214	21,548	617,906	61,967	2,861,652	565,341
Corn for silage or greenchop (farms)	8	1	19	2	15	2
Corn for silage or greenchop (acres)	1,944	0	2,824	Sample size too small	1,481	Sample size too small
Corn for silage or greenchop (tons)	5,926	0	21,320	Sample size too small	23,561	Sample size too small
Dry edible beans, excluding lima (farms)	0	0	4	0	0	0
Dry edible beans, excluding lima (acres)	0	0	480	0	0	0
Dry edible beans, excluding lima (cwt)	0	0	13,738	0	0	0
Sunflower seeds (farms)	23	4	23	1	19	3
Sunflower seeds (acres)	7,532	590	18,290	Sample size too small	8,638	Sample size too small
Sunflower seeds (pounds)	8,689,256	733,200	13,164,894	Sample size too small	9,155,194	Sample size too small
Wheat for grain, all (farms)	118	25	84	19	41	13
Wheat for grain, all (acres)	68,779	8,473	60,616	5,141	33,832	8,454
Wheat for grain, all (bushels)	1,679,251	223,464	1,974,733	170,634	1,205,148	269,070

Livestock and Poultry Production

Data from the 2017 Census of Agriculture recorded 293 cattle and calf operations on the Pine Ridge Reservation managing a cumulative 103,296 head of cattle, a 10.6% increase in the total number of cattle that were recorded in the 2012 Census. 175 (60%) of those operations and 44,599 (43%) head of cattle were managed by Native Americans, which is a respective 3.5% and 11.9% increase in the number of Native-managed operations and head of cattle since 2012. Other forms of livestock production do occur on the Pine Ridge Reservation, including the rearing of hogs, sheep, goats, and chickens, but these operations are small in comparison to cattle operations and are likely marketed for local sale rather than intended for consumption by the commodity market.[117] There was an increase in the number of Native Americans managing buffalo from 2012 to 2017, but the number of bison farms has still not rebounded to 2007 numbers, when there were 16 bison farms, of which 14 were operated by AIAN management. In 2012, there were only three bison farms, two of which were operated Native Americans. In 2017, there were five bison farms, with 100% of the reported bison inventory operated by Native Americans on the Reservation.

The Census does not have complete data related to bison ranching. However, there were several small- to medium-sized bison ranches on the Reservation, including the Oglala Sioux Tribe managed herd, which numbered at least 800 head.[118] In 2017, 100% of the reported bison inventory was operated by Native Americans on the Reservation, a total of 950 head.

Tom Fast Wolf, Manager of the OSPRA (Oglala Sioux Tribe Parks and Recreation Authority) Buffalo Herd, was interviewed for this study in January of 2023. At that time, the OSPRA herd had over 1,500 head of buffalo over five pastures, totaling almost 50,000 acres of rangeland. Between 12 to 16 animals are harvested each year for "wake meat." When needed, community members can access 15 to 20 pounds of meat that is made available for use in family members' funerals. The harvest program was developed in the 1970s and 1980s, when herd managers began rounding animals that had the potential to hurt themselves for harvest. The Tribe also operates another buffalo meat program, where hunts are offered to tribal members when the herd is overstocked with bulls. In some years there will be 30 hunts sold, and in other years, 50 hunts sold. Some hunted animals are sold back to the Tribe for use in ceremonies and other spiritual purposes. Local schools will also partner with the herd to purchase a young bull for $500 and teach the youth how to harvest the animal. Schools often use the meat in their school powwow; they are not able to use the meat in school lunches because it was not harvested under state or federal inspection. Stew meat is also given away.

For processing, the OSPRA herd works with the organization One Spirit and its meat processing plant, the Charging Buffalo Meat House, which OSPRA helped develop. They will also travel to processing plants in Valentine, Nebraska, and Rapid City, South Dakota, when needed and are often relegated to bringing animals where they can be fit into the schedule. They do not sell the meat; therefore, it does not need to

be processed in an inspected processing plant. To transport the animals, they'll use a pick-up truck on a cool day. On hot days, they fill the pick-up with ice and try to arrive with the carcass within 45 minutes of the kill.

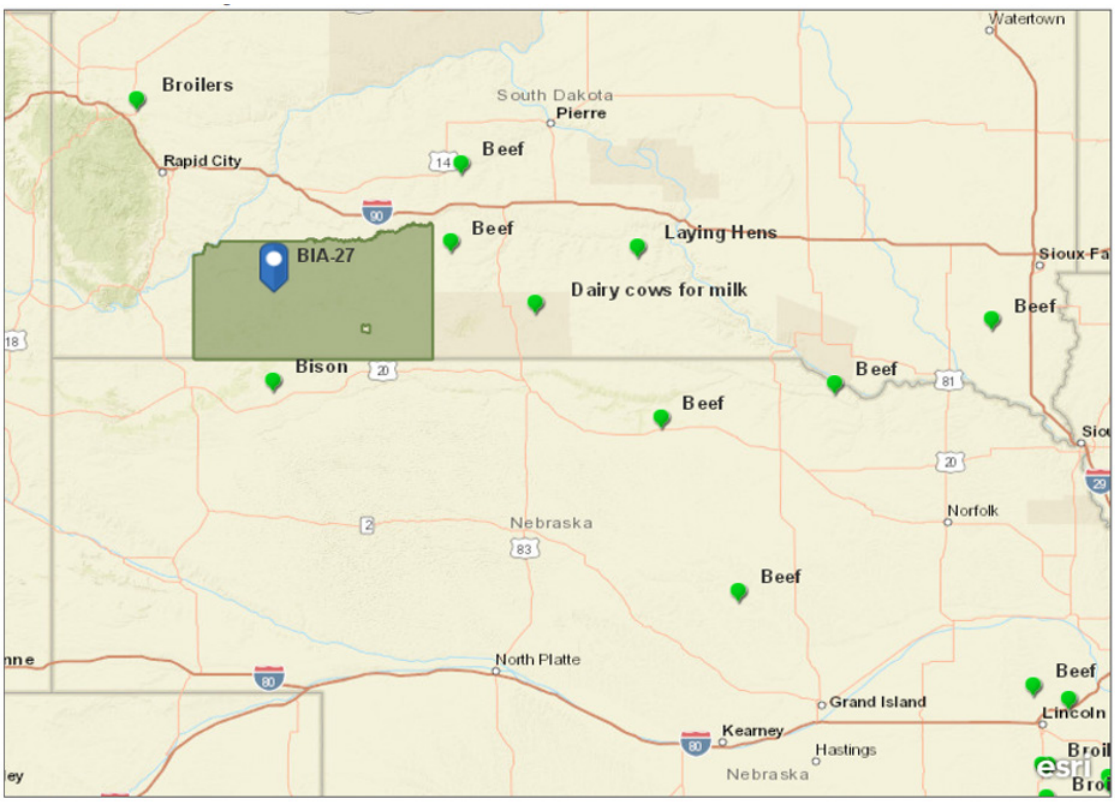
Currently, the focus of the herd manager is working with Rocky Boy Reservation in Montana, who are sourcing buffalo from Yellowstone National Park in Wyoming. Tom is working to source larger breeding bulls to strengthen the herd's bloodline. The herd is primarily grazed and is not fed minerals, but occasionally fed hay. Hay is sourced locally, and the OSPRA crew that manages the herd will often harvest hay themselves from pasture areas they have that are between 80 to 160 acres and aren't fenced off. They have a total of three employees, but when they round up the buffalo they have an additional five to eight people who assist them.[119]

Bamm Brewer is the Manager of Charging Buffalo Meat House, which was established with the support of the non-profit One Spirit, an organization that is working to build food security and sovereignty on the Pine Ridge Reservation. Bamm also operates a private buffalo herd of approximately 50 head on roughly 800 acres.[120] Wolakota Buffalo Range, a buffalo herd managed by Sicangu Co., the economic and community development arm of the neighboring Rosebud Sioux Tribe, has approximately 1,200 head of buffalo on 28,000 acres on the southwestern portion of the Rosebud Reservation. Tanka Fund is a non-profit based in Kyle, South Dakota, on Pine Ridge that is working to support individual and family Native buffalo caretakers across the country. There are other producers of buffalo in southwestern South Dakota, including Wild Idea Buffalo Co., which operates a mobile harvest unit and their own cut-and-wrap butcher facility. Their meat is available for sale nationwide online. They harvest animals from their own herd and from other regenerative buffalo ranchers in the Northern Great Plains.[121]

	2007 Census		2012 Census		2017 Census	
Characteristics	**Total**	**AIAN-Operated Farms**	**Total**	**AIAN-Operated Farms**	**Total**	**AIAN-Operated Farms**
Cattle and calves inventory (farms)	336	117	297	169	293	175
Cattle and calves inventory (number)	88,225	38,423	93,411	39,849	103,296	44,599
Beef cows (farms)	327	174	277	160	279	165
Beef cows (number)	57,169	27,623	52,429	22,296	58,048	27,788
Cattle and calves sold (number)	59,600	25,042	60,831	26,171	74,899	29,406
Bison inventory (farms)	16	14	3	2	5	5
Bison inventory (number)	1,017	N/A	N/A	N/A	950	950
Hogs and pigs inventory (farms)	2	2	15	13	3	3
Hogs and pigs inventory (number)	N/A	N/A	68	N/A	9	9
Sheep and lambs inventory (farms)	1	0	8	6	3	1
Sheep and lambs inventory (number)	N/A	0	58	N/A	N/A	N/A
Goats, all inventory (farms)	9	4	7	4	0	0
Goats, all inventory (number)	191	23	97	79	0	0
Layers inventory (farms)	12	7	14	9	17	8
Layers inventory (number)	344	152	476	318	458	194
Broilers and other meat type chickens sold (farms)	1	0	0	0	0	0
Broilers and other meat type chickens sold (numbers)	N/A	0	0	0	0	0

The map below shows USDA certified organic meat and dairy producers in the vicinity of the Pine Ridge Reservation. A list of producers can be found in Appendix C.

USDA-Certified Organic Meat and Dairy Producers

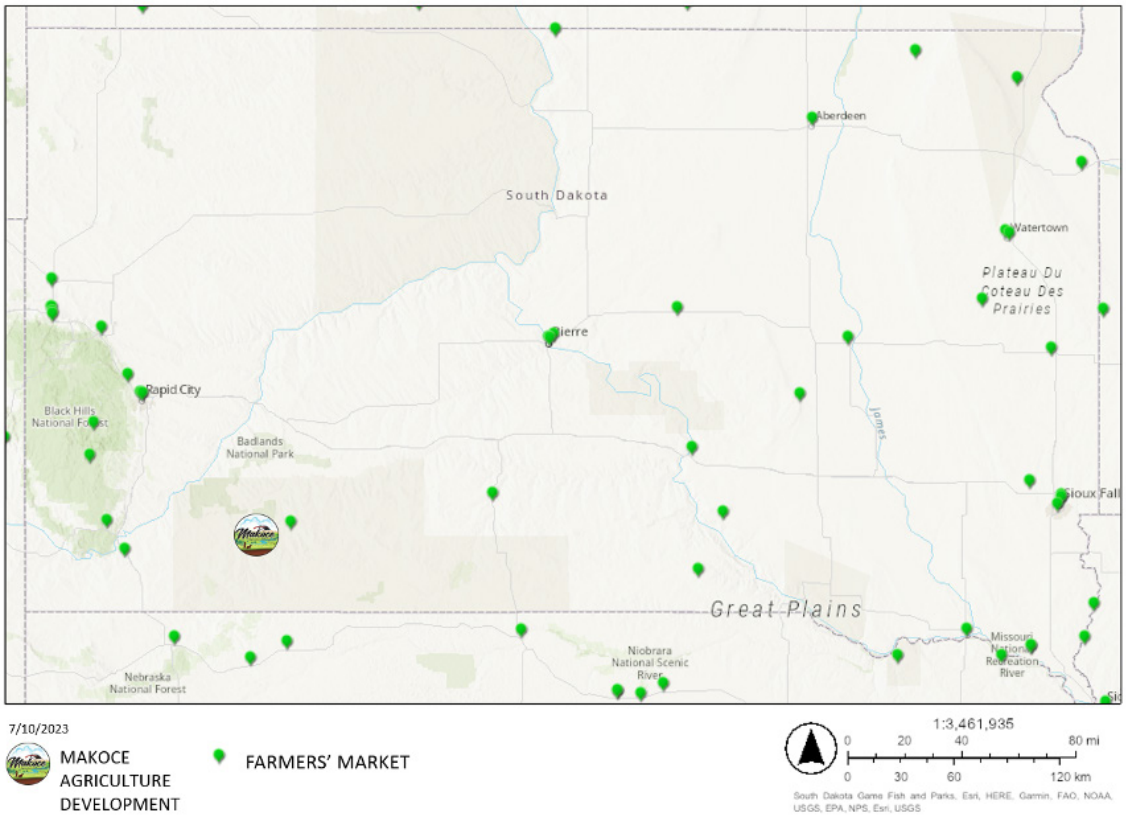


Credit of: Village Earth. (2018).

Thunder Valley Community Development Corporation. (2018). Wakígnakapi: Developing a Food Hub and Grocery Store for the Oglala Lakota Oyáte. (97).

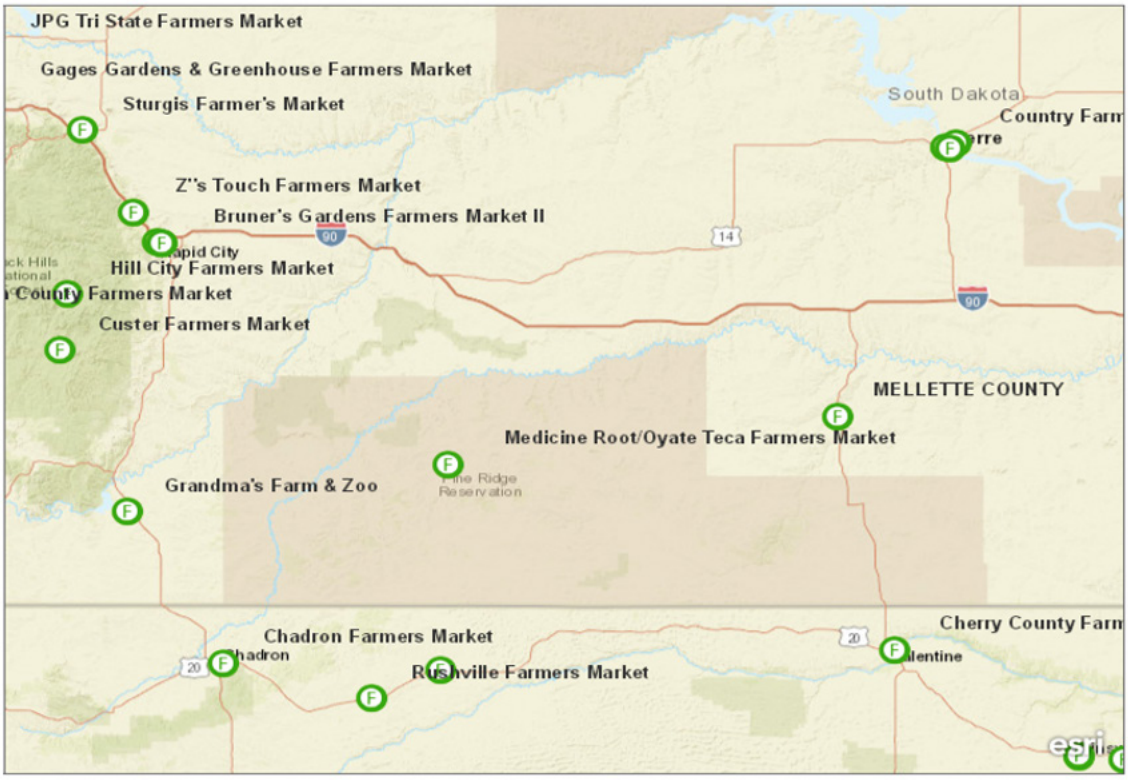
Southwestern and south-central South Dakota, as well as the Nebraska panhandle, are home to several farmers' markets that could be host to producers who may be able to supply the Makoce Community Food Hub. The USDA maintains a Farmers' Market Directory, although a more up-to-date farmers' market and local food directory can be found via Dakota Rural Action's Local Foods Directory.[122]

Regional Farmers' Markets



Appendix D includes a list of farmers' markets that are within sourcing distance of the Makoce Community Food Hub. This list will serve as a resource of potential allies that could share knowledge or even develop a formal partnership in which food and other resources are shared with each other. The USDA also maintains an online database of all certified organic producers that is available for free to the public.[123] In 2017, there were 29 organic farms identified that grow vegetables in South Dakota, Nebraska, and Wyoming close to the Pine Ridge Reservation that would potentially be able to supply the Makoce Community Food Hub, listed in Appendix E.

USDA-Certified Organic Vegetable Farms



USDA Listed Farmers Markets.

Esri, HERE, Garmin, NGA, USGS, NPS

Credit of: Village Earth. (2018).

Thunder Valley Community Development Corporation. (2018). Wakígnakapi: Developing a Food Hub and Grocery Store for the Oglala Lakota Oyáte. (103).





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The Local Food System

Policy

The policy section will discuss federal nutrition and procurement policy and opportunities for tribal governments to support local Indigenous food systems. **We will address opportunities to supply local institutions through use of federal micro-procurement regulations, the significance of tribal farming and grazing lease policies that prioritize tribal members that have been enacted by the Oglala Sioux Tribe and tribal food codes.** See Appendix F for a list of policies that complement this section.

Recommendation

Work with the Oglala Sioux Tribe to pass legislation in support of food sovereignty and Indigenous managed agriculture and food systems.

Tribal Policy

Tribal nations can pass legislation in support of food sovereignty and Indigenous-managed agriculture and food systems, which is one path that the Oglala Sioux Tribe could take to strengthen their local food system. This was the path taken by the Oneida Nation of Wisconsin's Business Committee, which passed a resolution to support food sovereignty and food sovereignty policy. The resolution recognized the validity and long history of Indigenous scientific and medical knowledge. The resolution expressed continued support for the Nation's agricultural operations and emphasized continued work to bring the community back to holistic health and "reconnect us with our land, culture, identity and spiritual wellness as Ukwehuwe, and indigenous diets" while taking "preventative intervention for our future generations by working to heal our minds, bodies, spirits, and emotions." The resolution also came with a directive for General Manager of the Nation to prioritize and budget in support of the initiatives identified in the resolution and directed a more formal food sovereignty policy to be adopted.[124]

Other important tribal policies that are key to agriculture are farming and grazing ordinances that prioritize enrolled members for lease agreements. The Oglala Sioux Tribe has helped support enrolled ranchers through grazing ordinances that give preference to Native producers and do not require them to outbid non-Native ranchers.[125] In regard to livestock ownership, applicants for grazing permits must not have more than 300 animal units, the equivalent of a beef or buffalo cow and calf younger than six months, or a single beef or buffalo bull. Yearlings are 75% of an animal unit and a fully grown horse is 1.5 animal units.[126]

Elsie Meeks, a rancher on the Pine Ridge Reservation who was a former USDA South Dakota state director from 2009 to 2015, former president and CEO of First Nations Oweesta Corporation, former director of the Northwest Area Foundation, and currently a board member of Lakota Funds and the Native American Agriculture Fund, shared during an interview for this study how the OST lease ordinances that prioritize tribal members have benefited her and her husband. 95% of their acreage is land that is leased from the Tribe. Much of the land that they now run their animals on was leased by a non-tribal member when they first started out. When they launched their operation, they started with approximately 25 cows and grew their herd

over time as they acquired additional land. In 2023, Meeks Ranch held three leases with the Oglala Sioux Tribe, totaling approximately 8,000 acres.[127] Tribal land policy can and does have a significant impact on the ability of tribal producers to access land.

There is also currently an opportunity for the Oglala Sioux Tribe to increase the revenue generated from land leases by increasing the rates charged to non-Natives to be competitive with nearby counties. Ranchers who want to remove their land from the lease allocation methodology can fence it and use the land as they wish. However, overgrazing is currently an issue on tribal lands and additional enforcement is needed to address the problem.[128]

The Oglala Sioux Tribe also has ordinances in relation to the sale of food and drink. All entities serving food and/or beverages on tribal lands or reserve land must be licensed by the OST Health Authority and follow US Health, Food, and Sanitation ordinances that have been adopted by the Tribe.[129] OST does not have an additional tax for value-added goods or food items sold on the reservation, but does have a general retail tax of 5% that applies to food and beverage sales.[130] There are currently no OST Tribal Codes related to sanitation for producing value-added goods or food-related goods.[131]

The Oglala Sioux Tribe also protects the right of tribal members to practice a subsistence lifestyle on tribal lands while still using those lands for production of cattle or other pastured animals. Tribal members with the proper licenses and/or permits have the right to enter range units to fish, hunt, gather dry firewood, or harvest from other food producing plants and other materials for both religious and cultural purposes. Tribal members are not permitted to harvest green wood for firewood but do have the right to harvest berries on tribal lands.[132]

> I pretty much backed off [teaching] [. . .] I am not sure if they are working as much with the actual ag[riculture] producers as much as they were because there was a different philosophy with their conservation program, it's more like they thought all people in ag were abusing the land, that they didn't know anything about the industry. I can't abuse this grassland and still have a production of cattle, of our bison, or even wildlife—without taking care of the land.
> *– Leslie Henry, Oglála Lakȟóta Elder, lifelong learner and teacher of agriculture*

Tribal Food Codes

An estimated $3.3 billion is produced annually by American Indian and Alaska Native agricultural producers.[133] As the Native agricultural sector continues to grow, important legal questions are being raised related to the protection and revitalization of traditional foods. "Without the strong legal backing of sovereign Tribal governments, the individual Native food producers, food businesses, and food system creators working in food and agriculture on Tribal lands often operate in a legal grey area at a time when state and even local regulators in many places are already pushing into tribal jurisdictions, despite their lack of legal authority to regulate on Tribal lands […]."[134] Tribal Food Codes serve a variety of purposes, including exercising tribal sovereignty in support of food sovereignty, providing resources and legal standing to protect traditional plants, medicines and foods, supporting a local food economy of tribal food producers and food businesses through legal clarity, and indicating to other governments (federal, state, and local) that food systems fall under the umbrella of tribal sovereignty.[135] Food

codes are "[…] an essential fabric to the support, encouragement, stabilization and growth of a thriving food and agriculture sector. Without these codes—and their related codes in the commercial and business, business organization, environmental and conservation, and related supportive subject areas—a country is literally building a food and agriculture sector on shaky ground."[136]

The University of Arkansas' Indigenous Food and Agriculture Initiative (IFAI) has developed a Model Tribal Food and Agriculture Code. The model code "serves as a resource for Tribal governments, […] the model laws contained in the code were designed […] to facilitate agricultural production, food systems development, and health outcomes improvement in Indian Country."[137] The model food code can serve as a foundational resource for tribal nations looking to express their sovereignty through food and agriculture.

Food Code Examples

The Navajo Nation enforces a junk food tax on unhealthy foods such as soda pop. In 2004, the Lummi Nation passed a resolution known as "Stop the Pop" to create a healthy food environment for all members of their community, particularly youth and tribal employees. The resolution prohibited the "use of Tribal funds to provide pop and other sweetened drinks at Tribal government meetings (including committees and commissions), functions and events, and in school vending machines."[138] The resolution also required that all vending machines on Lummi Indian Business Council property provide healthy choices, for example bottled water or 100% juice.[139] The "Stop the Pop" resolution also called for efforts to support the "purchase of fresh produce, whole grain options, and traditional foods at all LIBC functions, meetings, and events."[140]
The Muscogee Nation passed a similar resolution promoting a healthy lifestyle through healthy food choices and physical activity. The resolution calls on "the Muscogee (Creek) Nation departments and entities to purchase locally grown food, vegetables, and fruits from farmers to enable our Muscogee (Creek) Citizens' access to healthier food choices and promote healthier lifestyles for Muscogee (Creek) Nation Citizens."[141] The Lower Sioux Indian Community enacted a resolution that calls for implementation of a policy that supports better access to healthier foods for members in a few ways. The resolution first established nutrition standards for food and beverages in vending machines. Trans fat labels are required on all packages, and vending machines must label calorie counts.[142] The resolution also "established a policy of offering food vendors at its annual Powwow a 50% discount on the application fee if they voluntarily agree to provide healthy and indigenous foods."[143] The resolution also initiated the call for a strategic plan that would find ways to ensure healthy and Indigenous foods and beverages are served at community meetings and for all events on community property.[144]

State Policy and Advocacy

In South Dakota, the state's Child and Adult Nutrition Services division administers USDA's Food and Nutrition Service and Food Distribution Division Programs, including the USDA Food Distribution for Child Nutrition Programs (CNP) and the School Nutrition Program. The Food Distribution Program for Child Nutrition Programs provides USDA sourced foods and funding to organizations that feed children. The amount of funding is based on the organization's average daily participation rate. Each feeding program has a set price for each meal entitlement. According to South Dakota's Department of Education, "Over 4 million pounds of USDA donated products (commodities) valued at over $2 million are distributed in SD schools annually. In addition, over 720,000 pounds of fresh fruits and vegetables

are distributed. The money to support this comes from a portion of USDA food entitlement. These are available to both public and non-public school food authorities participating in the National School Lunch Program. Summer Food Service organizations receive a very small commodity entitlement."[145]

At Wall school, nutritional regulations stipulate the amount of food that students are able to eat for free. If students would like a second slice of pizza they are charged. Those pieces must be tracked separately from first servings so that they can accurately request reimbursement from the government for the correct quantity of meals.

To serve beef or buffalo in Child Nutrition Programs in South Dakota, animals must be slaughtered and processed under state inspection or USDA FSIS inspection. While beef "may be slaughtered and processed under state inspection at Cooperative Interstate Shipment (CIS) Select Establishments in any of the eight states participating in the CIS program and be served in CNP meals or snacks," buffalo are not included in the CIS program, but buffalo that were slaughtered under South Dakota state inspection may be purchased or donated to be used in school meals. These processing requirements apply whether the meat was donated or purchased. However, there are traditional food inspection exemptions for CNPs that mostly serve American Indian and Alaska Native students. Buffalo is considered a traditional food, and as such, when served by Child Nutrition Programs that serve Native communities the animals "[do] not need to be slaughtered or processed under USDA FSIS or State of South Dakota inspection."[146] Schools that accept traditional food donations are required to take on additional responsibilities of food safety and preparation, which differ from the requirements for purchased traditional food products.[147] These provisions were first made in the 2014 Farm Bill.[148]

Schools who qualify for exemptions may be unaware of that fact or may receive funding from USDA programs and may only be able to purchase foods through approved vendors.

Schools or programs that accept traditional meat donations must adhere to the following regulations:

- "Ensure that the food is received whole, gutted, gilled, as quarters, or as a roast, without further processing;
- Make a reasonable determination that:
  - the animal was not diseased;
  - the food was appropriately butchered, dressed, transported, and stored to prevent contamination, undesirable microbial growth, or deterioration; and
  - the food will not cause a significant health hazard or potential for human illness;
- Carry out any further preparation or processing of the food at a different time or in a different space from the preparation or processing of other food for the applicable program to prevent cross-contamination;
- Clean and sanitize food-contact surfaces of equipment and utensils after processing the traditional food;
- Label donated traditional food with the name of the food;
- store the traditional food separately from other food for the applicable program, including through storage in a separate freezer or refrigerator or in a separate compartment or shelf in the freezer or refrigerator;
- Follow federal, state, local, county, Tribal, or other non-Federal law regarding the safe preparation and service of food in public or nonprofit facilities; and

- Follow other such criteria as established by the Secretary of Agriculture and Commissioner of the US Food and Drug Administration."[149]

A cottage food law that permits foods to be produced in home kitchens and sold directly to consumers has been in place in South Dakota since 2010. The law was updated in 2011, 2020, and most recently, in 2022. It applies to nonperishable and certain perishable foods. The law states where and under which conditions cottage foods can be sold across the state. South Dakota, unlike some other states, allows both home delivery and home pickup, as well as online sales and selling at roadside stands or at events. Cottage foods cannot be catered, mailed, or sold to wholesale clients.[150] In 2022, state legislators made it easier for cottage food producers to sell certain homemade items. Processors of cottage foods are required to pass an online training offered by the state's health department for $40, which is valid for five years after completion.[151]

The chart below demonstrates what foods can be sold directly to consumers in South Dakota through a producers' "home, farmers' market or similar temporary sales venue," whether licensing is required, and if so, what type.[152]

Representatives from Rapid City's food service program expressed that they would like to see additional support from state offices and other officials, as well as additional resources, in order to make local foods as accessible as possible and as easy as possible for schools to access. School cooks, especially in small districts, don't have the capacity to write a Farm to School grant. State policy to support spending on local foods would help schools source from local and regional producers.

South Dakota Cottage Food Laws

No State License Required	State License Required
Fresh, whole, uncut, fruits and vegetables*	Fresh cut fruit/produce (not frozen) and sprouts
Intact salad greens and herbs (dried or fresh)*	
Baked goods**	Take-and-bake products
Home canned foods with pH < 4.6 (high acid foods) or Aw < .85	Home canned foods with pH > 4.6 (low acid foods) or Aw > .85
Frozen fruit/produce (maintained)**	Juices and ciders
Nuts, grains, seeds, dry mixes (e.g., spice/season mix, baking mix, powder drink mix)**	
Naturally fermented foods**	Other prepared food/drink

*Does not require labeling.

**Requires labeling if packaged.

Federal Policy

In the 1990s, US Congress established a way for tribes to create Agricultural Resource Management Plans (ARMPs) that would allow them to exercise sovereignty in managing their tribal lands. The program has lacked sufficient funding since it was signed into law. ARMPs can be developed by tribes to create best practices for tribal land and inventory land on the reservation. ARMPs can be used by tribes to prioritize tribal members' range and farm leases. ARMPs can also require the use of specific conservation practices and lease terms.[153]

Through USDA programs, the US federal government has dedicated billions of dollars to feeding Native people as part of their trust responsibilities. While these programs help, they do not support the full nutritional needs of Native communities, nor do they typically engage with Native food producers within these communities.[154] Funding opportunities and guidelines updates are released on an ongoing basis by the USDA and other federal departments. The Indigenous Food Sovereignty Initiative was launched in 2021 by the USDA to bolster Indian Country agriculture, traditional foodways, and health for Native communities. The USDA's Food and Nutrition Service (FNS) lead the initiative. $3.5 million has been allocated via the initiative to support tribal self-determination through the Food Distribution Program on Indian Reservations. This amount includes staff funding to help expand domestic marketing opportunities for Indigenous producers through a partnership with the Intertribal Agriculture Council. The initiative will also fund food purchases Native producers to be used in educational promotion opportunities by both the Office of Tribal Relations and the Food and Nutrition Service.[155]

> We are trained to be consumers, not producers. And as a consumer, and as a government, [there has to be] a way to get money into the government. The easiest way is to have a government tax on what people consume, like a sales tax. And then train people to be consumers instead of producers. And then [the government has] revenue. Which isn't truly a government for the people. It's a government using the people and we don't even know it." …the minute they become a producer; the government is getting less dollars.
> *– Leslie Henry, Oglála Lakȟóta Elder, lifelong learner and teacher of agriculture*

Nutritional guidelines are governed by federal regulations. Organizations that receive federal funding for meals must follow these guidelines, including most non-profit organizations and public schools. All meat served in schools must be certified under USDA federal inspection. Federal procurement regulations also stipulate sourcing requirements that food service directors must follow. According to interviews with food service directors from three different school districts in western South Dakota (Rapid City Area Schools, Meade School District, and Wall School District), standard operating procedure for school food sourcing is to bid out the contract for all food supplies at the beginning of the year. However, with micro-procurement regulations, food service directors can source from local school districts when the purchase total for an order is under $10,000.

FEMA defines micro-purchases as "the acquisition of supplies, property, or services where the aggregate dollar amount does not exceed the micro-purchase threshold. The micro-purchase threshold is $10,000.

Micro-purchase procedures comprise a subset of a non-state entity's small purchase procedures. A non-state entity uses such procedures to expedite the completion of its lowest-dollar small purchase transactions and minimize the associated administrative burden and cost."[156] A checklist provided by FEMA can be found in Appendix G to provide a supplemental review of compliance with federal procurement regulations. If the answer to any of the questions is 'no,' the organization may be at risk of noncompliance with their contract. Non-state entities can self-certify micro-purchases less than $50,000 each year.[157]

A former member of a school board for Mitchell, a rural district in East River, South Dakota, was interviewed for this study and shared their experience with state and federal advocacy related to school nutrition laws, as well as their perspective on the importance of school districts having the autonomy to meet their students' needs while adhering to their district's food service budget. According to this former school board member, the Free and Healthy Foods Act, which was implemented under the Obama administration, was well intentioned but the implementation was too rigid and didn't allow school districts enough flexibility to meet their specific needs, i.e., the needs of rural South Dakota districts.

I look at it like, I need to grow the plant and cook and connect to the soil because the soil is what makes me healthy. And the closer I get my food to my natural place that I live, the healthier I will be.
– Leslie Henry, Oglála Lakȟóta Elder, lifelong learner and teacher of agriculture

The program was financially burdensome for South Dakota districts. It required fresh fruits and vegetables out of season, which had a higher cost for remote rural districts that districts were required to absorb. The stipulated portion sizes also didn't make sense for kids' ages; everyone got the same size, when elementary kids should have gotten less and high school students a larger portion. Prior to this legislation, lunch programs had been self-sustaining. Afterwards, Mitchell School District had to start taking money away from the federal fund to support classes instead to adequately fund the lunch program. Vending machine updates and smart snacks were two of the new costs. The legislation also added additional labor requirements to the district, and due to their relatively remote location, they can't purchase in bulk in the same way as other places. This legislation also didn't focus on overall wellness or physical activity, didn't provide nutritional education for kids, and largely missed out on any educational opportunities.

This representative worked with then-congresswoman Kristi Noem, current South Dakota state governor, to sponsor legislation during the Trump administration and advocate USDA Secretary Sonny Perdue to revoke some of the regulations that he had the authority to authorize. Some of the changes included changes to the smart snack's requirements, classifying green beans as a vegetable, relaxing the regulations around salt content and whole grains, re-classifying some produce as vegetables rather than fruit for the purpose of the program, and allowing canned or frozen vegetables to be substituted for fresh. Regulations around calorie count and portion sizes were beyond the Secretary's authority to change. As a result of these changes, participation in the district's school lunch program began to increase to previous levels, and the cost of

the program was once again competitive with other options. Meals cost approximately $3–4 for students and $4–5 for adult faculty and staff. Donations are also accepted to offset the costs for students who are unable to afford meals. 30–40% of the students in the district receive free or reduced cost lunch. Due to Mitchell's remote nature, they have a purchasing agreement with other nearby school districts, including Yankton, Brandon Valley, and Brookings. This co-operative agreement allows the districts to purchase in greater bulk and achieve better prices that can be shared between them. Mitchell's food service program, which also includes the local technical college and the college's culinary program, sources from local grocery stores.

Farms, Ranches, and Producers

Strengths

Land is one of the key strengths of Oglála Lakȟóta food system. According to the Bureau of Indian Affairs, the Pine Ridge Reservation consists of approximately 2.1 million acres.[158] However, according to analysis by Sweet Grass for Thunder Valley Community Development Corporation's 2018 report "Wakígnakapi: Developing a Food Hub and Grocery Store for the Oglala Lakota Oyate" of 2010 Pine Ridge Land Classification data provided by the Oglala Sioux Tribe Land Office TVCDC report, it encompasses 2.8 million acres.[159] While land presents great agricultural opportunity for the Tribe and tribal members, differences in how tribal land is classified can make accessing and utilizing land difficult. Land fractionation is another issue that tribes face.

I have this ten-year goal that I want to manage 1,000 acres. The way I see it every, every piece of land, throughout this country, and really the whole world is managed in some way by someone, so a person is making a decision on if it is totally left alone, or what level of management goes in. So I think I want to decide how a bigger span of an ecosystem is managed, how that is able to thrive. So that's what I'm working towards. [I don't know if I] will ever own 1,000 acres free and clear. I know, I want to own the ground that I live on, sleep on. So I don't get kicked off again, basically. – *AJ Granelli, Makoce Ag Farm Director and owner/operator of Homegrown Pork and Poultry*

Land Classification	Total Acres	% of Total Acreage
Allotted to individuals (trust)	1,056,730.80	38%
Fee (deed)	1,073,486.75	38%
Government	8,626.14	0%
Tribal Government (trust)	663,480.23	24%
Tribal Reserve (trust set aside for schools, towns, etc.)	2,586.71	0%
Total acreage	2,804,911.89	100%

Pine Ridge Land Classification by Acreage[160]

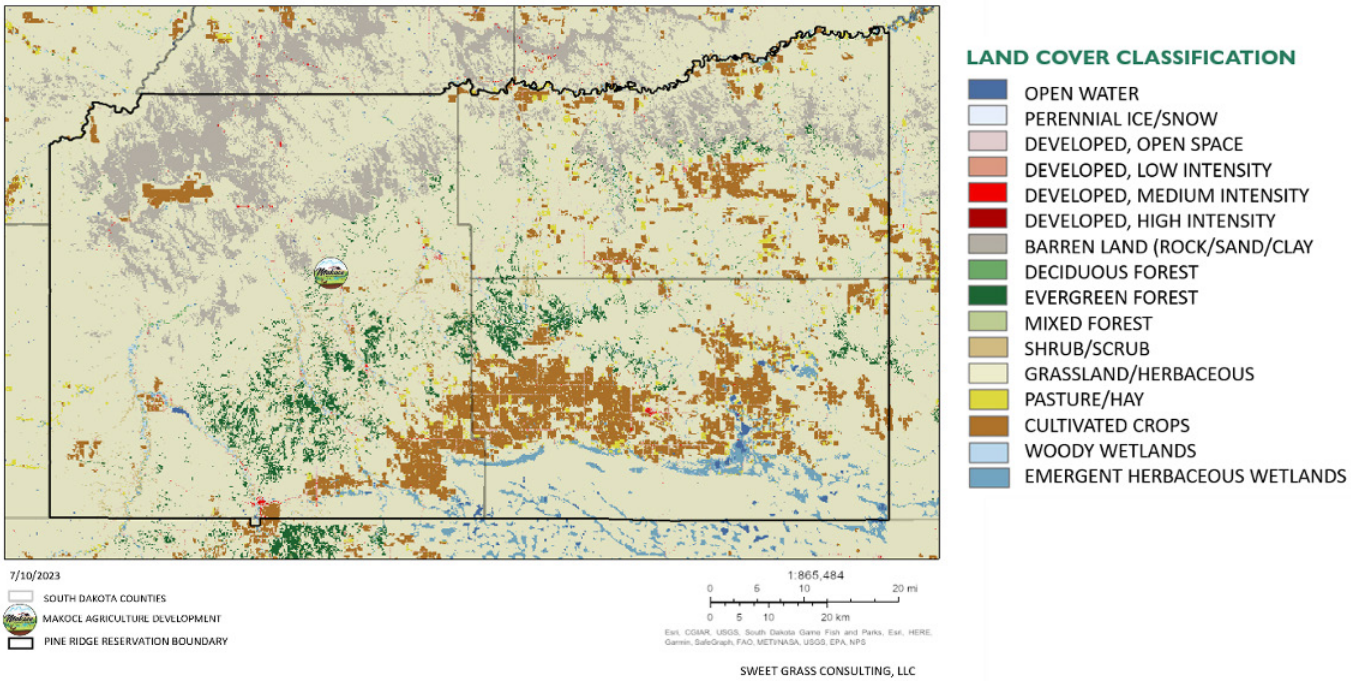
The chart below shows the breakdown of tribally owned land within Reservation boundaries between fee, restricted fee, and trust land.

Tribal Land Classification	Total Acres	% of Total Acreage
Fee*	31,778	1.41%
Restricted	3,615	0.16%
Trust	2,210,963	98.42%

*Does not include all the fee lands within the boundaries of reservations (only fee lands owned by the tribe).

In 2019 only 9% of the land on Pine Ridge was used for cultivated crops. The map below shows land cover types for the Pine Ridge Reservation as of July 2023.

Pine Ridge Reservation Land Cover Database[161]



2019 Pine Ridge Land Cover Types by Acreage

NCLD Land Cover Types[162]	Total Acres	% of Total Acreage
Pasture/hay	34,732	1.25%
Cultivated crops	261,146	9%
Developed, low intensity	12,126	0.44%
Developed, open space	21,770	0.78%

AJ Granelli, owner/operator of Homegrown Pork and Poultry and Makoce Farm Director, credits the grass as "[…] a valuable resource that I don't think I could over exaggerate. Without it, I don't have anything. Everything that I market is in a pasture-based system, a system that kind of keeps that prairie intact and thriving. It fluctuates on how well I think I'm doing on that."[163]

AJ works to keep his garden a closed loop system, based on the way ecosystems naturally operate. He fertilizes his garden with chicken manure and runs different animal species over the same land during different times of year to expand the types of enterprises he operates. In his words, "If I can make $5 on this spot of chickens and another $10 at the pigs use that as well, as opposed to having twice as much area. So yes, I'm always trying to think in a regenerative mind, how do we replicate ecosystems? And essentially, we are harvesting off the excess on ecosystems? That's how I envision regenerative agriculture."

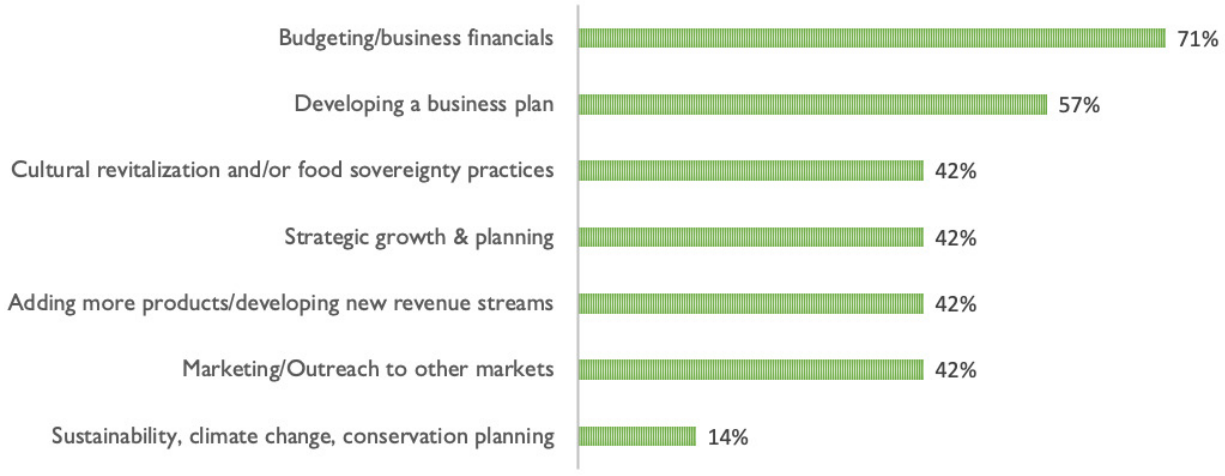
AJ currently operates on ten acres but would like to expand to 40 acres to triple his pig production and expand his market garden and poultry flock. He currently has approximately 1,000 chickens, which was down from 3,000 during the summer of 2021. He keeps between 30 to 50 pigs at any given time, depending on the time of year. He typically has three to four sows (breeding mothers) at a time and a boar, then sells piglets and feeder pigs. He processes animals approximately every two months and usually brings six to eight pigs to the butcher during one trip. He harvests around 50 pigs per year and sells 20 to 25 piglets on top of that. He would also like to add grazing animals to his current operation to convert a larger amount of grass into edible meat calories. He anticipates starting with sheep and goats to control plant growth in his pastures once he expands to 40 acres. His ten-year goal is to manage 1,000 acres.[164]

While AJ raises pigs and poultry, the Pine Ridge Reservation and surrounding area is also home to a significant amount of cattle, many of whom leave the region to be processed. There are approximately 52,500 cattle on the Pine Ridge Reservation, according to the WWF's compilation of cattle on Native nation lands in the Northern Great Plains, using data from 2012, 2017, and 2020. In addition to cattle, crop production in the region is focused on growing for the commodity market (see the

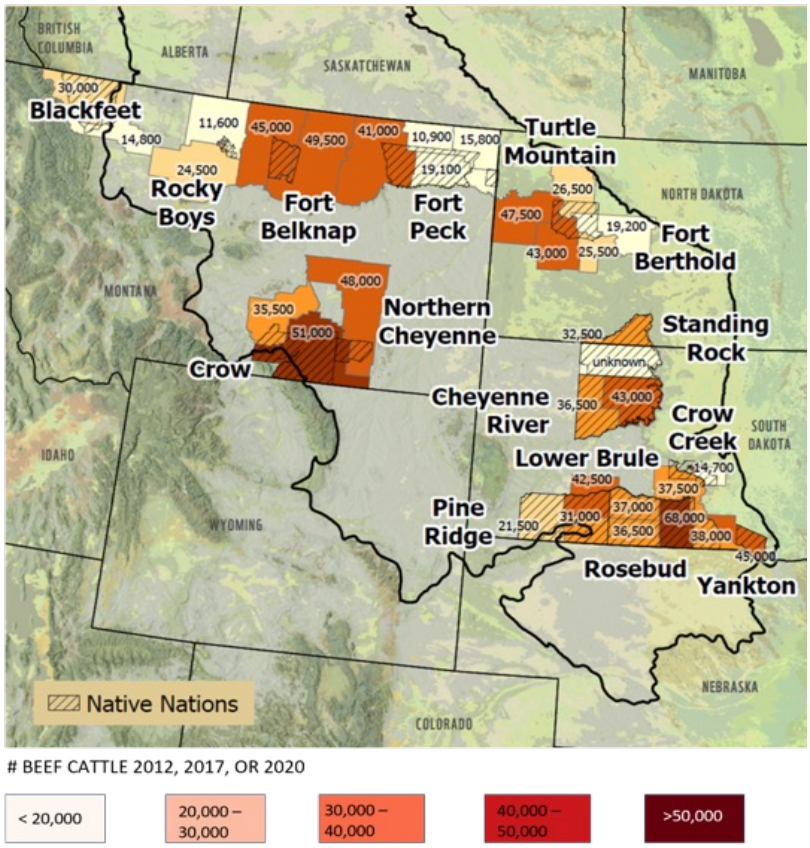
Agriculture in the Homelands section for more details). Overall, the potential capacity of the region to produce enough food of the appropriate types to feed residents is high.

The producer survey conducted by Akiptan CDFI in 2022 further indicated local capacity. It had a limited sample size of seven, so the results are not statistically significant, but 86% of respondents were ranchers, 43% were farmers, and 14% (one individual) was a value-added processor for poultry. 43% are women, and 57% are men. They range in age from 28 to 68. All are members of the Oglala Sioux Tribe. All farmers raise hay, forage, pasture, or grass, and one also raises poultry. All ranchers raise cattle, and 33% of ranchers also raise horses. All producers leased land, and 57% also own land. However, only one farmer owns land. All producers operate on trust land, and 29% of producers operate on fee land. Five producers reported where they sell products, and 100% of those who reported sell directly to retail markets, institutions, food hubs, and sale barns. 40% of producers also sell directly to consumers and individuals. Those producers raise cattle for meat, and one also raises hay and forage. The income of surveyed producers varies widely; only one producer reported no net profit or gross revenue, one made less than $1,000 net profit, another less than $10,000 but more than $5,000 net profit, another between $10,000–$24,000 net profit, one made between $25,000–$49,000 net profit, another $100,000–$149,999, and another between $250,000–$299,999 in net profit in 2021. The producer with the highest net profit sells cattle. 43% of producers had about the same net income or lower post the COVID-19 pandemic. 57% of producers are neither satisfied nor unsatisfied with their income, 29% are unsatisfied, and only one producer is very satisfied with their income. They earn between $25,000–$49,000 per year. Producers have anywhere from less than two years of experience to more than 31 years of experience. A plurality (42%) has between five to nine years of experience.[165]

Percentage of Pine Ridge Producers Who Are Very or Extremely Knowledgeable About:



Native Nation Beef Cattle Northern Great Plains



**Map provided by Dennis Jorgensen, WWF Bison Program Manager for the Northern Great Plains, May 2023.*

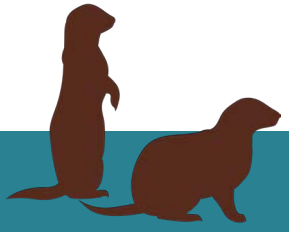
The availability of wild game is another strength of the Oglala Sioux Tribe's food production that is directly related to access to land. The Oglala Sioux Tribe Parks and Recreation Authority (OSPRA) last updated their Hunting Guidebook in 2022. Topics covered include elderly tags, big game—deer, antelope, elk, turkey—small game and waterfowl, furbearers, mountain lions, buffalo and elk division game range hunts, and fishing.[166] OSPRA Game & Fish program estimates that there are around 500 pastured and free ranging elk on the reservation.[167]

Hunting licenses are available online or in-person at the OSPRA office in Kyle, South Dakota. Non-tribal members must have a guide who is an enrolled tribal member that is certified by the OSPRA office. The licensing application fee for all applicants is $30 per year. A guide is not required for non-tribal members to fish on the reservation.[168] Tribal members are eligible for elderly/subsistence licenses in-person at the office in Kyle if they are 55 or older on the day of season opener. Elderly/subsistence licenses provide a free doe deer; elders may apply for other hunting licenses and pay the full application fee for those licenses. Elders who are unable to hunt or do not wish to hunt can appoint an enrolled member of the Oglala Sioux Tribe to hunt for them.[169]

It is forbidden for any individual to trade, barter, buy, sell, or offer/intend to exchange any wild animal carcass or parts, including fish, unless they have verbal or written approval from OSPRA to do so. However, it is permitted to sell or trade heads, bones, hides, dried antlers, or horns from "legally harvested big game animal[s]" for traditional or religious ceremonies. OSPRA is also permitted to trade and/or sell animal, fish, and bird parts or carcasses for administrative or management reasons.[170]

Farm to School and Agriculture Education

One of the major strengths for Indigenous agriculture on the Pine Ridge Reservation and surrounding region is the growth of not only Farm to School programs, but agricultural education programs for youth. Both Red Cloud Indian School, located outside of Pine Ridge, South Dakota, and the Sicangu Co. Food Sovereignty Initiative on the Rosebud reservation offer youth agricultural educational programming. The Oyate Teca Project, which is based on Pine Ridge, also offers gardening education to community members.



Case Study: Red Cloud Indian School Farm to School Program

Key Takeaways

Red Cloud operates a Farm to School program on their campus with a dedicated manager. They have a school garden, which includes a chicken coop. In the summers, high school students are hired to work in the garden. Educational programming with the students is one of the key benefits of having a garden directly on campus. The educational programming also includes traditional Lakȟóta foods that grow in various areas around campus, such as chokecherries and plums, and the overall focus is on plants. The Farm to School program also works with the school's kitchen staff to incorporate as many Lakȟóta and local foods into the menu as possible. They have worked with various growers and organizations over the years, including the Lakota Food Sovereignty Coalition. Currently, their Farm to School program is solely based on the food produced on campus, but they hope to source more local foods as local production increases.

The primary gardens are on 1/8 of an acre. There are two high tunnels that are 14' x 100' each, as well as a geodesic dome greenhouse that is 33 feet in diameter. In total, there are approximately 40 hens and no roosters. During the winter, egg production slows down to approximately 24 eggs per day that are sent to the cafeteria. Over the next few years, the goal is to maintain current garden spaces and operate them to their full capacity while cultivating additional native plants around Red Cloud's campus. They would also like to increase programming around Lakȟóta foods and get traditional foods into the cafeteria. Currently all the food produced is consumed fresh and is taken to the cafeteria the same day it's harvested. In the future, they would like to begin doing more preservation for products like tomatoes. However, they don't currently have the capacity to process in bulk or store the processed products. Furthermore, the contract with their kitchen management service (Sodexo) may also impede their ability to preserve food.

Educational Programming

Programming depends on the grade level as well as the season. As an example, in February, the third-grade teacher signed up their class for a 1.5-hour lesson. Students picked up vegetable scraps from the cafeteria and fed them to the chickens to learn where eggs come from. They also learned about pine, a native plant that has been and still is used for medicinal purposes, and made cookies using pine needles and eggs from the school's chickens. Programming may include science but is largely enrichment-focused and intended to build understanding of food system connections. In addition to Katie Chusak, the Farm to School Manager, the school also hired a Lakȟóta cultural foods coordinator in the summer of 2022.

In summer 2022 the staff focused on taking inventory of what plants are growing around campus and where. They intend to plant more native species in areas closer to the garden to make it easier to include in student lessons, as trekking over campus to find various plants—especially for younger

students—can be time consuming. Currently there is no requirement for teachers to sign their students up for the Farm to School programming. Prior to COVID-19, time slots for classes were more regular, but shorter, whereas now they are scheduled more sporadically but often for longer periods of time.

The school offers hard-boiled eggs and hard-boiled egg classes—from collection in the coop to cooking—which the students enjoy. The goal of the program is to do as much of the culinary educational programming as possible to create connections in students' minds between the food being grown outside and the food being eaten in the cafeteria. Cafeteria classes take place in the afternoon after both breakfast and lunch have been served and the kitchen has been cleaned. For educational programming in the morning, there's a kitchen space attached to The Heritage Center at Red Cloud.

Youth Internship

The summer internship for high school students is approximately ten years old and began when the school received a STEM education grant to start the greenhouse. At that time, it was primarily a space for science teachers to use, and then interest grew in school gardens. When Chustak joined Red Cloud's staff she became involved in the Lakota Food Sovereignty Coalition and began shifting the focus to align with the community's goals. They began working with the cafeteria to implement a Farm to School model and in the past four years their programming has been growing more consistent. The internship was not offered during the first year of the COVID-19 pandemic. During this time, they distributed produce from the school garden in the community and put together home garden kits to give to families who wanted them.

In addition to learning, the internship also includes a leadership component, such as teaching lessons to younger elementary summer school students. This type of programming has been popular with both older and younger students. The internship is structured so that students learn about plants before they are expected to teach those lessons to the younger kids. They've also asked the Oglala Lakota College Extension Agent to come to the school and offer educational programming with the interns. Typically, three to four interns are hired each summer. In 2022, they were paid $12/hour for four hours per day, four or five days per week. They've had interns who have gone into animal science or pre-veterinary programs, as well as some who've pursued environmental science. The program is still relatively young, and some students have interned for multiple years throughout high school. The high schoolers that participate in the internship really enjoy and are excited by the program. For the elementary school, enjoyment varies by class.

Challenges

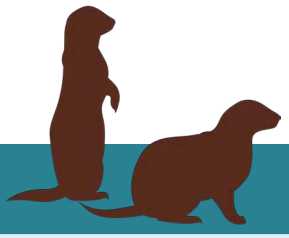
The school had used the USDA Farm to School Grant in the past, but it did not necessarily fund procurement. They've worked with a private foundation that supports healthy school meals and helps fund the fresh fruit and vegetable program for snacks. It would be ideal if local purchases could be subsidized because they're usually more expensive than items from a distributor, and the school is committed to providing universal free meals for their students.

The school also conducts an annual buffalo harvest that students participate in and is one of the focal points of the school year. Community experts are invited as well as one or two elders, but it is not an open event. The buffalo is shot in the field by a small group of students with several staff members and brought back to the school on a trailer for dressing and processing. Currently, the school is navigating federal and state policy to figure out how to use the field-harvested buffalo meat in school meals.

They've used the meat for special events in the past, as it is not USDA or state inspected. There is a federal exemption that will allow them to use it as a traditional food, but there are more stringent requirements around the use of donated meat in regular school meals. They have purchased buffalo meat through Sodexo to serve in schools, but it is not harvested traditionally. The closest USDA local processor is located two-to-three hours away in Sturgis, South Dakota, which is a barrier to sourcing more buffalo meat. However, there are some schools in Montana that are sourcing local buffalo using the Sturgis processor.

Opportunities

The Farm to School program has plans to increase educational programming around the buffalo harvest day, which is possible thanks to the hiring of a Lakȟóta cultural foods coordinator. There has also been effort to build programs and lessons around cultural foods, including inviting people with expertise to come to school to teach students for one-off events. These events help the school staff build their knowledge and capacity so that they can offer those lessons in the future. The event is sponsored by the spiritual formation department. The chickens are currently producing, but once production slows down there is interest in slaughtering them during the summer for the following school year. The kitchen would need the capacity to prepare the chicken from scratch but is currently not set up to do so. However, it has been easy to supply eggs to the kitchen and raise chickens in the garden. The largest barrier to supplying eggs to the cafeteria was securing a candling license. The chickens for the school's flock were Rhode Island Reds, sourced by Nick Hernandez (Makoce Ag CEO) from Bomgaars.



Case Study: Oyate Teca Project

Key Takeaways

Since 1991, the Oyate Teca Project (Young Peoples Project) is a non-profit organization based on the Pine Ridge Reservation in Kyle, South Dakota, that promotes "[. . .] the wellbeing of children and their families through culture, education, recreation, and health programs." These hands-on programs cover a wide range of important topics related to the physical, cultural, economic, and financial well-being of Lakȟóta people, including several related to food and food systems. The KOLs we interviewed reported positive experiences as participants in gardening classes and as recipients of the produce grown on site. According to Dave Kelly (Director of Oglala Sioux Tribe's Department of Transportation and rancher, commodity farmer, and gardener), the program's 16-week gardening course helped him expand his garden to four times its size, with plans to expand further still.

In spring 2021, the organization announced plans for the Oyate Ta Kola Ku (Friend of All Nations) Community Center, which will be financed through donations and a partnership with Running Strong for American Indian Youth, a non-profit co-founded by Gene Krizek of Christian Relief Services Charities and former Olympic track champion Billy Mills (Oglála Lakȟóta). This community center will feature an indoor gymnasium for recreation and events, classrooms, reinforced restrooms that will double as tornado shelters, a year-round farmers' market, a warehouse, a teaching kitchen for cooking classes and mass food prep, and a sit-down restaurant serving traditional Lakȟóta foods.

Challenges

The COVID-19 pandemic disrupted Oyate Teca's in-person education efforts, which rely heavily on a hands-on approach. During this time the organization continued to provide some limited youth programming, as well as host events for Easter, Halloween, and Christmas, however most of their normal activities were simply not feasible given the severity of the health crisis. The effect of COVID-19 on the organization's activities is a difficult reminder that local food systems (and the entities that comprise them) are inextricably embedded within regional, national, and global contexts, and that resiliency in the face of social and environmental processes is vital.

Opportunities

Oyate Teca's various classes offer opportunities for community members of all ages to gain extensive knowledge in various aspects of traditional food production. For example, the Medicine Root gardening program is a nine-month course for community members with entrepreneurial interest in growing seasonal produce. Preservation/value-added classes are offered as well, helping gardeners produce value-added products through methods like canning and dehydrating. The Farmers' Market, in turn, provides an important avenue for course participants to sell their produce and value-added

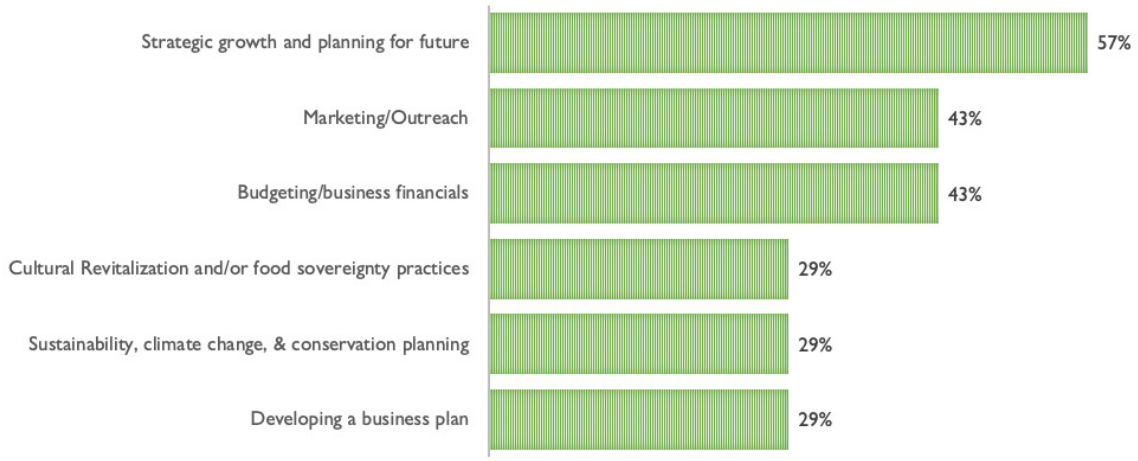
products to consumers. With multiple sites across the reservation including Sharps Corner, Pine Ridge, Manderson, Martin, and Kyle, the Farmers' Market, which accepts EBT/SNAP benefits, operates from June through September. In addition, the organization's Vegetable Distribution Program is an opportunity for Medicine Root Gardening students to sell some of their produce to Running Strong American Indian Youth to support their monthly food box distribution program.[171]

Other agricultural training opportunities for youth on the Pine Ridge Reservation related to cattle include the SDSU Extension Pine Ridge Office's 4-H program,[172] as well as the FFA chapter at Pine Ridge High School.[173]

Gaps and Opportunities

The primary gaps and associated opportunities related to agriculture in the region include land fractionation, processing capacity, financing, succession planning for the next generation, and the ability of community members to access community gardens or land to garden on. The chart below also shows responses from Pine Ridge producers to Akiptan's producer survey in 2022, highlighting the areas in which they would like assistance or training.

Pine Ridge Producers Would Like Assistance With:



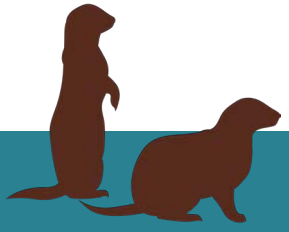
Land Fractionation and Building Wealth and Health Through District Land Leasing

The reservation counts over 20,000 unique landowners, which includes enrolled tribal members, non-enrolled individuals who own trust land, and enrolled members of other tribes from the Great Plains region and beyond.[174] On the Pine Ridge Reservation, there were 8,274 original allotments of land that were deeded to tribal members. Today, there are over 204,000 Native individuals who have an ownership stake in those allotments and 1,600 non-tribal members. 157,000 land-owner interests own less than 2% of an original allotment.[175] Issues of land fractionation are a major impediment to land use on Native nations. As of December 2018, 31.4% of land ownership interests in the BIA Great Plains region were fractionated, covering 30.2% of the total acreage under tribal control.[176] Land fractionation compounds the challenges that Native producers face in accessing capital, which will be discussed in the following Gaps subsection of this section of the report.[177]

Recommendation

To help address and prevent issues related to further land fractionation, one of the areas of technical assistance that Makoce Ag can provide to Native landowners is support in strategic planning and succession planning, including writing wills, gifting deeds, and estate planning. Makoce Ag may eventually develop these services in house but could also help connect the region's producers with organizations that already provide support with these types of services, such as Indian Land Tenure Foundation and Akiptan CDFI.

Experience, trust, and innovation fueled by communal land stewardship similar to that of our ancestors can be used to build community wealth and health, despite the severe issues caused by land fractionation. Buffalo caretaker and cattle rancher, Courtney Brownotter, along with the Rock Creek District on the Standing Rock Reservation just north of us, provides an example of how district land leasing can be used to build community wealth and health. This could be replicated here, as OST policy has a tiered system that favors district leasing; it is up to us to use it.



Case Study: District Land Leasing to Build Community Wealth and Health[178]

Key Takeaways

Courtney Brownotter began raising cattle 20 years ago on the Rock Creek District of Standing Rock Reservation. With financial support from Indian Land Tenure Foundation and a private donor, they were able to build 44 miles of fence. After becoming a successful cattle rancher, he and his family decided to raise buffalo. The buffalo herd is now made up of 169 breeding age cows, 30–35 bulls, with 300 head total roaming 7,000 acres.

Half of the heard is owned by Courtney's LLC, and the other half is owned by the Rock Creek District. Half the land lease is paid for by the district; the other half is paid for by Courtney's LLC. Because of his experience, the district council pays Mr. Brownotter a consulting fee to manage the land and the animals. In this way, the community is empowered to engage in their own food sovereignty while having the opportunity to rely on a locally born-and-raised expert to guide the process.

Challenges

Challenges for this arrangement include maintaining relationships, keeping business out of politics, and being strategic when thinking about the long term (e.g., having to make decisions that might, for the very short-term, make the tribe less money by ending a lease and/or not having consistent lessees).

Courtney explained some of the process:

> One of the biggest advantages we have with Rock Creek has been our ability to keep business, government, and family separate. I was able to operate on my own as long as I did my monthly reporting, and they did not interfere with the operations. It is only in the fall when I deposit my money into their portion, that they get involved. That has been the best thing that happened. They have allowed me to operate. The operation is there to make money, the district council is there to disperse the money, and there is no overlap. The board does not micromanage; I guess it all comes down to trust.

Opportunities

As companies around the globe struggle with employee retention, Mr. Brownotter is able to depend on a group of young men (that he successfully trained) from the Rock Creek District. To minimize the 80-mile one-way trip, several field hands stay in a home on the ranch at any given time. During fence building and repair, there were up to 14 employees. While building the buffalo corral and fencing, they partnered with welders from Sitting Bull College who provided welders and also taught Courtney's team to weld over 100 panels.

Courtney and the district council are now able to provide buffalo to the district. There have been talks with the other seven districts to replicate the process in their districts. To date, one other has agreed to allow Mr. Brownotter assist them with land management—providing buffalo meat and employment to their families and increasing the economic wealth of the community.

Recommendation

The Oglala Sioux Tribe has policy that favors district policy, it is just lesser known and not implemented. Makoce Ag can work with OST and district councils to plan for district buffalo herds, district agriculture production, and workforce development to enhance access to foods, enhance district income, perpetuate community wealth, and revitalize ecosystems.

Processing

A list of beef and buffalo meat processors within 200 miles of Kyle, South Dakota, can be found in Appendix A. The lack of processing capacity on the reservation means that local producers must transport their livestock long distances to slaughter, which increases production costs. Since the onset of the COVID-19 pandemic, smaller producers have also faced challenges in securing processing dates as plants prioritize producers with more animals. The reservation does not currently have any sort of cattlemen's association or producer organization to advocate on behalf of a collective of local ranchers for better prices and sooner slaughter dates from processing plants. In the words of Dave Kelly, rancher and Director of the OST Department of Transportation, "We have no marketing strategy here on the reservation for the ranchers to deal with the large-scale meat packing plants. I think if we created a consortium here, a cattleman's association, we could set better prices."[179]

Financing

Indian Country agricultural producers also face significant financing gaps.[180] This is especially true for producers who don't come from an agricultural background and don't have the option to purchase or inherit a family farm or ranch and all the associated infrastructure and equipment. There is a vast difference between starting out as an agricultural producer of a multi-generational family operation and starting

as someone without any agricultural background or assets. In addition to expanded financing opportunities, programs that train and support beginning producers can help individuals without an agricultural background learn how to secure access to land on the reservation and begin an agricultural operation.

The issues associated with financing gaps for new producers were discussed during interviews with multiple agricultural producers. Although there are financing options available on the Pine Ridge Reservation, the pathway to access them is not always clear to new producers. Agriculture is also a largely debt-driven industry, and producers often take on significant amounts of debt to scale their operations and generate a reasonable profit to live off of. However, for those who come from a background where it may be the norm to have a nine-to-five job that doesn't require taking on significant debt to earn a living, the risk associated with large amounts of debt can be an intimidating premise. According to AJ Granelli, owner of Homegrown Pork and Poultry and Makoce Ag Farm Director:

> There are some financing options through the local credit union. I know because I live on the reservation, and I bank there. But having those kinds of options out there still doesn't [help] If you don't come from an agriculture background [and] don't know how to tap into it yet. You know what I mean? I'm learning as I go, I think trying to figure it out. I know, that's not realistic for everybody, though. So I don't know, like, some better education on that. I do not feel like I'm super financial savvy, or I feel like I'm relatively well organized. But at the same time, I have not yet figured out how to take on any debt to leverage that. I know it's going to be kind of a necessary evil. But I'm also nervous about that, right. I've never taken on significant debt that could, I don't know, take all my animals or my house or whatever, you know what I mean? So, we'll see how that that plays out, I guess.[181]

Profit margins are typically tight for small-scale producers. The target profit revenue for Homegrown Pork and Poultry is 20%; that is, for every $100 spent on the business, the goal is to generate $120 of revenue. To achieve a $20,000 profit, revenue must equal $120,000 per year. Cash flow has been an ongoing challenge, especially since AJ started the business without a large investment or significant assets to leverage. He has continued to reinvest profits back into the business to grow the operation. In this way, he's been able to grow his infrastructure without taking on a large amount of debt. However, at the business's current size, he feels it's grown as much as possible without taking on significant debt to grow the infrastructure even more. The current scale of his operation is "[…] not realistically profitable. So, it's either kind of a shut down or reevaluate some added scale systems."[182]

Bamm Brewer, a buffalo caretaker and manager of Charging Buffalo Meat House, also discussed challenges that the Meat House has had in relation to financing. As the Meat House is operated by the non-profit One Spirit, an organization that works in conjunction with the Oglála Lakȟóta people on Pine Ridge to support their basic needs and future growth, they could benefit from grant funding to support meat

processors. In spring 2023, Bamm shared how their costs had increased and they were facing the decision to increase the cost they charge to producers to process their animals. Processing animals under custom-exempt rules is only profitable when animals can be processed in bulk, which is incredibly physically demanding on workers. The Meat House is currently expanding their processing plant and pursuing federal inspection to be able to sell to wider markets and improve their efficiency to increase the operation's profitability.

Elsie Meeks also provided perspective around the financing gaps that Native producers face on the Pine Ridge Reservation. Both she and her husband were raised on ranches but still faced difficulty when they sought to enter the cattle business approximately 40 years ago. They were unable to secure large loans from the bank, so they started small and gradually built their herd over time. Currently, they have about 275 cattle, primarily Angus. They've always operated as a cow-calf operation because they didn't have the financial capacity to run the calves on the land until they could be sold as yearlings or two-year-olds.[183]

While there continue to be barriers for Native producers in accessing traditional financing, the Native finance industry does have a strong presence in southwestern South Dakota, and there is financial support available that is geared towards meeting the needs of Native producers. The table below lists the Native community development financial institutions that serve Pine Ridge and the surrounding region through agricultural financing. Mazaska Owecaso Otipi Financial is another Native CDFI located on the Pine Ridge Reservation, but their services focus exclusively on supporting Native homeownership.

Native CDFIs Serving the Pine Ridge Reservation

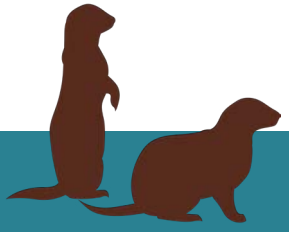
Organization	Funds	Max. Loan Amount	Other Services
Akiptan	General agriculture loans and youth Ag loans	$250,000	Technical assistance, financial literacy
Lakota Funds	Agriculture loans for Native producers	$300,000	Business training/coaching, wealth building, art entrepreneurship, youth services
Four Bands Community Fund	Agriculture business loan and Ag line of credit	$250,000	Youth education, consumer wealth building, business loans and business coaching/training
Tatanka Funds	Recovery Ag Producer Grant, in partnership with Native American Agriculture Fund (NAAF), for producers impacted by the COVID-19 pandemic and December 2022 blizzards		Financial literacy, business development, credit-building loans, business micro-loans
Black Hills Community Loan Fund	Business loans	$100,000	Financial education

The OST Credit & Finance Program is another local resource that directly supports tribal members. The program operates under 638 contracting regulations and allows OST to design how the program addresses community members' needs, gearing offerings towards credit and financing support related to business laws, procedures, instructions, expanding business development, small business technical assistance, and more. The program serves as a liaison between tribal members and outside entities. There is interest in developing a tax system for people who work outside of the tribe, and a system to help market small businesses. The program is interested in supporting private sector development on the Pine Ridge Reservation and currently operates the casino as a revenue-generating and economic development enterprise. The TERO office collects fees from outside businesses operating on tribal lands. The Tribe has the opportunity to exercise its sovereignty in support of economic development and is willing to do so to benefit tribal members.[184]

Succession Planning and Training the Next Generation

Another key gap in the local agricultural sector is the need for increased succession planning, recruiting, and educating the next generation of farmers and ranchers. Akiptan CDFI conducted a national survey of Native agricultural producers as part of their 2022 Native Agriculture Market Study, which was spearheaded by Sweet Grass. Only seven producers who operate on the Pine Ridge Reservation responded to the survey; 71% do not have a succession plan, but 80% of those without a succession plan would like to develop one. Producers without a succession plan have been operating for a wide range of time, from less than two years to over 31 years. 57% of Pine Ridge producers rated themselves as somewhat or moderately knowledgeable about strategic growth and planning, including succession or transition planning, resiliency, and emergency preparedness. 14% ranked themselves as very knowledgeable, and 29% rated themselves as extremely knowledgeable. These figures demonstrate the need for increased support for succession planning and strategic planning for agricultural producers of all experience levels on the Pine Ridge Reservation.

Sicangu Co.'s Food Sovereignty Initiative, based in Mission on the Rosebud Reservation to the east of the Pine Ridge Reservation, has offered a beginner farmer-rancher apprenticeship program called Waicahya Icagapi Kte (WIK), or *They Will Grow Into Producers*, to adult community members since 2019. Apprentices are hired for eight months and during that time learn how to grow and produce food for themselves and their community. Each cohort has approximately five participants, and the Initiative is working to find ways to support producers after they complete the program. Some ideas include supporting apprentices and former apprentices in developing business plans that would allow them to secure bank financing as well as working to improve the program by addressing any gaps that participants identify. Apprenticeship opportunities like the WIK internship and the apprenticeship program offered by the Hopi Tutskwa Permaculture Institute on the Hopi Nation in Arizona can play an integral role in cultivating the next generation of farmers and ranchers. Cultivating the next generation of agricultural producers can also involve working with youth.



Case Study: Hopi Tutskwa Permaculture Institute

Key Takeaways

The Hopi Tutskwa Permaculture Institute (HTPI) is an Indigenous-led non-profit working to channel community efforts toward rebuilding culturally sustainable and healthy communities within the Hopi Nation through intergenerational knowledge transfer.[185] In particular, the organization focuses on issues related to food systems and ecological health. As a community-based organization, the Institute seeks expanded access to quality foods in innovative ways that go beyond the capitalistic economic model that places distressed communities at a severe disadvantage. They offer several hands-on education programs for community members interested in being involved in food production, including farmer training programs, permaculture programs, youth programs, and a natural building internship. In addition to these programs, HTPI also runs a Land Steward Fellowship program for Indigenous land stewards, which aims to foster up-and-coming Indigenous leadership within and beyond the Hopi Nation. Beyond education and training, HTPI also partners with various non-profit, agricultural, and academic entities to run a community supported agriculture (CSA) program and farmers' market, greatly increasing community access to local produce and meat.

Challenges

The CSA program emerged as a response to challenges presented by COVID-19. In addition to allowing for a safer and more resilient food pathway. The program also allows for easier points of transfer between food producers and consumers. As with many rural areas (though especially in reservation contexts), interrelated issues of transportation and distribution place restraints on food access within Hopi Nation. While the Institute's farmers' market and CSA program partially address these restraints, their work to remove them is ongoing.

Opportunities

HTPI is currently in the process of renovating and expanding its existing office space to include a Learning Center and Community Kitchen.[186] Further details on this expansion are not yet public, but it will not doubt further expand HTPI's already significant positive impact on the resilience and sustainability of local foodways and ecosystems.

> It seems like society around the world is disconnected [. . .] everyone got too much into the 'me' generation, and I should have everything I want, instead of looking at holistically and I really haven't figured out how you get that across, other than do the best you can, living holistically.
> *– Leslie Henry, Oglála Lakȟóta Elder, lifelong learner and teacher of agriculture*

One promising development in the realm of food production and food access is One Spirit's expanding garden, greenhouse, and orchard capacity. According to Food Sovereignty/Food Access Manager, Steve Hernandez, the organization has 60 total apple and pear trees across multiple locations and has plans

for on-site gardens and greenhouses to help meet supply needs for the families they assist.[187] However, in general, there is still a need for community gardens and increased training for beginning agricultural producers on the Pine Ridge Reservation and surrounding area. A representative for Oglala Lakota County School District's food service program shared that they don't think there is good access to local foods on the reservation and surrounding area. In Batesland, there is a community garden with a greenhouse where food can be grown year-round, but the produce is only for members of the community and a local individual who grows a large garden and sells his crops throughout the summer. The representative also has family members who garden and give away any surplus crops they have for free. But in general, there are not many people or organizations who are growing a garden large enough to produce enough food to sell at a farmers' market or other local sales outlet.

Recommendation

Through the Food Systems Institute and partnerships with local organizations, including a potential partnership with Oglala Lakota College's agricultural extension office, Makoce Ag could develop a beginner farmer-rancher training program. These programs take different forms throughout the US and can receive grant funding from the USDA to get started. Other training opportunities include the possibility of offering permaculture design certificates, which could be holistically integrated into Makoce Ag's programming through the Food Systems Institute.

Makoce Ag already has plans to integrate regenerative landscape and building design into the site plan of the Food Systems Institute and Food Hub. Partnering with Indigenous permaculture practitioners would allow Makoce Ag to teach community members skills such as natural building and food production through a holistic framework that fits into the existing mission and vision. Training and apprenticeship programs can bolster the resiliency of the local food system by providing necessary workforce development for the agricultural industry.

Collaboration and Connections

Collaboration, coordination, and cooperation were major themes from the KOL interviews, with many interviewees, specifically producers, widely interested in opportunities to collaborate if such opportunities would be beneficial for their operation. This sentiment was expressed in several contexts, reflecting the diversity of positions within the food system by those we interviewed. In the realm of food production, one idea put forth by Dave Kelly was to form a collective of ranchers for the purpose of negotiating better prices when dealing with large-scale meat packing plants.[188] "Cattlemen's Associations" are common in the US, ranging in scope from national (e.g., National Cattlemen's Beef Association, United States Cattlemen's Association), to state (e.g., South Dakota Cattlemen's Association), to county/regional (i.e., regional chapters of state-level associations). These organizations generally focus on policy and marketing to ensure the sustained success of the cattle ranchers under their umbrella. While membership in these existing associations may hold benefits for ranchers in our communities, a locally based ranchers association, focused on buffalo and other livestock in addition to cattle, could be an effective vehicle for our ranchers to collectively obtain the best prices possible for agricultural inputs. Producers interviewed for this study expressed interest in a buyers' club to access the best prices for grain.

Recommendation

Makoce Ag may wish to further explore community interest in a locally based livestock producers' association; once construction on the food hub is complete, begin offering producers' the opportunity to gather at the Food Hub/Food Systems Institute and a centralized space for storage.

In the words of AJ Granelli, "If we had ten small sites that are going through, we'll say five tons of poultry feed [each], if there could be a central facility that could get in, now we're at what, 50 tons? And you're gonna say maybe 30% of that is corn. So, it makes sense to have a central site that has 10 to 15 tons of corn that gets collected into one place at the end of the harvest. And it can be stored for a whole year at least. And then potentially that feed can be mixed and distributed out to the farm sites. I think that is a step in the right direction. Definitely [. . .] the more middlemen you can cut out, the more times you can capture some of that cost input right, instead of the dollars going out of the business, if it stays in its cycles."

Later in this report, we will discuss the potential economic multiplier effect and benefit to the local community from developing local sale outlets for agricultural products and building local distribution networks. Establishing a local supply chain for farm inputs and agricultural products is an essential component of building a regionally independent and sovereign food system.

Existing scholarship on food networks lends support to the importance of collaboration, coordination, and cooperation, as was also discussed by KOLs. Researchers have found that a desire to support the collective performance of the supply chain, willingness to develop supply chain rules collectively, and collective learning in the face of complications are guiding principles for generating supply chains that allow ranchers to get their products into appropriate markets without being overly reliant on intermediaries (i.e., slaughterhouses, wholesalers, and distributors). Case studies in France, Minnesota, Colorado, Washington, Vermont, and California echo these findings.[189]

However, according to AJ, one of the barriers to collaboration in the local area is that producers developing innovative approaches to agricultural production are often alone when first starting out. While Makoce Ag is working to build a local poultry supply chain, there currently are no producers in the local region who are raising chickens at the scale of Homegrown Pork and Poultry, which has a goal to raise 10,000 birds per year in order to achieve economies of scale.[190] Small-scale agriculture is inherently risky and oftentimes smaller producers are focused on survival and becoming financially sustainable themselves that collaboration can become less of a priority. Organizations such as Makoce Ag that have a broader capacity to focus on long-term systems planning can be key agents in support of collaboration to help strengthen and build food system networks. Appendix H represents some of the people in our communities who are already innovating or growing their own food to help strengthen the food system.

A stable and connected local food system depends, among many other things, on a reliable supply of essential raw materials like seeds, water, livestock feed, hay, and more. Choices over how to source these materials come with trade-offs. Sourcing locally helps keep more money circulating in the local economy and may buffer producers from the effects of shocks in more regional or national supply lines. However, it might not always be as cost effective and could leave producers vulnerable to more localized disruptions in supply. On the other hand, sourcing non-locally from a large-scale supplier could reduce costs, but also leave producers vulnerable to non-local supply chain disruptions.

Dave Kelly, a rancher and Director of the OST Department of Transportation, bales hay on his property and sells about 500 square bales annually for $10–12 each, plus $20 for delivery.[191] A search of Facebook Marketplace for hay for sale near Oglala, South Dakota, on the Pine Ridge Reservation, showed round bales of grass/alfalfa mixed hay sold for between $90–110 each while some wheat hay bales and grass hay bales were listed for $150 and up to $180 in July 2023. In comparison, straw bales sold for between $5–11, with most listings $8 or below.[192] There are approximately 20 square bales' worth of hay in a single round bale.[193]

Elsie Meeks, another rancher on the Pine Ridge Reservation interviewed for this study, was receptive to the idea of a "buyers' club" for local food producers (including farmers and ranchers), which could help our community members collectively locate good sources of hay like Dave Kelly:

> I do think if a Buyers Club for livestock feed and hay, and for them to annually survey the producers [. . .] I'd be willing to put some money in that so that somebody else is doing the calling and finding out where the hay supplies are, and what the costs are, all that. If we could order in bulk, we might get a better price for it.[194]

As Meeks suggests, local food producers could leverage their collective knowledge of supply networks to find steadier supplies at more favorable prices.

Our work has the potential to increase the overall percentage of farms and ranches and total agricultural acreage on the Pine Ridge Reservation operated by AIAN producers. While the total number of farms on the Pine Ridge Reservation increased 5% from 2012 to 2017, growing from 363 to 380 farms, the number of farms has still not recovered to the 2001 Census of Agriculture levels. The 2017 Census of Ag number of farms represents an overall decrease from 2001 of 18%, from 463 farms to 380. The number of AIAN-owned/operated farms on the Pine Ridge Reservation follows a similar pattern from 2001 to 2017. In 2001, there were 266 AIAN-owned/operated farms, which dropped to 200 in 2012, representing a decline of 25%. From 2012 to 2017, AIAN-owned/operated farm numbers rebounded 12% to 223 farms, only a 16% decline from their 2001 levels.

However, the total land in farms has continued to decline from 2001 through 2012 and 2017. Total land in farms declined 8% from 2001 to 2012 and an additional 6% from 2012 to 2017, representing an overall decline of 14%. The total land farmed by AIAN individuals also consistently declined, by a total of 13% of the 2001 acreage farmed. However, the rate of acreage decline for AIAN farms differed from the total amount of farm acreage decline. 12% of the decline took place from 2010 to 2012, with only a 1% decline between 2012 and 2017. The average size of AIAN farms was 11% larger than the overall farm size average throughout 2017, 2012, and 2001, although average farm size decreased for both AIAN-owned/operated farms as well as all farms overall. Although the average size of AIAN farms is larger than the overall farm size, AIAN farms only made up 28% of total cropland acreage in 2017. However, that percentage has grown since 2001, when they made up 24% of total cropland acreage. In 2017, 52% of AIAN farms had cropland, and 66% of total farms had cropland. Of the cropland acres operated by AIAN individuals, only 75% of the acreage was harvested (74% for farms overall).

The total value of agricultural products sold has nearly doubled, increasing 87% from 2001 to 2017. The value of products from AIAN farms has increased 78% during the same period, but still only makes up 31% of the total value of agricultural products sold on the Pine Ridge Reservation in 2017, which is a slight decline from 33% in 2001. The average value sold per AIAN farms is only 53% of the average

value sold for all farms in 2017. The average market value sold per farm has increased 112% for AIAN farms from 2001 to 2017. For overall farms, the average market value increased 128% over the same time period. The average market value of AIAN-owned/operated farms was 57% of overall farms in 2001 and 53% of the market value of overall farms in 2017. Livestock, poultry, and their products made up 79% of the overall market value of agricultural products sold in 2017 for all farms. Livestock also made up 79% of the total overall market value of ag products in 2001, but only 69% in 2012. For AIAN farms, livestock, poultry, and their products made up 84% of the overall market value of goods sold in 2017. Total farm production expenses for all farms have increased 77% from 2001 to 2017, but only increased 47% for AIAN farms.

As a relatively small start-up livestock operation, Home Grown Pork and Poultry have worked to diversify their production to increase their profits and benefit the ecosystem. The farm typically sells less than $10,000 of produce each season, and approximately half of the income comes from sales of garlic, typically several hundred pounds worth. AJ rotates the other crops from year to year while also growing produce such as heirloom tomatoes and peppers to sell. Produce can help draw people to his table at farmers' markets and lead to more meat sales. He would like to expand the number of garlic he grows and sells but would need to increase the size of his chicken flock to have enough fertilizer to do so. He plants garlic directly into bed mulched with chicken bedding and manure in the fall, and by the time it is harvested sufficient time has passed that all potential pathogens will have died off. AJ has also sold canned goods, but most of the value-added products he makes are for his own personal use.[195]

Retail and Wholesale

Strengths

The value of agricultural production on the Pine Ridge Reservation has been increasing over time, as demonstrated by the growth in the market value of products sold shown in the chart below.

Pine Ridge Census of Agriculture: Agricultural Value

	2001 Census		2012 Census		2017 Census[196]	
Characteristics	**Total**	**AIAN-Operated Farms**	**Total**	**AIAN-Operated Farms**	**Total**	**AIAN-Operated Farms**
Market value of agricultural products sold	$54,541,000	$17,835,000	$87,731,000	$24,981,000	$102,174,000	$31,712,000
Average per farm	$117,800	$67,047	$241,683	$124,906	$268,879	$142,204
Crops, including nursery and greenhouse crops	$11,655,000	$1,672,000	$26,906,000	$2,695,000	$21,177,000	$4,932,000
Livestock, poultry, and their products	$42,886,000	$16,162,000	$60,825,000	$22,286,000	$80,997,000	$26,780,000
Total farm production expenses	$47,802,000	$16,903,000	$66,692,000	$22,789,000	$84,581,000	$24,794,000

One current strength in the realm of retail, according to One Spirit's Steve Hernandez, is the presence of Buche Foods. One Spirit relies on Buche as a key supplier for their highly demanded food distribution service. Hernandez reports having very good experiences working with them and their president, R.F. Buche, who he sees as a genuine supporter of Pine Ridge communities.[197] However, not all customers of Buche Foods share this sentiment. In a 2019 study of the Sicangu Lakȟóta food system on the Rosebud Reservation, community members shared that fresh foods were often sold at grocery stores on the reservation near or past their expiration dates, with some food being sold when it was no longer safe to eat.

However, grocery store management was also interviewed for that study, including members of Buche Foods' management in Mission, South Dakota, and representatives from all three grocery stores (Turtle Creek Crossing Super Foods, Buche Foods, and Allstop) on the Rosebud Reservation. They shared that fresh produce did not sell as well as processed foods. Due to the high prices and low quality of fresh foods, community members often turned to processed, shelf-stable foods instead. Low consumer demand coupled with low quality of fresh produce have created a perpetuating cycle that has led both community members and grocery stores to turn to processed foods as a solution.[198] Top selling items at each of the grocery stores can be seen in the chart below.

Top Selling Grocery Items on the Rosebud Reservation[199]

Establishment	Location	Popular Items
Allstop	Rosebud, SD	Pre-made deli sandwiches, microwaveable meals
Buche Foods	Mission, SD	Dry grocery/non-perishable and processed foods, meat, frozen foods, deli
Turtle Creek Crossing Super Foods	Mission, SD	Meat

Gaps

One of the key gaps in the local food systems is the disconnect between local produce, local grocery stores, and other food sale outlets. In the 2019 study of the Rosebud Reservation's food system, management of all three grocery stores as well as Kary's convenience store in Parmalee, South Dakota, shared that they did not carry products from tribal producers due to an unwillingness to do so, but rather because no tribal producers had approached them. All indicated that they would be willing to stock products from tribal producers so long as the products were in demand by customers.[200] **The Makoce Community Food Hub, discussed in more detail in the Capacity Assessment section of this report, will be able to help address the gap between producers and wholesale clients.**

KOL interviews also revealed that getting locally-produced food products into appropriate and advantageous markets can be a major challenge for producers. Dawn Sherman, CEO of Native American Natural Foods, keyed in on this issue of product placement, noting that it is currently up to the producers themselves to get their

products to the final point of sale. She pointed out that local markets cannot absorb an unlimited amount of product and there is often little assistance for producers when it comes to determining what to do with excess product.[201] For Sherman, this speaks to a need for well-coordinated, established procedures around storage and distribution that can help local producers get their products to larger, more stable markets. While it's worth noting that Sherman's comments were made in the context of a discussion about buffalo specifically, the general guiding principle of mutually beneficial coordination and planning among groups of local food producers was a common thread across many KOL interviews.

The issue of limited market access for buffalo meat producers came up in several KOL interviews and was largely attributed to two main factors: a lack of federally inspected processing facilities accompanied by a lack of demand. Without USDA-certified processing, buffalo products are off-limits to institutional food buyers like schools, and without state inspected facilities, such products cannot be sold in standard retail settings. Local buffalo producers, such as the Oglala Sioux Tribe's buffalo herd and Charging Buffalo Meat House, are currently unable to sell their buffalo to schools because their animals are not processed at a facility that has a federal grant of inspection.[202] While KOLs did report that there is local demand for buffalo products, important constraints on that demand were identified. Beyond availability issues, these included relatively low familiarity with buffalo relative to cattle/beef (both within OST communities and beyond), the inconvenience of preparing buffalo meat, and higher cost than other meat.[203] In order to support the growth of local buffalo ranching on the Pine Ridge Reservation, it will be necessary to access larger markets, whether those markets be local, regional, national, or global. It is especially important to target markets that are able and willing to pay for the higher cost of buffalo meat in comparison to beef. Selling to broader markets can help local producers and processors subsidize the cost of buffalo meat for tribal members.[204]

Dawn Sherman, CEO of Native American Natural Foods (NANF), identified a financial gap in the government funding and private investment dollars that get directed toward enhancing the presence of Native-produced food products in the market. Despite available funding for researching and developing food products, effective assistance in getting products to market is lacking. In the extended quote that follows, Sherman details NANF's experience working through a USDA school program:

> They wanted us to create a product that could go into the middle of the plate, which is the protein. There was just money hanging out there. And so, they said, 'If you want this money and create a product, this is an opportunity for you guys.' [. . .] So, we decided to take on that project, got the grant, we did all

the studies, we tested children, [. . .] 100 children in the schools taste-tested our hot dogs, [. . .] picked which one they liked the best. I mean, we did the whole program—created the product, got it into the packaging [. . .] to where it's like, alright, this could actually be sold into wherever, Sysco Foods, and so on and so forth. But that's where your grants go. In order for me to get into Sysco Foods or into the other food places—the hubs that the schools buy from—I have to go to them; they have to sign me on as a company and as a brand to be able to buy the product and fit everything. I have to present it, they have to decide if they want it, and if they decide they don't want it then they have no access, right? It's still always up to that food hub to decide what foods they bring in and [which foods they don't] bring in. [. . .] So that's where your funding always stops. So, I can make a great product, but then who do you get to buy it?[205]

Recommendation

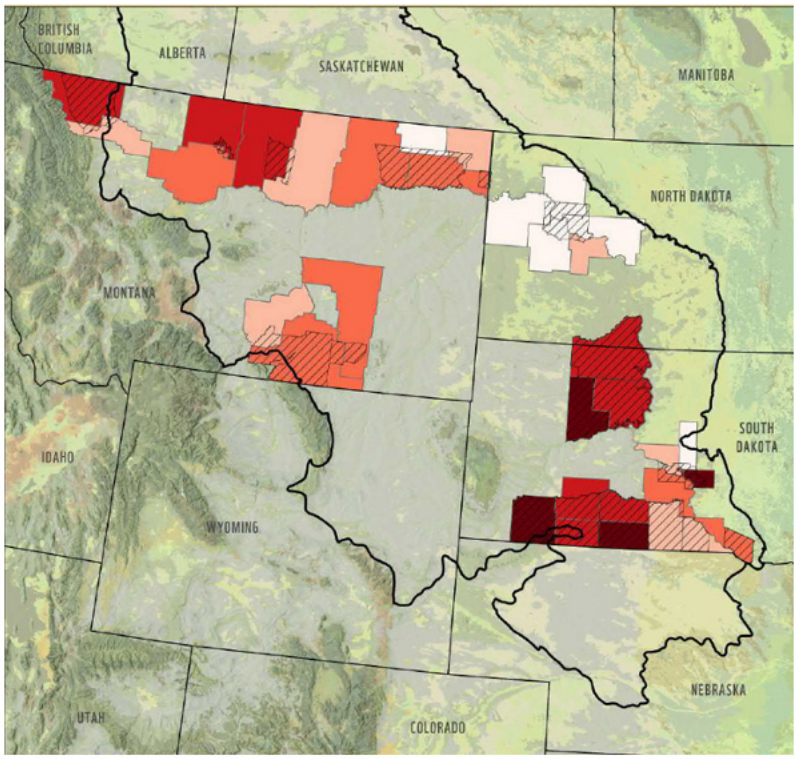
Makoce Ag can support entrepreneurs in developing food products and work with local buyers such as schools (through micro-procurement regulations) and businesses to help get those products to local markets. Makoce Ag can also work with NANF to support producers who are interested in accessing larger markets in selling their products to larger distributors.

NANF is willing to support Makoce Ag in bringing products to national and regional marketplaces and has experience in partnering with larger distributors and retailers, as well as direct to consumers. Makoce Ag may wish to work with Charging Buffalo Meat House on a partnership and offer Makoce Ag poultry products at the Meat House's retail site and offer beef, buffalo, and other meat from the Meat House for sale at the future Makoce Community Food Hub.

Another key gap related to supporting the local food system is the financial ability of the community to afford the cost of local foods. 42% of the population of the Pine Ridge Reservation is estimated to live in poverty.[206]

Over 47% of the population of Oglala Lakota County relies upon SNAP for food.

Native Nation SNAP Use in the Northern Great Plains



% of Households Enrolled in Supplemental Nutrition Assistance Program (SNAP)

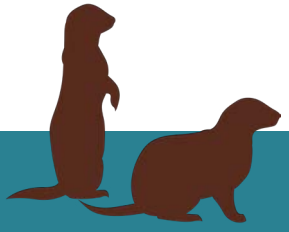
< 5%	5 – 10%	10 – 15%	15 - 30%	>30%

Opportunities

To address the above gaps in the demand for buffalo products, Bamm Brewer at Charging Buffalo Meat House shared with us a promising strategy they have begun to develop in response to these issues. He acknowledged that planning for and preparing meals from bulk cuts of buffalo meat (as is typical in the case of custom-exempt processing) is more work than many people are willing to do. Thus, Bamm and the team at Charging Buffalo have been studying, testing, and developing various buffalo products that are more extensively processed to increase convenience and ease of preparation. These products include things like buffalo "hot dogs," fully-cooked and microwavable products, and other smaller meal/serving-sized portions.[207] The online retailer, Dakota Pure Bison, offers a number of bulk packages of products like this, including jerky, meat sticks, sandwich meat, brats, hot dogs, and ground meat.[208]

These efforts, along with their efforts to become a federally inspected processing facility, seem to bode well for the prospect of upping the demand and market capacity for local buffalo products.

To make local foods more accessible to low-income customers, some farmers' markets in West River, South Dakota, have used "Double Up Food Bucks" programs to make products at the market more affordable for community members. Sicangu Co. Food Sovereignty Initiative's Keya Wakpala Farmers' Market in Mission, South Dakota, on the Rosebud Reservation and the Black Hills Farmers' Market in Rapid City, South Dakota, have both doubled SNAP dollars for customers to make local foods more accessible and expand their customer base to support a local foods economy.



Case Study: Sicangu Co. Food Sovereignty Initiative

Key Takeaways

Sicangu Co. is the economic development arm of the Rosebud Sioux Tribe and operates an assortment of both for- and non-profit enterprises for the benefit of the Sicangu Lakȟóta Oyáte. The organization's Food Sovereignty Initiative (SFSI) is a 501(c)3 non-profit and is a community-based effort to indigenize the food system for Sičháŋǧu people, building wičhózani (the good way of life) for present and future generations.[209] In 2014 they began operating their Keya Wakpala Community Garden space, which at the time was a one-acre fenced-in garden. They have since added growing space with spigots, a geodesic dome, garden shed, two covered shelters, and a new chicken coop. They have plans to expand to a full five-acre plot by 2026. In 2020, the Initiative expanded by constructing a chicken coop outside the fence for the first time. SFSI's core projects include Keya Wakpala Farmers' Market, south-central South Dakota's largest farmers' market, a local food subscription program, internships intended to introduce people to local food production and regenerative agriculture, and community events focused on the preservation of traditional Lakȟóta food knowledge and practices.

The Initiative has spent much of the last decade developing retail outlets for local foods on the Rosebud Reservation. They began with the Keya Wakpala Farmers' Market in Mission, South Dakota, which has been operating since 2015 and has moved twice due to outgrowing its location. In 2019, the Initiative began piloting mobile market sites, and in 2020 began operating a seasonal mobile market. In 2020 and 2021, they used grant funds from NAAF to offer their own version of a Double Up Food Bucks program to make the market's produce more accessible to low-income customers who rely on SNAP for groceries. Due to low sales in smaller and more outlying reservation communities, they have since changed strategies to spend more time targeting larger hubs on the reservation where tribal members live and travel through to make the return on investment worthwhile for both the Initiative and other vendors. The Initiative has sold to convenience stores in the past and is now looking to develop wholesale partnerships with local schools. They are exploring the possibility of further aggregating local producers through a food hub grocery store.

Challenges

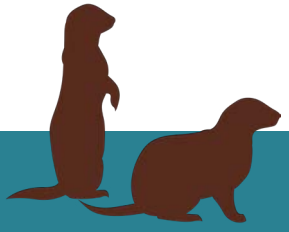
The challenges facing Sicangu Co.'s Food Sovereignty Initiative are, in many ways, like those faced by such initiatives in other tribal nations, including the Oglála Lakȟóta. These include difficulties with land tenure and ownership, access to capital, workforce development, infrastructure, market access and distribution, cultural knowledge and revitalization, policy barriers, and environmental challenges stemming from climate change.

Opportunities

Among current expansion plans is a perennial permaculture space outside of the existing one-acre fenced garden with orchards of chokecherry, buffalo berry, and other indigenous fruit bushes. Expansion plans include adding 20 to 30 meat chickens to their existing egg laying flock of hens and growing the laying flock to 65 birds. The expanded flocks will eventually be moved throughout the orchard space to help with pest management via chicken tractors once the trees are large enough to provide cover from predators.

SFSI is also looking to move beyond supplying retailers and institutions with local foods by developing their own food hub grocery store on land they own just west of Mission, South Dakota. They have already overcome one of the most difficult barriers to a food hub enterprise, which is infrastructure. Sicangu Co. owns and leases the facility that Turtle Creek Crossing Super Foods operates out of. They plan to build a housing development on the site and then take back management of Turtle Creek Crossing, granting more freedom in determining how the space is used. Additional long-term plans for the space include the building of an innovation center with commercial kitchen space for rent, among other storefronts. Turtle Creek Crossing currently has a USDA-certified kitchen and deli that, under Sicangu Co. management, could be rented out to entrepreneurs. To help with these upcoming plans, Sicangu Co. has recently won a Health Food Financing Initiative planning grant for support with technical assistance.[210]

The Agri-Cultura Network in New Mexico, associated with the South Valley Economic Development Center, is another locally based Indigenous organization that is working to grow retail and wholesale outlets for local Indigenous producers and provide education to food producers and community members. Like the Sicangu Food Sovereignty Initiative, the Agri-Cultura Network was started to address a core community need: in this case, the decline of traditional farming and the need to educate the next generation. Despite challenges, the organization has had success in achieving its mission and has been willing to change and undertake new activities over time to meet the changing needs of its stakeholders.



Case Study: Agri-Cultura Network/South Valley Economic Development Center[211]

Key Takeaways

In 2008, New Mexico, a state with a long history of small-scale farming, was entering into the last generation of traditional farmers. To combat this, a program was created at Santa Cruz Farm to teach a small group of farmers (both new and generational) basic traditional growing methods, organic growing methods, water retention methods, and seed saving. From these teachings, the Argi-Cultura Network was created. Agri-Cultura operates as a taxable cooperative because farmers are making an income from what they produce. Housed within Agri-Cultura is La Cosecha, a branch that operates as the non-profit arm of the organization.

Agri-Cultura/La Cosecha provides many services within Bernalillo County and the entire state of New Mexico. Their Wholesale Business program sells produce, meat, and eggs to public school districts, charter schools, senior nutrition sites, early childcare centers, local hospitals, food pharmacies and clinics, and restaurants. Produce is aggregated and packaged at the South Valley Economic Development Center in Albuquerque, and then delivered to customers. The Community Engagement and Nutrition Education program is a community-led support group and series of cooking classes centered around plant-based nutrition. Participating community members share scratch-based recipes, a dish, and stories about that dish. Agri-Cultura/La Cosecha also has a Farm Capacity Building program which provides farmers with assistance and solutions to improve the structure and adaptability of their farms, as well as financial education.[212]

Challenges

One of the challenges Agri-Cultura/La Cosecha faces is the cost of produce, as local produce is generally more expensive than produce sourced through the global agriculture industry. This challenge was identified when Agri-Cultura/La Cosecha was starting to provide local produce sources to different industries. To address this issue, Agri-Cultura/La Cosecha began providing education to the industries they deliver to, which includes explaining the cost differences between produce derived from big agriculture and produce that is locally grown.

Government policies are another challenge faced by Agri-Cultura/La Cosecha. In 2014 Agri-Cultura/La Cosecha began engaging in policy work, providing data on economic activity, regenerative practices, community health, and community wealth to various government agencies with the aim of facilitating policy change. The discovery for a policy change began when Agri-Cultura/La Cosecha entered the Farm to School realm and realized that each district had their own procurement policies, making it difficult for local food vendors to work state-wide. With the data from Agri-Cultura/La Cosecha, the governor of New Mexico hired a Procurement Coordinator, and by 2018 local food development investment was given the attention it needed.

Also in 2018, Helga Garcia-Garza, the Executive Director of Agri-Cultura/La Cosecha, became engaged in local food policy. She focused on bringing attention to big agricultural companies' use of GMOs, pesticides, and exporting 90% of their products, all of which leave the community with little resources and dangerous chemicals. In 2020, she was voted as Board Chair of the New Mexico Food and Agriculture Policy Council and has been re-elected for a second term in 2023.

Opportunities

Although Agri-Cultura/La Cosecha has faced barriers resulting from state-level policy, they have created opportunities through their dedication to educating the public on the importance of locally produced foods. In 2022, the state of New Mexico invested $10 million into production capacity building to specifically aid food hubs and food pantries. From this, Agri-Cultura/La Cosecha was able to purchase refrigerated cargo vans, which are used weekly to move 7,000 to 10,000 pounds of produce. They were also able to purchase freeze dryers, dehydrators, and new spinners.

Overall, Helga Garcia-Garza reported that community investment, governmental/tribal investment and partnership, and connection with the farmers/producers growing the food, creates opportunities for local food sovereignty success. Agri-Cultura/La Cosecha has demonstrated that each of these priorities is attainable and that they help facilitate the success of their efforts.

Regional Food Connections

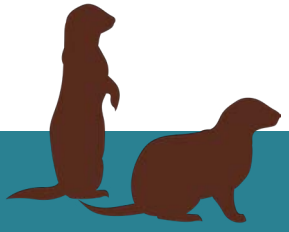
Acquisition Possibilities and Regional Market Potentials

AJ Granelli sources animals and other items, such as feed grain, for his operation as locally as possible. He orders chicks for his poultry operation from a hatchery called Dahline, which started as the Future Farmers of America (FFA) project of a Minnesota 16-year-old. In 2023, the hatchery business was in its fourth year and employed approximately six of the owner's friends. In the second year of operation, they sold several thousand chicks, and AJ ordered 1,000 birds that year. In the business's fourth year they sold over 1 million chicks. This hatchery is the closest one that AJ can find that has the quantity of birds he needs. In 2022, he grew approximately 1,000 birds, which was down from the 3,000 he'd grown the previous year. AJ scaled back his personal operation to take an off-farm job with our organization to develop a regional poultry industry, which is a gap in the current market. Homegrown Pork and Poultry is one of the first farms working to fill that gap on a large scale.[213]

There are also no farmers growing grain locally or regionally (or in general) with organic and non-GMO grain in sufficient quantities that AJ needs for his operation. Instead, he sources grain from the coop in Gordon, which is a 25-minute drive south of where he is based. All the grain is aggregated from local farmers who grow within an estimated 75-to-100-mile radius of the Gordon elevator. AJ has worked with a nutritionist at the coop to develop custom blends for poultry and hog feed that he picks up. The next steps for his operation include developing larger storage on his farm and the ability to process his feed mixes by grinding and mixing the corn, sunflower seeds, and millet that go into them. He would like to be able to reduce the number of steps involved in sourcing grain and the cost that he pays for feed by bringing a larger part of the process in-house. However, as he has and is seeking to continue to scale his operation, he has had to consider what sufficient infrastructure to do so would look like. Each chicken he raises consumes approximately 12.5 to 13 pounds of feed during its lifetime. With 1,000 chickens, AJ requires 6.5 tons of feed per year. With 3,000 birds, his operation requires nearly 20 tons (60,000 pounds) of feed. Including feed for hogs, he orders approximately 50 tons of feed each year.

The Economic Multiplier Effect section of this report includes additional information about regional market potentials, including the economic impact that would result if food and beverages were sourced and/or sold on the Pine Ridge Reservation.

There are also opportunities for our food hub to develop wholesale relationships with regional schools and become part of the development of a Farm to School network in our region in South Dakota. Representatives from the Black Hills Farmers' Market, food service directors and student nutrition managers from Meade School District, Rapid City Area Schools, Oglala Lakota County School District, and Wall School District were interviewed for this study. Their interviews have informed the Farm to School Networks in Western South Dakota case study on page 99.



Case Study: Farm to School Networks in Western South Dakota

Key Takeaways

- Most local produce has so far been served raw in lunch salad bars (Rapid City and Meade).
- Two school districts have participated in Beef to School programs (Wall and Meade). Wall's program is ongoing.
- Aggregation, online ordering, and delivery, like the experience of ordering from a primary distributor, would support schools in sourcing local foods.
- Grants that fund local foods purchases come with rules. One rule is that 'local' is defined as South Dakota. However, in the southwestern part of the state, producers in certain parts of Nebraska and Wyoming are closer than someone from Sioux Falls across the state.
- Food Service Directors may appreciate personal outreach and one-on-one assistance in ordering from local producers, whereas others may appreciate a more hands-off approach to sourcing from local producers. In general, ensuring that producers can obtain the certifications that schools require of their suppliers is a way our future food hub can support local Farm to School networks.

Overall, when working with schools and school districts to supply a Farm to School program, it's important to start small and scale at a pace that is sustainable in terms of financing and production. While school districts are not able to switch entirely to local foods currently, primarily due to insufficient supply, they are open to sourcing local foods to supplement orders from their primary distributor. A producer or a food hub can start small by working with a food service director to supply either a certain ingredient or category of items (eggs or produce, for example) for one or two small schools in a district before expanding to offer more food items in larger quantities. Consistency and being able to reliably deliver a product are a key need for food service programs. Currently, none of the schools interviewed for this study are sourcing all ingredients locally, but most are starting to source one or several items locally either in season or year-round, depending on the product.

Districts vary in their approach to sourcing local foods. For some, it is more based on individual relationships with producers and/or meat processors, while for others, they would prefer that ordering local foods be as seamless as online ordering through a large distributor. Both Meade and Oglala Lakota Counties have a large geographical land base for their school district in a rural area. Wall is also a rural district, while Rapid City is the sole urban district featured in this case study.

Challenges

- The growing season doesn't align with the school year as the seasonality of South Dakota's climate means local produce is hard to access for most of the year. Growing food year-round is difficult, and the bulk of the production season for produce is in the summer when school is not in session.
- Red Cloud and Oglala Lakota County schools have conducted buffalo harvest events and used the meat for cultural events but have not served it in daily student meals due to processing barriers.

Another barrier to serving buffalo in school meals is the lack of popularity of buffalo meat with students.

- Staffing
  - Staffing school kitchens has been a challenge, particularly since COVID-19, for Rapid City, Wall, Oglala Lakota County, and Red Cloud schools. This can make it harder to source local foods that are still in their whole form and require additional processing.
  - While some school districts may have capacity to go to additional effort to source local foods, others do not have additional staff support. Making local foods as accessible as possible for food service directors and school nutrition managers to order can help get local foods into schools.
- Funding
  - Schools are not able to use federal dollars such as Department of Defense Fresh Fruit and Vegetable program funds on local foods.
- There is a limited supply of local foods, especially at the quantities needed to meet the demand of regional school districts.
- Schools have very short lunch periods for students to be served and eat from bell to bell.
- Some schools or programs may be required to source foods from producers who have received Good Agricultural Practices (GAP) certification. For small producers, GAP certification can be cost prohibitive, as the fee must be paid annually. Often, schools are not going to be a large enough market for small producers to make GAP certification worth the fee. Meade School District has found a way around this by developing their own agreement with producers they source, agreeing to produce food according to best practices for health and sanitation.[214]
- Rapid City Area Schools food service program representatives mentioned that they would like access to a guide that lays out how to source various types of local foods, like beef and apples. SDSU Extension has a Farm to School Resource Guide that is freely available to download and provides guidance around building a Farm to School team, menu planning, purchasing guidelines, using traditional foods, school gardens, and more.[215]
- Several individuals have approached Red Cloud to provide local foods, but as of February 2023, they had not yet sourced local foods from outside of their campus. Several years ago, with approval from their Sodexo kitchen manager, they almost had a deal with Thunder Valley Community Development Corporation for eggs. The price of the local eggs was less than through their primary supplier, but Sodexo required a copy of the supplier's HACCP plan, and ultimately, the sourcing relationship did not manifest. The school does host a small community farmers' market to distribute school garden produce that can't be used by the cafeteria or when school is not in session. Homegrown Pork and Poultry, a local small-scale meat producer, also comes to the market to make their meat available. Eventually, Red Cloud would like to source local meat for their school meals. There are no producers that produce near the quantity required to supply the school, but they would be willing to start with smaller quantities. However, suppliers must have a tribal business license and liability insurance, which has been a barrier due to cost.

Opportunities and Recommendations for Working with Schools

Potential local foods products to prioritize

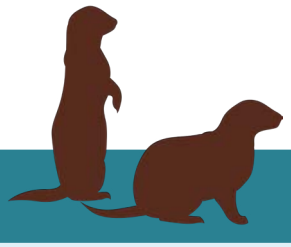
- Eggs
- Milk (packaged in single-serving sized cartons)
- Chicken (processed into the cuts required for existing school menus)
- Beef
- Bread
- Dehydrated green peppers
- Dehydrated onions
- Fresh produce

Recommendations

- Use micro-procurement regulations to source local foods for school nutrition programs.
- Offer a consistent line of products that are available through a seamless online ordering experience.
- Provide delivery to individual school kitchens.
- Support producers in constructing greenhouses to supply fresh produce on a year-round basis to local schools.
- Help increase the number and capacity of local producers through a program like the Sicangu Food Sovereignty Initiative's Waicahya Icagapi Kte (*They Will Grow Into Producers*) Beginning Farm Apprenticeship Program. The program is an eight-month paid apprenticeship to learn the basics of small-scale vegetable and chicken market gardening. Participants can apply for seed capital for their operation upon completion of the program.
- Set a realistic potential goal to work towards as a first step towards expanding regional food connections. For example, Makoce Ag could seek to become the sole supplier of eggs or a certain type of preserved or fresh produce at one Oglala Lakota County school before expanding to supply even more ingredients and more schools.
- Provide local USDA-inspected meat through a relationship directly with a meat processing facility. Work with a meat processing facility to create products that will work with existing school menus without needing to change them in any way since they've already been created to meet USDA nutrition standards. A list of meat processors in southwest South Dakota is included in Appendix A. Charging Buffalo Meat House is currently the only processor located on the Pine Ridge Reservation, and they are currently expanding their facility to apply for USDA inspection.[216]

- Increase bison use in school meals and develop bison products that students will enjoy, such as buffalo hot dogs and smoked burgers.[217]
- Invite producers into a school kitchen so they can see the set-up and get a sense of the challenges that schools have in trying to serve kids, helping expand understanding on both sides.
- Work with local schools to develop a Farm to School program, including joining and/or leading a Farm to School committee with diverse stakeholders.

Sicangu Co. Food Sovereignty Initiative has developed a local task force to work with members of the administration and food service department at Todd County Schools on the Rosebud Reservation. Through this taskforce they're planning to address district barriers to sourcing local foods, including identifying what barriers exist, what USDA requirements must be followed, and ways to sustainably fund local food purchases.



Case Study: Beef to School in Wall

Key Takeaways

Wall School District is using federal micro-procurement regulations to source local beef for their school program. Lynn Dunker, the district's Food Service Director, launched the Beef to School program in the Wall District, in 2019, prior to the start of the COVID-19 pandemic. It was the first time there was an official Beef to School program in South Dakota. Lynn received some information at the start of the 2018 school year regarding a Beef to School program that a Nebraska school had done with a local rancher who brought the information to the school and asked that it be passed along to her. Lynn spoke to the Child and Adult Nutrition Services of South Dakota. The department had a Beef to School program that Lynn would be able to pilot, which would allow her to subvert the federal procurement regulations by removing the requirement that she solicit bids for meat contracts by using donated meat instead.

A meeting was held with the Ag Committee in Wall, which operates through the economic development group and functions like a stock growers association. After meeting with the local meat processing plant and securing their participation, a brochure was created and sent to local cattle producers to see if any had interest in donating several pounds of beef. The local processing plant is USDA-inspected and goes above and beyond USDA requirements for testing. The overall quantity requested was based on the spring semester menus and was an estimation of the amount of beef that would be required for those meals. As school meal recipes must be standardized to account for federal nutrition guidelines, Lynn was able to work with the processing plant to get the same type of beef cuts for her recipes so that they would continue to meet USDA guidelines.

Local cattle producers donated enough beef to run the pilot program for the entire spring semester in 2019. The local meat processing plant donated the processing for the first animal, and after that, the processing fees were covered entirely by donations from local Wall residents (non-cattle producers). The program continued during the 2019–2020 school year and was going well, with the school purchasing beef at that time, when COVID-19 shut down in-person instruction. At the start of the 2020–2021 school year, the district still had nine weeks of beef to utilize from the previous school year that was designated to be served during the time when school was cancelled.

Now, Lynn solicits out bids for three beef deliveries each year and typically sources from the local meat plant for the beef. The plant in turn sources animals from local ranchers, with a set number of pounds designated for the school at a pre-determined price. This process reduces the burden on Lynn to be sourcing beef cattle from multiple ranchers. According to Lynn, ranchers "aren't taking a hit" by providing local beef to the Wall School district, but they aren't getting rich either. However, it's a program that the ranchers, school, and the meat plant all believe in and want to support. The only beef that Wall School District serves that is not locally sourced is beef steaks, which are like finger sticks.

Funding Farm to School programs is one challenge that Wall School District has had to figure out, and inflation has made the sustainability of the program more difficult to manage. Prior to the Beef to School program, most beef served in the school district came from USDA entitlements (formerly called commodity dollars). Since switching to local beef meant these dollars could now be used for other purposes, she transferred a portion of the USDA entitlement to the Department of Defense Fresh Fruit and Vegetable Program. These USDA dollars are now spent on sourcing fresh fruits and vegetables from the federal government. For the 2022–2023 school year, funding for the beef program came out of the district's food service budget. The fact that funding for produce and salads was now coming from the government program rather than the food service budget helped offset the additional cost of the Beef to School program. During an interview in February 2022, Lynn shared that USDA is providing money due to supply chain issues that must be used at the local level, and the Beef to School program qualifies. Local milk purchases would also qualify under that program. Currently, around 25% of the overall food service budget at Wall is spent on local foods, when accounting for staff wages, milk, bread, other bids, and the remaining groceries. Lynn sources milk from the Cashway distributor from Kearny, Nebraska, which is not local, but the dairy is located close to the plant that delivers the milk to the school.

Wall School District has a student body between 275 and 300 students and serves between 240 and 260 meals per day, depending on whether juniors and seniors leave for lunch. Staff and parents are also invited to eat with students. Popular meals that draw parents include stromboli with burger, sauce, cheese, and taco salad. Goulash is also popular with students. The school serves beef anywhere from eight to twelve times a month, out of roughly 16 to 18 days a month that students are in school (Wall School District is closed on Fridays). The primary difference between the USDA beef the school district was sourcing previously, and the locally sourced beef is that the local processor is not able to pre-cook hamburger patties, while the USDA patties did come pre-cooked. To address this challenge, the processor figured out the size that the patty needs to be before cooking so that it will end up the

same size when cooked as the patties from the USDA. The need to cook the patties has added prep time on burger day, but due to the small size of their school, Lynn and her assistant are able to manage that.

The bid that is sent out to meat processors includes a stipulation that if mileage is charged it must be included in the bid. The Wall meat processor has continued to provide processing services for the Beef to School program and provides prices in the bid in pounds for patties, ground beef, and diced roast, which is easier for kids to chew than stew meat. The bids are sent out in July with a month's deadline and typically awarded the second week of August, with delivery scheduled for September. The bid also stipulates delivery times for the beef, as the school freezer can't hold a year's worth of beef at a time. The district receives three deliveries of beef per year and stipulates the number of pounds of each type of cut. The second delivery is made in November, and the last delivery of the year is in January.

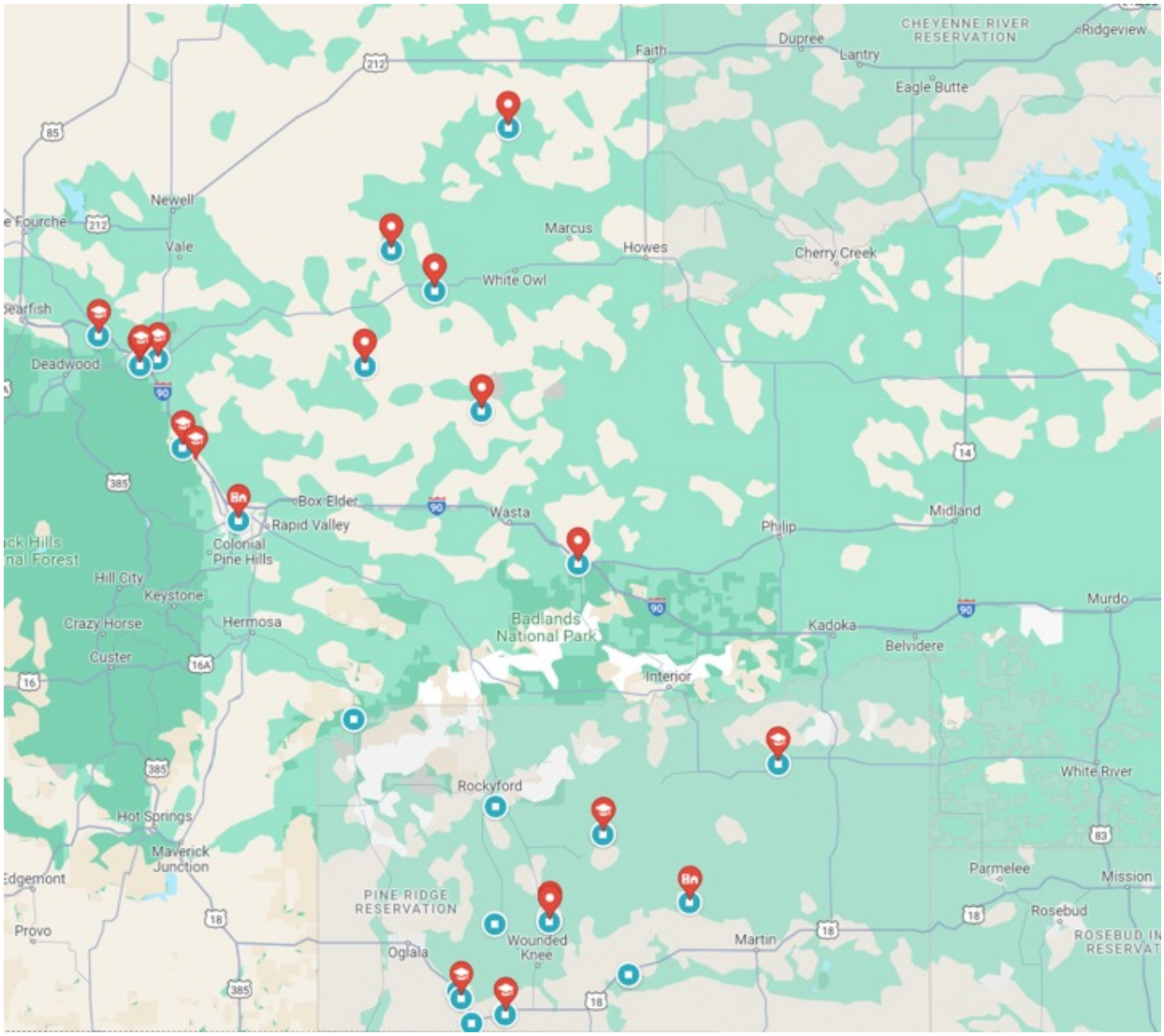
Lynn has accepted donations of local sweet corn, tomatoes, and cucumbers, but has not sourced other local produce through micro-procurement dollars currently due to the difficulties in sourcing local produce during winter in South Dakota. Also, due to funding constraints, she has chosen to use her USDA dollars to source produce and would not be able to use that funding to purchase from local producers. She typically runs out of USDA funding for produce in March of each year and then must use other funding from her budget to source produce, and there is the potential for that produce to be local. Ultimately, Lynn would like to be able to use USDA funding to purchase local foods, particularly beef, and noted that after COVID-19, there's been more local purchasing due to supply chain issues. The meat plant she uses in Wall is open to processing pork, and the school uses sausage in their breakfast products. Lynn is also open to using local eggs and chickens and knows of a local producer 60 to 70 miles from Wall who was going through the process to become USDA-certified for eggs. There are other schools in South Dakota on the East River side that are testing out Beef to School programs.

A primary challenge that Lynn sees other schools may have in sourcing local beef is in getting meat processors to participate, as many are simply trying to adhere to USDA regulations and are weary of the added difficulty that Beef to School can present. Currently, the Wall meat processor is working with 24 schools to supply local beef and has plans to build a new plant in New Underwood to meet the school demand on top of its regular operation.

Potential Markets

An extensive list of potential wholesale customers can be found in Appendix I. This map shows schools interviewed for this study that are already engaging in Farm to School sourcing, as well as schools on the Pine Ridge Reservation that could be potential partners in developing Farm to School networks.

Potential Farm to School Partners



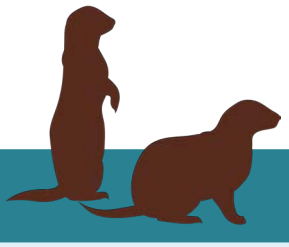
Recommendation

Makoce Ag should work with schools and food service directors who are willing to use micro-procurement regulations to purchase from Makoce Ag and/or a food hub/farmers' market. This work will need to involved educating and supporting schools in sourcing local foods in ways that work for them. This includes providing in-demand products and offering a seamless ordering experience and delivering a consistent product.

Black Hills Farmers' Market, based in Rapid City, South Dakota, has been a key player in supporting Farm to School efforts in West River. Through their wholesale program and efforts to grow both their digital and physical infrastructure in the form of an online marketplace and storage facility, they've helped to bridge the gap between schools and small-scale producers, and more generally between institutional buyers and local food producers.

Rapid City Area Schools are one institutional buyer. They have fifteen elementary schools, five middle schools, and four high schools, in addition to operating summer school programs, Western Dakota Tech, and the Juvenile Services Center.[218]

Makoce Ag may be interested in adapting the Black Hills Farmers' Market retail and wholesale model, including specifically their use of an online marketplace. This has allowed the market to aggregate producers for ease of ordering for institutional buyers while still supporting those producers as independent entrepreneurs. Black Hills Farmers' Market has also expressed in interviews that they are open and willing to support Makoce Ag's efforts to expand local food markets in West River, South Dakota. They invited producers Makoce Ag may work with to join the Black Hills Farmers' Market and the online marketplace as vendors. Appendix J includes guidance for farmers' markets.



Case Study: Black Hills Farmers' Market[219]

Key Takeaways

Black Hills Farmers' Market is a weekly farmers' market in Rapid City, South Dakota, that is working to build a comprehensive food system that connects producers with consumers. Vendors come to the market from up to 200 miles away. Most vendors are from South Dakota, with some from Nebraska in the Gordon area. The market initially went inside for their first season of year-round operations but was pushed back outside due to the COVID-19 pandemic. The outdoor market was preferred by both producers and consumers and the market is now outdoors year-round. During the summer, approximately 1,500 customers shop at the farmers' market each week. In 2022, 47% of the vendors sold produce, 9% sold art, 19% sold value-added products, 9% sold canned goods, and 15% sold baked goods. Approximately one in six vendors (11 out of 62) sold animal products such as meat, dairy, eggs, or honey. The market facilitates informal supply networks, as vendors also source from each other within the market. Some bakers buy wheat from a local farmer, and canners buy produce from vegetable growers. The market is always looking to expand its producer base, especially vendors who sell items that are not already in heavy supply at the market. As of February 2023, they were lacking in chicken products, eggs, and fresh produce vendors. The market does host producers who bring fresh produce, such as cucumbers and lettuce in the winter months, but they sell out quickly.

Over the last two years they've expanded, and during the COVID-19 pandemic, began offering a wholesale ordering option that connects institutions and organizations with individual producers. The market is working to get local foods into grocery stores, non-profit food organizations, and schools. Both Meade School District and Rapid City Area Schools are wholesale customers, as well as Feeding South Dakota, South Dakota Youth and Family Services, and Western South Dakota Community Action. The purchasing partnership with Western South Dakota Community Action pre-dates the wholesale program and supplies food to seniors/elders in western South Dakota, but that program was integrated into Feeding South Dakota in January 2023. Schools have received supply chain assistance funds that can be used for local food purchases. They also purchase from the market using micro-purchase regulations to use their regular budget dollars, which allows them more flexibility in sourcing orders that cost less than $10,000 from a variety of vendors who qualify.

Other wholesale customers are restaurants in Rapid City. The largest purchasers of produce are organizations that already support local foods, and their numbers are growing. Sweet corn was the best overall seller in 2022 to schools and grocery stores. The wholesale program is not currently self-sustaining but relies on grant funding to pay the wholesale market manager. In the long term, the goal is for the program to be self-sustaining. In the long run, it's possible that wholesale customers will make advance purchase agreements with producers prior to the start of the growing season to deliver a set quantity of specific items within a specific time frame.

The market was awarded a grant in the summer of 2022 to purchase a 12' x 12' shed. In the winter and spring of 2023, they were in the process of converting the shell of the building into a climate-controlled food storage space with insulation, an air conditioner, cool bot, and shelving capacity. They

also plan to have freezer space. The space will allow the market to store produce from the Saturday market that is open to the public until Monday or Tuesday of the following week, when it can be picked up by schools and other wholesale clients. The shed will also have a space heater in addition to a cooling mechanism, so that they can store root crops and winter squashes in the winter without them freezing. Producers are not required to bring their products to the market or storage space to be distributed; rather, it's offered as a service to producers who are located further away to facilitate the logistics of connecting producers and consumers. Wholesale purchases are made on Tuesdays and Wednesdays the week prior to market so that vendors can bring their wholesale orders to the market on Saturday for storage. However, when the growing season was difficult in 2022 there were limited quantities available for the wholesale market, which made delivery and aggregation logistics more complicated. Some producers came into Rapid City from Wyoming to deliver produce on their regular route. Typically, purchasers and producers will arrange delivery directly, but the food storage shed will help facilitate those sales when the two parties are unable to plan. A market staff person will meet the wholesale customer at the food storage aggregation point during the week for them to pick up their order.

Challenges

The first season of operating the mobile storefront was challenging for growers due to issues such as drought, plant viruses, or insects that were particularly difficult that year overall. They also identified during that time a need for food storage capacity to help connect producers and consumers. Vendors who produce meat, canned goods, or baked goods have an easier time using the online platform, as they can create a listing once and leave it up over time. But for producer growers who have changing products, it takes additional time for them to change their listings during the busiest period of the growing season. Customers at the market also enjoy being able to pick out their own produce. Interest in local foods has grown over time. The supply chain issues that arose out of the COVID-19 pandemic have made people more aware of the weaknesses in the larger food system.

Opportunities

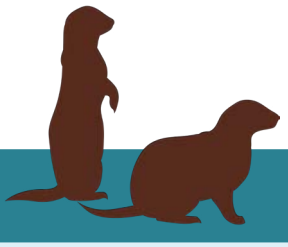
The market facilitates wholesale sales through a shared online software called Local Food Marketplace that provides individual and customized storefronts for each vendor at the market where they can set their own prices. Clients can read about the farms they're ordering from or access food safety checklists that are on file for certain farms, which is a requirement for school districts. Wholesale clients can then order directly from each producer on the online platform. Approximately half of the vendors have developed a wholesale storefront, with somewhere between 30% to 50% of vendors actively selling to wholesale clients. Vendors can also offer retail sales online, which was a feature the market also added at the start of the pandemic in 2020. At that point, there was increased demand for online retail sales and, since then, demand has decreased.

The farmers' market is working to improve food safety training for its producers and document those systems for their customers. Many larger institutions such as universities, school districts, and their kitchen management companies, require GAP certification from their food suppliers. The market staff

are developing training courses for smaller-scale producers on their website that will cover the material from Good Agricultural Practices (GAP) trainings, as the cost of annual GAP certification is not cost effective for small producers. The idea is that if the market can show that these small operations have similar systems and documentation showing they follow safe practices, they can supply larger customers.

The market offers incentive programs at the weekly market to expand food access. These programs include accepting SNAP dollars and SNAP Double Up Food Bucks to support lower-income customers in accessing fresh produce. The market has accepted SNAP for approximately 12 to 13 years, but due to the Double Up dollars, their prices can be competitive with other local grocery stores and Walmart. They've now seen SNAP-funded purchases increase by a factor of ten in recent years. They also offer a produce prescription program for individuals and families that deal with food insecurity and diet-related illnesses.

Comunidad Mayan Pixan Ixim (CMPI) in Omaha, Nebraska, is another Indigenous-led organization within the broader Great Plains region that is working to support their community and has similar goals as Makoce Ag. The ultimate vision for the Maya Regeneration Project is to build a profitable regenerative poultry, agroforestry, and value-added farming operation on 400–600 acres of land somewhere within 60 miles of Omaha.[220] For now, the project supports a community garden at CMPI's Mayan Community Center in south Omaha.



Case Study: Communidad Mayan Pixan Ixim

Key Takeaways

Communidad Mayan Pixan Ixim (CMPI) is a non-profit organization based in Omaha, Nebraska, involved in community development work to improve the health and well-being of Q'anjob'al Maya people in Nebraska. CMPI runs several programs focused on health, arts and culture, environmental health, availability of healthy foods, education, and youth development. Through their Maya Regeneration Project, CMPI has partnered with organizations like Sacred Seed and the Regenerative Agriculture Alliance (RAA) to "[…] anchor the Q'anjob'al community's ancient relationship with the land, create employment, build collective wealth, ensure access to healthy food, restore traditions and culture, and support holistic physical, mental, emotional and spiritual health".[221]

Challenges

Like many Indigenous communities, Maya peoples have faced ongoing dispossession of land, forcing many to relocate across settler colonial borders all over North America. In response to a decades-long civil war, poverty, gang violence, and organized crime, Mayans and non-Mayans alike have left Guatemala in search of safety and opportunity. As of 2015, over 12,000 people of Guatemalan heritage lived in Nebraska, many of whom are Maya.[222] This community faces many challenges including language barriers, low-wage employment, lack of access to land, and more.

Opportunities

Through their project initiatives, CMPI leverages partnerships with other non-profit and philanthropic organizations, as well as other Indigenous communities, to strengthen Maya communities in Nebraska and beyond. As part of the Maya Regeneration Project, CMPI's community garden in Omaha serves as a site for cultural and agricultural education, as well as community building. The goal of the envisioned regenerative farm operation is to pair "[…] indigenous wisdom and knowledge with recent advancements in regenerative agriculture to create a food production system that will provide healthy, local food, lift Maya people out of poverty in Nebraska and in our traditional homeland, and contribute to broad economic development."[223] CMPI is interested in working with a non-profit support system as backbone to analyze gaps and connect with philanthropic funders.

Processing, Storage, Transportation, and Other Infrastructure

We understand there are a myriad of ways to address food barriers for our communities through strengthening the local food system. It is not expected, nor possible, that all existing issues be handled immediately. Infrastructure represents one of our greatest needs, but also one of our greatest costs. Hence, we will ground subsequent efforts in the infrastructure that already exists.

Storage

Adequate storage, including refrigeration, freezers, and dry storage, is an essential component of a sustainable food system. Currently, there is not enough available storage space for growers, farmers, ranchers, or buffalo caretakers on Pine Ridge Reservation, limiting expansion and resiliency of the food system on multiple fronts. Increased storage capacity would create more flexibility for local food producers and would ultimately increase the supply of, and access to, locally grown and raised foods for community members. Additionally, local cooks, caterers, food artisans, and others could make use of this space as well.

Federal statute mandates that food not stored in a sanitary manner be deemed adulterated, even if there is no contamination. Thus, it is essential for food storage infrastructure to be designed and maintained in accordance with official regulations. A North Dakota State University analysis of food law puts forth the following guidelines for constructing and operating a food facility:

- storage facility should be designed in a way that minimizes contamination risks;
- use construction materials that can be easily cleaned and maintained;
- properly maintain storage facility to ward off external contamination;
- storage areas should be separate from worker "break areas";
- do not store raw product and processed product together;
- maintain proper temperature and humidity in the storage environment; and
- be prepared for federal, state, and local inspections.[224]

Dry Storage

Adequate dry storage ensures that foods stored at room temperature—such as canned goods, dried foods, grains, coffee, herbs, and spices—can remain consumable for as long as possible. Dried and canned foods are especially shelf stable, value-added products that can often remain fresh for years before expiring. Still common today, drying and canning is rooted in Indigenous tradition, as our ancestors stored surpluses of food to maintain a food supply throughout the seasons and amid food shortages.

As reported in previous work on Oglála Lakȟóta food systems by Sweet Grass, traditional means of underground storage, like walipinis (earth-sheltered cold frame) and root cellars, can also be effective for storing produce like squash, potatoes, carrots, and onions.[225] These structures regulate temperature and humidity to protect from overheating and/or freezing.

Processing

Processing, the second-most-profitable sector of the food industry behind food service (e.g., restaurants), received almost 16 cents out of every dollar spent in the industry in 2021.[226] Food safety regulations around the processing and selling of animal products can greatly limit commerce within Native communities and access to larger markets.[227] The table below compares features and assumptions across three kinds of "local" processing facilities.[228]

Features and Assumptions of Three Types of Meat Processing Chains

Expense Model Features and Assumptions	Very Small Custom-Exempt	Small-Inspected	Regional-Inspected
Facility size	2,000 square-foot facility	4,000 square-foot facility	15,000 square-foot facility
Service and meat type	Slaughters/fabricates beef, pork, sheep, goats	Slaughters/fabricates beef, pork, sheep, goats	Slaughters/fabricates beef, pork
Value-added	Limited sausage-making, smoking, curing services	Sausage-making, smoking, and curing services	Sausage-making, smoking/curing services, exact-weight retail portions; exact-weight portion cutting of steaks and roasts
Packaging	All raw meats packaged in butcher paper and frozen; option for some vacuum packaging for cooked sausages	All raw meats packaged in butcher paper and frozen; vacuum-packed cooked sausage and boneless cured meats	All raw and cooked meats are vacuum-packed fresh or frozen, usually thermoformed roll stock for retail sale; most product boxed, palletized to ship
Labeling	No scale labeling (applying labels with actual weight to individual packages and cases)	Very basic scale labeling	Complex scale labeling for pieces, cases; preprinted labels applied uniformly to packages
Certification	N/A	USDA- or state-inspected; may still do custom-exempt work	All product USDA inspected; regular third-party audits (good manufacturing practices, food safety, animal welfare, certified organic); Quality Assurance Department monitors sanitation, product safety, quality, shelf life via microbial testing, sensory evaluation
Employees	4 full-time-equivalent employees	10 full-time-equivalent employees	60 full-time-equivalent employees with health and retirement benefits

The table on page 114 compares characteristics of three levels of "local" meat processing facilities: very local, local-independent, and regional-aggregated. Each of these levels has economic, geographic, and sovereignty-related implications, as well as impacts on planning, budgeting, and long-term viability.[229]

Characteristics of Three Types of Meat Processing Chains

Characteristics	Very Local	Local-Independent	Regional-Aggregated
Geography	Same or neighboring county	Highly variable: from one county to multistate	Statewide, multistate
Product	Red meat: frozen meat, whole/half/quarter carcass, paper-wrap. Poultry: whole carcass	Individual cuts and cooked meats vacuum-packed or paper wrapped, labeled, fresh or frozen. Poultry: whole carcass, parts	Same as local-independent, plus primals and sub-primals, fixed-weight portion cuts, all usually fresh in formed vacuum packaging
Market	Direct pre-sale to consumer; poultry sold at the farm	Retail (farmers' markets, farm stands, CSAs, restaurants) and wholesale (e.g., to retailers)	Mostly wholesale (to retail, foodservice, distributors, schools)
Regulatory	Red meat: any, but typically custom-exempt. Poultry: 1,000-bird exemption	Red meat: state or federally inspected. Poultry: 20,000-bird exemption; state or federal inspection if crosses state lines	Federal inspection, or state inspection if all sales are within that state
Roles	Buyer pays farmer for live animal pre-slaughter; pays for processing, picks up meat	Farmer handles marketing and distribution	Multiple farmers supply regional marketing entity that manages supply chain

The "very local" processing chain involves a farmer or rancher directly selling all or some portion (half, quarter, etc.) of a live animal to one or multiple household buyers who receive the processed meat at a cost not beyond the initial purchase of the whole or partial live animal. In a "local-independent" chain, farmers and ranchers make processing arrangements and address marketing and distribution through various direct, local channels. The "regional-aggregated" chain involves multiple farmers or ranchers selling animals to a central entity that, in addition to processing, plans for distribution and marketing, often dealing with wholesale accounts.[230]

The table on page 115 compares various expenses for each local processing chain. Dollar amounts have been inflation-adjusted to 2023 dollars.[231]

Annual Expenses for Three Types of Meat Processing Chains

Annual Expenses	Very Local	Local-Independent	Regional-Aggregated
Raw materials, ingredients, packaging	$66,000	$135,000	$927,000
Labor (all inclusive)	$145,000	$397,000	$3,700,000
Office-related overhead	$1,000	$5,000	$33,000
Processing-related overhead	$40,000	$81,000	$600,000
Other overhead	$26,000	$42,000	$200,000
Loan interest	$13,000	$33,000	$200,000
Depreciation	$13,000	$30,000	$200,000
Total expenses	$304,000	$723,000	$5,860,000
Break-even estimates			
# Beef revenue equivalent/year for break-even (head)[232]	462	1,130	8,884
# Beef revenue equivalent/year for cash flow (head)[233]	442	1,084	8,580

*Dollar amounts have been adjusted for inflation and updated to June 2023 US dollars.

A transition to local-independent or regional-aggregated processing under state and/or federal inspection, whether at Charging Buffalo Meat House or elsewhere, would allow locally processed meat products to be distributed at farmers' markets, through community supported agriculture (CSA) programs, and to wholesalers, retailers, restaurants, and even schools.

Given the strong presence of hunting by both locals and tourists on Pine Ridge, facilities set up to process wild game like deer and elk have an important place in Oglála Lakȟóta communities. The Charging Buffalo Meat House, a project by the local non-profit One Spirit which is managed by local buffalo rancher Bam Brewer, is a state-licensed facility for processing, packaging, storing, and selling meat, especially buffalo.[234] According to One Spirit's website and our KOL interview with Bam Brewer, Charging Buffalo is pursuing USDA certification.[235] The facility cost between $250,000 to $300,000 to build in 2018.[236] However, given the high number of cattle raised on the reservation that must currently leave for processing each year, and the fact that the Charging Buffalo Meat House is currently the only processing facility operating on the reservation, there is room in the marketplace for additional meat processing plants to operate, whether they do so under custom-exempt, federal, or state inspection.

Mobile slaughter units (MSUs) are a less-expensive alternative to stationary "brick-and-mortar" processing facilities. The first MSU to receive a federal grant of inspection was in 2001, and it was owned by the Island Grown Farmers' Cooperative in the San Juan Islands of western Washington.[237] The cooperative still operates. MSUs came onto the scene in Oglála Lakȟóta communities around 2007 when a not-for-profit 501(c)(3) organization (The Sustainable Harvest Alliance) received a grant to acquire them and promote more ethical and less capital-intensive animal harvesting.[238] Their mobile harvester is managed by Wild Idea Buffalo Ranch, LLC, in Rapid City. For a small fee, ranchers can utilize the MSU

to harvest a small number of animals while avoiding the need to do a round-up or purchase expensive equipment like corrals, chutes, and trailers.[239] While MSUs can be a great option when larger stationary facilities are not easily accessible, they are somewhat limited in that further processing, like butchering and packaging, still needs to be done elsewhere.

Greenhouses and High Tunnels

Oglála Lakȟóta communities have seen a growth in certain forms of agricultural infrastructure over the past few years, including greenhouse and high tunnel facilities. As noted by the USDA, "Growing traditional crops can be difficult due to a semi-arid climate and extreme weather—from heat to cold to wind to hail, which can significantly reduce yields or wipe out a whole crop. The rural nature of Pine Ridge also means persistent pests—from insects to deer to other predators."[240] Greenhouses and high tunnels, a type of season-extender like greenhouses, offer some solutions to these problems and are increasingly used in Oglála Lakȟóta communities to amplify food production by extending the growing season and improving the consistency of local produce, which can enhance and sustain revenue.

High tunnels are hoop-shaped gardening structures with a durable plastic covering. A 2017 USDA study found that a multi-vegetable high tunnel could realize a return of $3.64 per square foot annually, which would be $4.57 in 2023 dollars.[241] The USDA's Natural Resources Conservation Service (NRCS) provides opportunities to place high tunnels in Oglála Lakȟóta Country. One 12,000 square-foot high tunnel is projected to require 552 hours of labor at a cost of $10,963 ($13,774 in 2023 dollars) and produce an annual gross income of $43,680 ($54,880 in 2023 dollars).[242] High tunnels and greenhouses are, like most any technology, not without certain drawbacks that are worth noting. Greenhouses are difficult to relocate, and their relative lack of ventilation can be a problem during hot weather, while high tunnels are susceptible to damage from extreme wind, snow, or ice. These potential weaknesses should be balanced against their benefits when being designed and implemented.

Aside from greenhouses and high tunnels, other "season-extending" technologies include cold frames, drip irrigation, solar thermometers, and timers. These technologies boost production and can reduce the amount of paid or volunteered skilled labor necessary to produce efficiently. This might be especially advantageous for entities like schools, who often have difficulties tending gardens during the peak growing season when school is not in session.[243] Along with facilitating produce-growing operations at schools, these technologies can provide added resiliency to climate and weather disruptions related to global climate change, drought cycles, and other extreme weather events.

Marketing Through Packaging and Labeling

The location or region from which a food product originates can be a value-added opportunity. Location-based campaigns or slogans like "Georgia peach," "Rainier cherries," "Kobe beef," and "Vermont cheddar," can be effective in helping farmers and other food producers set higher prices based on the perception that their product(s) is of heightened quality due to its geographic origin.[244]

Recommendation

Makoce Ag should consider incorporating a location-based marketing campaign into its packaging operations to boost retail prices in outside communities. This could include a brief description of Makoce Ag's food sovereignty efforts and the unique natural and cultural environments of the Oglála Lakȟóta Oyáte.

Grocery and Convenience Stores

The Nutrition Environment Measures Survey (NEMS) was used in a 2018 study of food systems and accessibility in Oglála Lakȟóta communities to quantitatively assess the availability, quality, and price of healthy foods in local grocery and convenience stores. On a scale of zero to 54 (with higher scores indicating a stronger presence of high-quality healthy options at a reasonable price), the ten grocery and/or convenience stores that were surveyed averaged a score of 16.[245] This central tendency drives home the point that high quality healthy food options are not readily available to most of our community members.

While many aspects of our local food systems are unique to Oglála Lakȟóta communities, lack of healthy food availability at small stores in low-income communities is a broader trend. A "supplier-to-retailer distribution gap" exists for such stores within the current dominant system of food distribution, which is designed to best accommodate stores that operate at larger scales with higher volumes of sales.[246] Expanding the availability of places to source local and healthy foods, such as our food hub and the planned innovation center and grocery store by Sicangu Co. Food Sovereignty Initiative on the Rosebud Reservation, as well as supporting tribal members in becoming producers for the local system, will help address this gap.

Gaps

As mentioned previously throughout this report, there is limited meat processing capacity on the Pine Ridge Reservation. Charging Buffalo Meat House, a processing facility in Pine Ridge, South Dakota, is currently certified to harvest animals under custom-exempt certification and is working to pursue a federal grant of inspection. They harvest almost all hoofed and/or ruminant animals, including beef, buffalo, pork, and wild game.[247] Our organization is working to address the lack of poultry raised locally for widespread consumption and the need for poultry processing infrastructure on the reservation.

There are not currently any federal or state inspected facilities on the reservation. Several key opinion leaders acknowledged the need for a federally inspected meat processing facility on Pine Ridge. All existing processors in the community currently operate with "custom exempt" status, which enables meat processors to convert meat animals into meat products without federal inspection requirements, if the following conditions are met:

- Custom processing is only for the personal use of the owner of the animal.
- The product is immediately packaged and marked "Not for Sale."
- Accurate production and business records must be maintained.
- Processing/preparation is done in a sanitary way.[248]

These conditions are often ambiguous to interpret, particularly the stipulation that custom exempt animal slaughter is confined to personal use by the owner. Most notably, more than one person can own an animal, and a custom processor can serve as a dealer by buying an animal as a representative of the eventual owner.[249] While custom exempt processing facilitates a relatively niche local market for meat products, it does not allow for more widespread or large-scale product distribution. As such, producers and ranchers on Pine Ridge who want to access wider wholesale and retail markets within and beyond Pine Ridge and South Dakota currently have no option but to leave the reservation to have their animals processed.

AJ Granelli currently processes his birds on his farm to sell directly to consumers. He can do so under a South Dakota law that is part of a federal program that grants exemptions to producers to slaughter up to 20,000 birds per year on their farm and sell the birds within the state.[250] AJ often sells his birds and pigs to the customer before slaughter, so they are processed custom-exempt, which does not need to be inspected. He also sells retail pig meat, which does need to be inspected by either state or federal

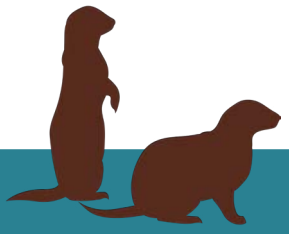
inspectors. He processes hogs custom-exempt at Fuch's Locker in Martin, South Dakota, and for retail cuts he brings his animals to a butcher in Sturgis, South Dakota. More than half of his cost on the retail pork cuts are for processing. Being able to own some portion of the slaughter process would help reduce costs and increase profit. However, in his words, "I don't want to be a butcher, I don't want to be a processor, I want to be a farmer."[251] There is a need for local infrastructure that supports farmers in becoming profitable and financially sustainable while still allowing them to focus on farming. Labor shortages are currently one barrier to developing local meat processing capacity.

Since the start of the COVID-19 pandemic, the lead time at slaughterhouses has gone from several weeks to up to a year, and occasionally producers with strong relationships with their processor are able to get slotted into the schedule earlier. There is not enough local processing capacity to meet the demand, but small-scale processing is also not a profitable business as it is unable to compete with the economies of scale of large processors, and higher prices make it hard to attract consumers.

At Makoce Ag, we are working on launching a USDA-inspected poultry facility. USDA inspection will allow meat to be sold across state lines, which is important given that the Pine Ridge Reservation borders the state of Nebraska. The limitation to selling only within the state eliminates a large portion of the potential regional market for poultry products. The closest large market is in Rapid City, which for AJ, is located two hours away. Gordon, Nebraska, is only twenty-five minutes away, but he is not currently able to sell his birds in Nebraska.[252]

As of our interview with Manager Bamm Brewer in early May 2023, the Charging Buffalo Meat House is expanding their processing capacity and pursuing federal inspection. Brewer predicts that this will result in a number of changes for Charging Buffalo, including an expansion of their workforce and a shift in focus toward livestock over wild game (although they will still process wild game).[253] Another processing facility with USDA certification on its horizon is Makoce Ag's Mobile Poultry Processing Unit.[254] Federally inspected meat processing at Charging Buffalo Meat House and Makoce Ag's Mobile Poultry Processing Unit will go a long way in plugging the current gap that exists in the production of local meat products approved for more widespread distribution both within and beyond Pine Ridge. It is worth cautioning that the certification process needed to ship meat beyond state lines can be drawn out. In early 2023, Wall Meat Processing in Rapid City became the first meat processor in South Dakota with the ability to ship outside of the state through the Cooperative Interstate Shipping Program. The facility went through two years of examination before being approved through the USDA's Cooperative Interstate Shipping (CIS) Program.[255] The CIS program is an alternative to federal inspection whereby state-inspected processing facilities can distribute outside of state lines under certain conditions.[256]

Storage capacity is a major gap in the local food system according to some KOLs. Steve Hernandez at One Spirit identified the lack of a centrally located storage facility or warehouse as among the top priorities in need of being addressed within the food system. He identified Feeding South Dakota, a non-profit organization focused on providing food assistance in Rapid City, Pierre, and Sioux Falls, as a model to follow, highlighting the role that their central distribution center in Rapid City plays in meeting community demand and limiting food waste. Echoing Dawn Sherman's comments on the need for established, coordinated procedures around food storage and distribution, Hernandez emphasized the need for strategic organization and coordination among food producers and distributors in our communities, facilitated by a centrally located storage space.[257]



Case Study: Taos Economic Development Center

The Taos Economic Development Center in New Mexico has worked to address the needs of their community in relation to food and agriculture for decades, including constructing the Taos Food Center to make commercial infrastructure available to food entrepreneurs.

Key Takeaways

The Taos County Economic Development Corporation (TCEDC) in northern New Mexico is a non-profit organization focused on providing community education and opportunity. In carrying out this work, TCEDC provides support to individuals who wish to enter the agricultural and food industries. The organization also offer strategies and resources to food producers, with an emphasis on women and people of color facing resource limitations.[258] TCEDC constructed the Taos Food Center, a 24,000 square-foot facility with a 5,000 square-foot commercial kitchen. Food producers can rent space at the center, where they also receive assistance generating value-added products that can enter retail and wholesale markets.[259]

Challenges

With the aim of establishing a system akin to the self-sustaining Indigenous community-based food system that prevailed prior to the forced entrenchment of the currently dominant commodity-based system, TCEDC ardently promotes the localization of their food system. They do this by embracing the challenging process of working to reconnect food producers and foster a deeper understanding of local foodways. As a result of TCEDC's support, businesses operating at the Taos Food Center have successfully placed their food products in local, regional, and national grocery stores. These successes were not achieved without difficulty, however, as traditional methods employed by community food systems often do not align with the FDA and USDA regulations, posing challenges for these businesses.

Opportunities

The Taos Food Center's commercial kitchen is open for rent to individuals and families, operating 24/7 and based on the honor system. This accessibility to the commercial kitchen space provides additional support and flexibility to individuals and families with busy schedules. The center offers educational opportunities such as food safety classes and guidance throughout the entire process of creating food products and bringing them to the market. Additionally, TCEDC manages a garden and greenhouses that serve as a platform for youth engagement and education. The produce grown in the greenhouses and garden can be sold or used in products developed within the food center.


Ball
SureTight

Makoce Ag Capacity Assessment

Overall, our homelands have high potential to support a regional and local food system. The Pine Ridge Reservation is home to 25,000–30,000 tribal members. There is the potential for a local workforce of over 5,000 individuals. The following chart shows which infrastructure currently exists to support a local food system and some current infrastructure related needs.

Existing Infrastructure	Potential Uses
Community buildings[260]	Networking, storage for meat and produce, office area, marketing. Renting out storage and/or office space could help generate revenue, and OST may be able to support with funding.
Batesland high tunnel[261]	Includes storage space
Roads and OST transportation vehicles[262]	Could transport agricultural goods and thereby reduce the cost of transportation, which makes up 3.6% of the total amount spent on food. OST has a shortage of truck-drivers but a 15-person crew of trucks with refrigeration for dry goods would likely be successful.

Other existing infrastructure to support a regional food system includes Oyate Teca's garden facility, which includes greenhouses, storage, and a commercial kitchen in Kyle, South Dakota. Charging Buffalo Meat House is located outside of Pine Ridge, South Dakota. We are also working to develop poultry processing infrastructure on the Reservation. Additional food-related infrastructure includes Thunder Valley Community Development Corporation's Food Sovereignty program and OST Solid Waste.

The Oglala Sioux Tribe needs more funding for the Department of Transportation-Highway Safety to address issues related to snow removal, storm damage, flooding, and other extreme weather events that require heavy and/or specialized equipment. Additional needed infrastructure and legislation includes:[263]

- Storage facility for farmers' market
- Community high tunnels
- Meat processing facility to process locally raised cattle and poultry

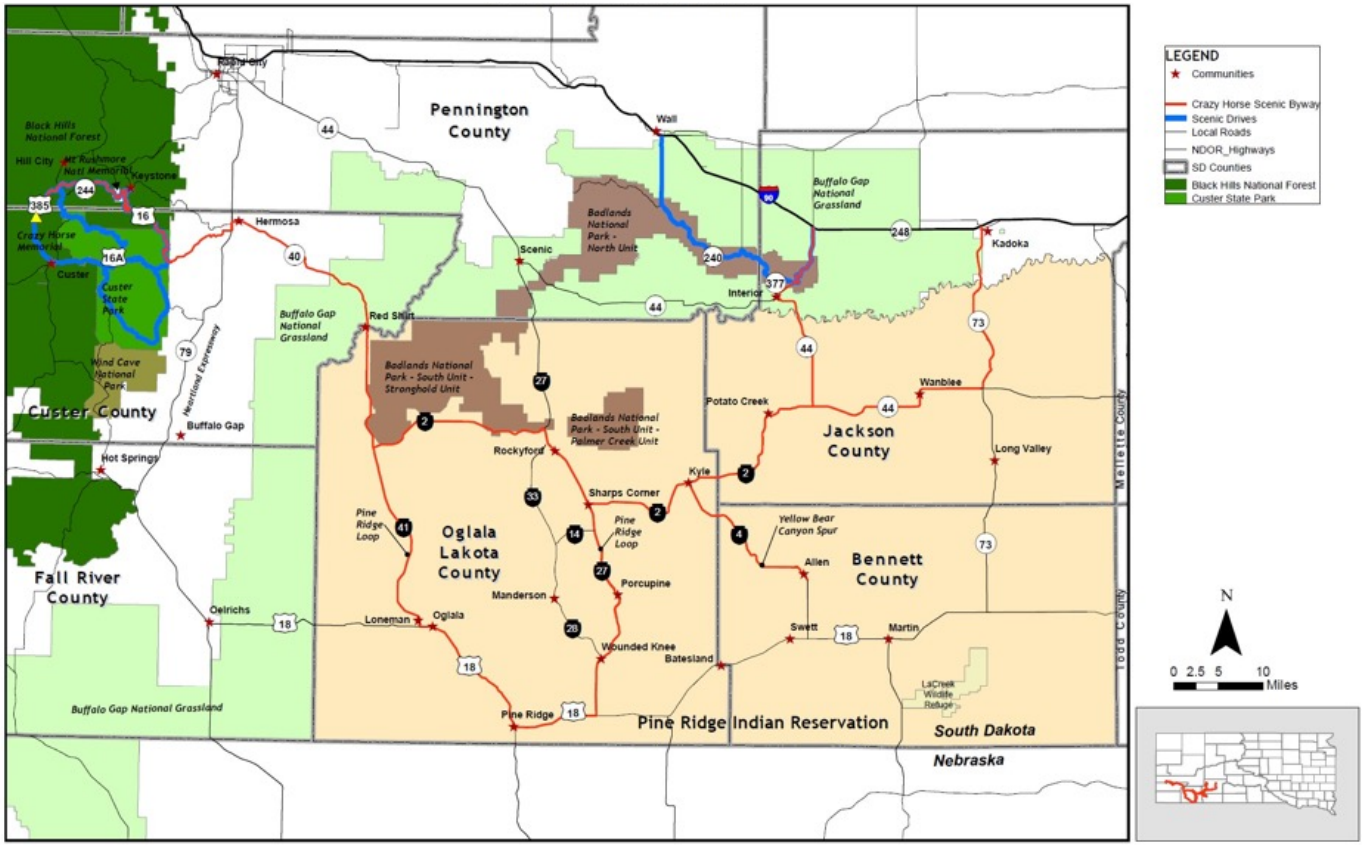
- Fish
- Food codes to support traditional/cultural food sales and prioritization of local and/or Native products

Additional business retail space for food businesses and business zoning, access to land, and water infrastructure (in general, and in range units, specifically) are also areas that need funding and general legislative support. The Oglala Sioux Tribe commissioned a tourism study that was completed in 2022 that found a need for a dedicated farmers' market space on the Nation's lands, and a space for Oyate Teca, a non-profit in Kyle, South Dakota, that grew over 52,000 pounds of food in 2022 to sell produce through their mobile food market.[264] 24% and 12% of restaurants and food businesses on the reservation were associated with tourism in 2014 and 2018, respectively,[265] indicating that the food system became more heavily supported by the local economy during that time frame. The need for the farmers' market to accept SNAP dollars was also identified, which is something that the Sicangu Co. Food Sovereignty Initiative does at their Keya Wakpala Farmers' market on the Rosebud Reservation. The OST study also identified plans that the tribe must install high tunnels in each district on the reservation, which will extend the crop growing season. In addition to a farmers' market space, the Opportunity Park will also have the potential to host a community garden and teaching kitchen.[266] In a community survey of 25 individuals (all but one of whom are OST tribal members) as part of the Opportunity Park feasibility study, a farmers' market was tied with a boardwalk for community vendors as the fourth most popular type of site that community members would like to be developed at the Opportunity Park.[267] 24% of respondents would like to see more restaurants and food for sale as part of the Opportunity Park project.[268] The study also identified a need for a steady location for food trucks and growers of local produce to sell their goods, which can expand economic opportunities.[269]

Critical infrastructure is essential to develop a robust local and regional food system, as well as tap into agritourism. U-pick operations and roadside stands are popular ways to capture tourist dollars, but they require safe roadways to be accessible. Similarly, farm stays, cooking classes, and access to harvest festivals, fairs, and outdoor guided activities also require safe roads to access them.

The map on page 123 is taken from a study for the development of the Crazy Horse Scenic Byway, which was conducted by the Oglala Sioux Tribe Credit and Finance Program, in partnership with KLJ Engineering and Sweet Grass in 2022. It shows the major transportation routes on the Pine Ridge Reservation, as well as neighboring Pennington County, which is where Rapid City is located, and the Black Hills. Many local roads that connect farms and ranches to more developed transportation routes (such as those shown on the map) are unpaved.

Crazy Horse Scenic Byway



On the Pine Ridge Reservation, all roads are designed to leave the Reservation, and primarily head in the direction of Rapid City. By contrast, on the Cheyenne River Reservation, roads are designed to head towards Eagle Butte, which is the main economic center and where the Nation's government is located. The safety of roads on the Pine Ridge Reservation is an issue that can inhibit local food system development, as transportation is key to the food system.[270] In 2014, road improvements were reported by 57% of businesses surveyed on the Pine Ridge Reservation as a top infrastructure need,[271] and in 2018, 66% of businesses reported a need for road improvements, including ongoing upkeep and maintenance.[272] The Oglala Sioux Tribe's Transportation Department is working to improve roads on the Reservation and roadside amenities in conjunction with development of the Crazy Horse Scenic Byway project in southwestern South Dakota, with eventual plans for the 20-mile stretch on the Reservation to be designated a National Scenic Byway.[273] Road improvements will make agricultural transport easier and bring tourism to the Reservation, which can help subsidize a local food market. South Dakota's Tourism

Agritourism Working Group also identified new hemp farms and indigenous plants as a potential way to bring in agritourism by sharing plant knowledge through ethnobotanical educational tours or events.[274]

Strengthening our local and regional food system through a food hub on the Pine Ridge Reservation aligns with infrastructure developments both the Native American Agriculture Fund and USDA have identified as necessary to prevent future supply chain disruptions. In September 2022, the USDA announced it was making $400 million available for the creation of at least six "Regional Food Business Centers," which according to Agriculture Secretary Tom Vilsack, "[. . .] will serve as USDA's cornerstone in the development of the local and regional supply chains, building on lessons learned during the pandemic, providing technical assistance, and creating new market opportunities in areas where the need is greatest."[275]

In a 2020 visioning report, the Native American Agriculture Fund (NAAF) put forth a model for building valuable food systems infrastructure in Indian Country. The model proposes building ten regional food hubs in strategic locations across the US, each of which would feature processing facilities for meat, poultry, dairy, grains, and produce, as well as ample food storage space, distribution infrastructure, technology and data infrastructure, and financial services for Native food producers.[276] Regionalizing food infrastructure in this way, NAAF suggests, will enable Native communities to capture a greater proportion of the "food dollar"through expanded control over more steps in the production of consumable foods.[277] "Food dollar" refers to the cost breakdown of the production side of the food system. The USDA splits each dollar spent in the food industry into 11 sub-industries: farm production, food processing, packaging, transportation, wholesale trade, retail trade, food services, energy, finance and insurance, advertising, and others. In their 2020 report "Reimagining Native Food Economies: A Vision For Native Food and Agriculture Infrastructure Rebuilding and Recovery," NAAF reimagined the visualization of the traditional USDA food dollar and identified processing, packaging, and transportation (which comprised 15%, 2.3%, and 3.5% of the food dollar at the time, respectively) as key steps in the production process that would occur within Native communities under the regional food hub model. Together with farm production, these steps account for 28.6% of the total food dollar, a substantial increase from the 7.8% that farm production (currently the step that Native communities are largely confined to) alone accounts for.[278]

Makoce Agriculture Development's Activities

We are currently developing infrastructure and expanding our staff and capacity to bring our full vision for our five initiatives to life, which will help address several of these shortages identified above. Our five initiatives include a Food Systems Institute, food hub, regenerative production farm, hemp production, and the Oceti Sakowin Food Systems Alliance. These initiatives will work in synchronicity to bring about beneficial health changes for our Oglála Lakȟóta Oyáte and for the Očhéthi Šakówiŋ. Our efforts will help increase food security and self-sufficiency, particularly for the wakȟányeža (children).[279] In May of 2023, we brought on new board members and hired ten new staff members to fill newly created positions. The current and potential future capacity of each of our initiatives and the partnerships involved in each are assessed throughout this section.

The central component of our future capacity lies with the Local Food System Institute (FSI) and Makoce Community Food Hub, a regenerative farm and education center that will provide the local community with a gathering space to learn and practice regenerative agriculture. We are currently in the advanced planning stages of constructing what we are calling the Makoce Community Food Hub. The land upon which the food hub will be built, for which we hold the lease, is favorable for development and will support various environmentally conscious building strategies centered around load reduction and synergistic efficiency.[280] Our vision for this food hub is based in five broad goals, including (1) holistic health and wellness, (2) education, training, and outreach, (3) economic development, (4) model community development through sustainable land restoration, and (5) enhance environmental and ecosystems health.[281] The space will include a commercial kitchen offering chef training and classes, a conference and training center with capacity for 75 to 100 people, office space, conference rooms, retail space (including a bakery, deli, and café), food storage space, business incubation space, ample parking, demonstration gardens, spaces for gatherings and educational programs, and restorative landscape infrastructure like native plants, wind buffers, and healthy waterways.[282]

Enterprise development will focus on poultry as well as hemp to create economic opportunities for local food producers to supply local and regional markets.[283] The $29 million project will allow us to create community spaces that can be used, free of charge, and expand opportunities for our community members to access nature and experience the healing nature of the outdoors as they learn about native plants. Construction of the Community Food Hub will be in conjunction with community partners, and community engagement has been and will be a continual part of our process. Our estimated build costs are approximately $8.5 million less than estimated food hub cost provided by NAAF.[284]

"As far as managing wildlife, plants[. . .] the best advice I can give to people is you don't go against nature, you move with it. Basically, what you have to do is match your heartbeat to that of the land." – ***Lekší Richard T. Sherman, Oglála Lakȟóta Elder and Ethnobotanist***

The site will include cabins and a bunkhouse, a playground, courtyard, greenhouse, windbreaks, and water features to capture rainwater for irrigation and improve water quality, commercial retail, bakery, café, market space, patio dining, and food storage. Regenerative landscaping will be integrated into the design of the building and surroundings, such as including shade trees and other native plants in restoration and educational areas. A green roof will provide a space to grow additional food, teach community classes and host gatherings, improve the building's insulation, and attract native pollinator species. Food storage will include a loading dock, dry storage, cold storage, freezer storage, and commercial kitchen space. There will be classrooms, processing space, and gathering space for community members in addition to production space. Art and Lakȟóta culture will be integrated throughout the building, and the building will be designed to re-use and recycle wastewater, storm water, and runoff as much as possible. Regenerative systems are a priority of this building, as well as building resiliency into the systems to always ensure continual operations, including during natural disasters and extreme weather events. Also, an on-site septic system will be installed. This infrastructure will allow us to expand our current work to support local food systems, including our regenerative poultry educational offerings and other work to support traditional foods and regenerative food systems.

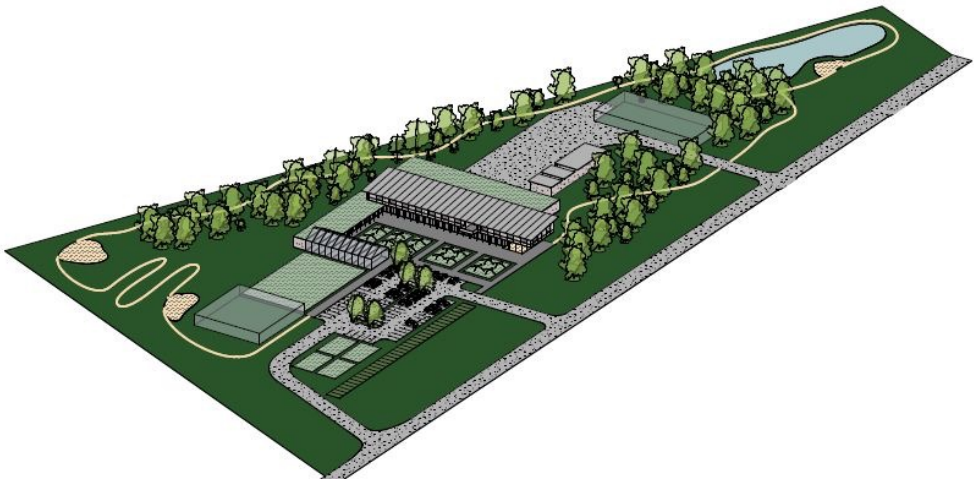


Illustration courtesy of Macoke Agriculture Development.

The broad vision we have for the Makoce Community Food Hub will require diverse design for the different areas of the facility. See Appendix K for more food hub designs and information. For example, food storage and processing areas need to be kept at much cooler temperatures than office and retail spaces. This presents challenges, but also creates opportunities for synergistic and complementary design. One example of this is the planned green roof, which will serve several functions, including boosting biodiversity, enhancing insulation, and adding food production and amenity space. Another example is the planned use of heat recovery chillers, which capture and utilize heat produced by cooling towers that would normally be released into the atmosphere.[285] This infrastructure allows for, for instance, the use of the warm air byproduct of cooled food storage machinery (e.g., refrigerators, freezers) to be directed toward the heating of domestic hot water.[286]

Other energy-conscious aspects of the Makoce Community Food Hub design include (1) the placement of buildings such that the "free benefits of climate, soil and adjacency" are maximized, (2) passive solar heating for office and community spaces, and (3) the use of natural shade for cooling the food hub and loading dock.[287] Sustainable and restorative landscaping is also planned, including vegetated windbreaks, native plants and trees for landscape restoration and natural shade, and stormwater capture and re-use.[288]

The four tables below lay out the projected costs of the Makoce Community Food Hub project. One noteworthy takeaway from these numbers is that our estimated total project cost of just under $30 million is considerably lower than the NAAF's projected cost of $38.5 million per regional food hub.[289]

Table 1. Total Project Cost Summary for Makoce Community Food Hub

Cost Category	Estimated Cost
Total construction cost*	$26,235,000
Total soft cost**	$2,835,000
Total project cost***	$29,986,000

*See Table 2 for breakdown.

**Includes equipment (estimated as a $1,000,000 lump sum), furniture (see Table 3 for breakdown), and other site development (estimated at 10% of subtotal building cost)

***Total construction cost + total soft cost

Table 2. Breakdown of Total Construction Cost for Makoce Community Food Hub

Gross Building Area	Cost/Area	Subtotal Building Cost	Other Site Development	Total Construction Cost
53,000 ft^2	$450/$ft^2$*	$23,850,000	$2,385,000**	$26,235,000

*This figure is estimated based on the cost of similar projects.

**This figure is estimated at 10% of subtotal building cost.

Table 3. Breakdown of Furniture Cost for Makoce Community Food Hub

Area	Cost per Square Foot	Total Furniture Cost
18,300 ft^2*	$20	$366,000

*Spaces included: conferencing, training, retail, offices

Table 4. Breakdown of Professional Services Fee by Phase

Phase	Duration	Percentage of Fee	Fee by Phase
Schematic design	3 months	15%	$357,750
Design development	3 months	20%	$477,000
Construction documents	8 months	38%	$906,300
Construction administration	18 months	25%	$596,250
Subtotal cost for design phases			$1,741,050
Subtotal cost for construction phase			$596,250

In the short term, construction of the Local Food System Institute will create jobs across a variety of industries from construction to farm management, food production, and more. In the long term, we'll create opportunities for our community to gain hands-on food sovereignty production skills and learn about the connection between climate, food, land, plants, and ourselves, and will expand our capacity to respond to food, energy, transportation, and water-related emergencies. In doing so, we'll regenerate the relationship the Očéthi Šakówin has with our culture and land.

Food Systems Institute

Through the Food Systems Institute and our associated programs, we will become a center for community engagement, education, health, and wellness. Our programming will focus on holistic systems, supporting entire ecosystems and recognizing people as complex spiritual, physical, mental, and emotional beings. As a people, we can find healing when we reconnect to the land and our culture, arts, and language.

"But a collective thing could give the potential that more people could grow into more independence as well. There needs to be stepping stones towards independence."[290]

Internal Capacity

Existing

- Regenerative poultry producer courses that teach community members how to raise poultry from start to finish and provide start-up infrastructure
- Community education courses on the history of Indigenous foods and food systems, current practices, and opportunities for involvement

Potential

- Expand education, hands-on training, and outreach initiatives, including youth outreach, to become the primary hub for agricultural research and education for South Dakota and the Očhéthi Šakówiŋ

Enterprise development will focus on poultry as well as hemp to create economic opportunities for local food producers to supply local and regional markets.[291] We are currently working with an architect on the design of our site and raising funds for construction. In the meantime, we are building our educational offerings and have already begun to expand opportunities for community members.

In March 2023, we hosted a CoCoRah class to train community members how to become county weather moisture recorders, which was attended by ten individuals. In May, our Cultural Foods Educators, Lisa and Arlo Iron Cloud, led a buffalo harvest for students at Lakota Technical High School, which is part of the Oglala Lakota County School District. We also partnered with the arts and culture business, Racing Magpie, to plan, design, and install a garden in Rapid City, South Dakota, on their grounds.

In January 2023, we began offering our Regenerative Poultry Producers Program, a nine-week virtual education class that teaches the basics of poultry production. Community members have the opportunity to learn from our staff experts everything they need to know about small-scale regenerative poultry production.[292] We provide (1) assistance setting up the necessary infrastructure on their property, (2) access to processing equipment, and (3) 75 broiler chickens.[293] We estimate the total seasonal cost for each household that participates in the program to be $852.25 for a batch of birds, with per-bird and per-pound costs of $11.36 and $2.95, respectively.[294]

Poultry Class Boiler Cost Breakdown (Excluding Makoce Ag Labor and Variable Costs)

Cost Category	Per Bird	Batch Total	Season Total
Chicks	$1.89	$141.75	$141.75
Bedding	$0.17	$12.75	$12.75
Waterer	$0.03	$2.25	$2.25
Feeder	$0.03	$2.25	$2.25
Infrastructure	$0.58	$43.75	$43.75
Feed	$4.16	$312.00	$312.00
Processing	$4.50	$337.50	$337.50
Total cost	$11.36	$852.25	$852.25
Cost per lb.*		$2.95	

*Calculated based on an average weight of 3.85 lbs./bird.

These costs include chicks, bedding, a waterer, a feeder, a tractor coop, feed, and processing. For families that elect to sell the poultry they produce, we estimate that at a 20% profit margin ($5.13 per pound), a seasonal profit of $246.80 can be made.[295] This profit is possible even though our free-range poultry are cheaper, when comparing total calories produced and eaten, to conventionally sourced chicken.[296]

Poultry Class Boiler Breakdown: Profit Potential/Family

Cost Category	Per Bird	Batch Total	Season Total
Chicks	$1.89	$141.75	$141.75
Bedding	$0.17	$12.75	$12.75
Waterer	$0.03	$2.25	$2.25
Feeder	$0.03	$2.25	$2.25
Infrastructure	$0.58	$43.75	$43.75
Feed	$4.16	$312.00	$312.00
Electricity	$0.07	$5.25	$5.25
Labor	$2.92	$219.00	$219.00
Processing	$4.50	$337.50	$337.50
Storage/freezer	$0.60	$45.00	$45.00
Insurance	$0.50	$37.50	$37.50
Marketing	$1.00	$75.00	$75.00
Total cost	$16.45	$1,234.00	$1,234.00
Sale price per lb.*		$4.27	
20% margin (per lb.)		$5.13	
20% margin profit (per season)		$246.80	

*Calculated based on an average weight of 3.85 lbs./bird.

We enrolled 14 families on the Pine Ridge Reservation for our first session. In the spring of 2023, the families received equipment and meat bird chicks after completing training on how to raise meat birds from hatchlings to harvest, which takes 50 days. Considering the success of the poultry production courses thus far and in line with our ongoing mission of developing modern local food systems guided by holistic understandings of environmental connection and regenerative agricultural practices, we are looking to expand the size of the poultry operations we support. Under this vision, each small farmer participant would have between three and seven flocks of 1,500 birds per year.[297] Despite a slightly higher projected per-bird cost of $13.50 (as opposed to $11.36 mentioned above) due to added labor and processing costs, the added production volume relative to the existing 75-bird program amounts to a projected seasonal profit of over $12,880 for a 4,500 bird (three-unit) operation.[298]

Profit Potential for Poultry Production Unit (Three 1500-Bird Flocks per Year)

Cost Category	Per Bird	Flock Total	Season Total
Chicks	$1.89	$2,835.00	$8,505.00
Bedding	$0.17	$255.00	$765.00
Waterer	$0.03	$45.00	$135.00
Labor	$1.00	$1,500.00	$4,500.00
Feeder	$0.03	$45.00	$135.00
Infrastructure:	$1.22	$1,830.00	$5,490.00
Feed	$4.16	$6,240.00	$18,720.00
Processing	$5.00	$7,500.00	$22,500.00
Total cost	$13.50 ($3.51/lb.*)	$20,250.00	$60,750.00
Potential revenue**	$16.36	$24,543.75	$73,631.25
Less total cost	$13.50	$20,250.00	$60,750.00
Profit	$2.86	$4,293.75	$12,881.25

*Calculated based on an average weight of 3.85 lbs./bird.

**Calculated based on retail value of $4.25/lb.

With enough of these mid-size poultry production farms, our communities could sustainably supply poultry to the region, keeping local money in local hands, diminishing the need to bring in poultry products through the global commodities market, and greatly increasing the availability of good-quality local food in Oglála Lakȟóta communities.

The chart on page 134 shows the potential economic impact if just one family operated a 4,500-bird per year poultry operation and were able to tap into supply chains for farm inputs from local sources. If the 14 families who participated in the regenerative poultry program in 2023 each develop a 4,500-bird operation and source 50% of farm inputs locally, and 40% of that spending is again re-circulated on the reservation, the total economic impact would be $622,146.

That's enough money to supply clean water for

5,655

families in a low-resource country

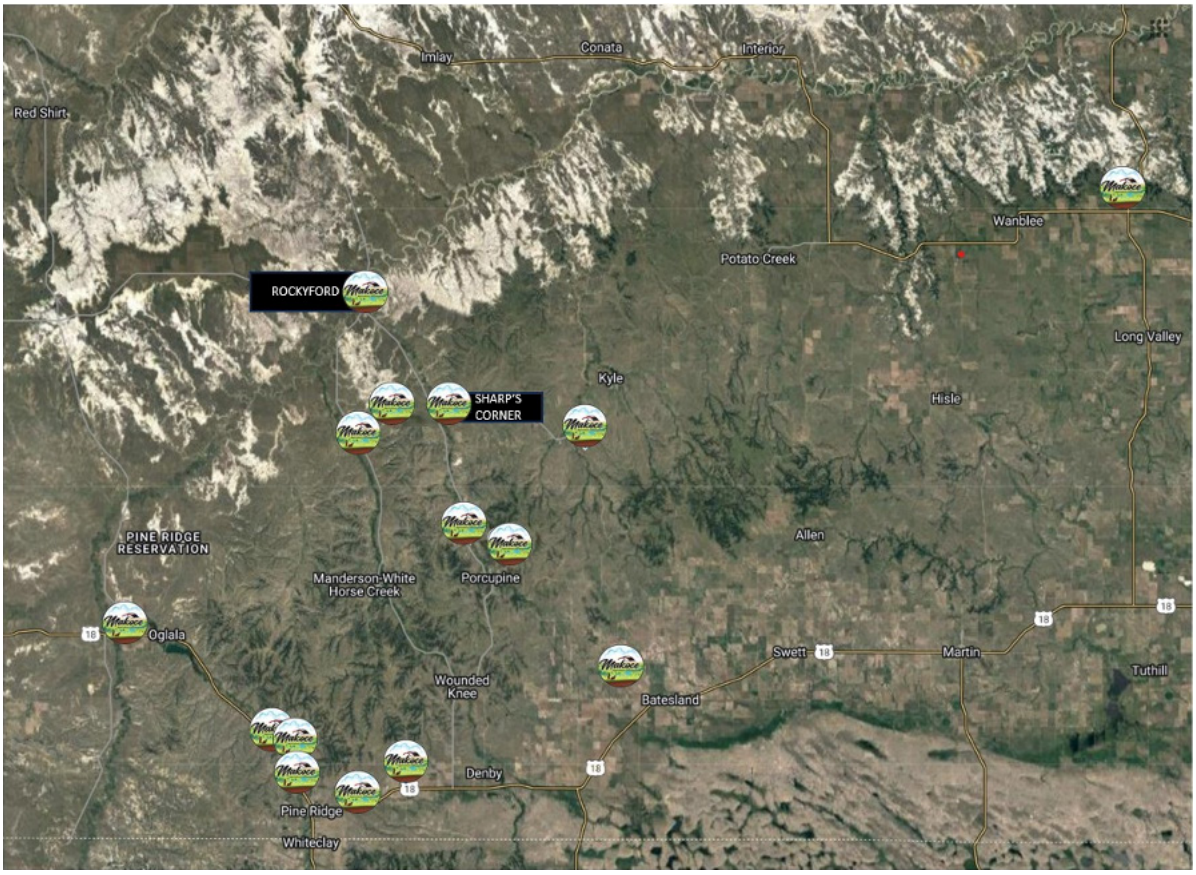
4,500 Bird Annual Poultry Flock
Annual Costs: $60,750

If X% of farm inputs were sourced locally:		5%	10%	20%	50%	100%
$ sold on-reservation		$3,038	$6,075	$12,150	**$30,375**	$60,750
Potential OST tax revenue		$136.69	$273.38	$546.75	**$1,366.88**	$2,733.75
If X% of revenue was spent locally:	100%	$3,038	$6,075	$12,150	$30,375	$60,750
	80%	$2,430	$4,860	$9,720	$24,300	$48,600
	60%	$1,823	$3,645	$7,290	$18,225	$36,450
	40%	$1,215	$2,430	$4,860	**$12,150**	$24,300
	20%	$608	$1,215	$2,430	$6,075	$12,150
	10%	$304	$608	$1,215	$3,038	$6,075
Potential OST tax revenue	100%	$137	$273	$547	$1,367	$2,734
	80%	$109	$219	$437	$1,094	$2,187
	60%	$82	$164	$328	$820	$1,640
	40%	$55	$109	$219	**$547**	$1,094
	20%	$27	$55	$109	$273	$547
	10%	$13.67	$27.34	$54.68	$136.69	$273.38

Total Potential Economic Multiplier Effect

100%	$6,348	$12,697	$25,394	$63,484	$126,968
80%	$5,714	$11,427	$22,854	$57,135	$114,271
60%	$5,079	$10,157	$20,315	$50,787	$101,574
40%	$4,444	$8,888	$17,775	**$44,439**	$88,877
20%	$3,809	$7,618	$15,236	$38,090	$76,181
10%	$3,492	$6,983	$13,966	$34,916	$69,832

Makoce Ag Regenerative Poultry Producers



Food Hub

One of the primary barriers for producers who are interested in selling locally is finding pathways to local markets. The food hub will support us in building relationships with both local producers as well as local wholesale clients and other organizations who are working to build infrastructure for a local food system. By building a larger producer base through our Food Systems Institute and empowering community members to become food producers for the local market while also developing sale outlets and infrastructure, we'll be able to build connections between food producers and consumers in our region and speed up the growth of local food networks. The food hub will also expand our capacity to address gaps that we have identified in our regional food system.

Current Gaps

- Support producers with issues such as financing and access to capital through financial literacy training and business planning technical assistance.
- Build Farm to School networks on the Pine Ridge Reservation.
- Facilitate connections between local producers and organizations that provide specialized services and support (e.g., Akiptan CDFI, Tanka Fund).
- Facilitate partnerships between producers and local meat processing; develop local meat processing infrastructure.
- Implement tribal food codes.

We have already identified land to construct the Food Systems Institute and food hub and are raising funds for construction. We are working with an architectural firm to conceptualize and design the space and have already created preliminary designs. The hub will house a deli, coffee shop, co-working space, community gathering space, and commercial kitchen. We'll be able to host cooking classes and train chefs through our culinary institute, and support gatherings of up to 75–100 people and reach between 75 and 1,000 community members on an annual basis. The space will serve as a business incubator for food entrepreneurs and will provide support with marketing, creating a value-added products pipeline, and retail opportunities. Once construction is complete, the ongoing operations of the center will create approximately 50 full-time and 20 part-time jobs that can be filled by the local workforce.[299]

We have engaged our community throughout the process of constructing the food hub. In January 2023, we gathered with 12 members of our community who are part of the project's advisory committee to begin developing our master plan for 24 of the 40 acres of allotted tribal and business district land that we have secured. From February through July, we met to discuss various design possibilities, and in May, finalized a design plan that we shared with community members in July 2023. Our next steps include developing the hub's business plan, policies, storage facilities, transportation plan, and distribution strategies. Our plan is to have the hub ready for operation before the end of 2025. The building will likely include hemp insulation, which may or may not include hemp that is grown locally, depending on if it is available at that point or not. Currently, plans for the food hub include space for a coffee shop, food distribution, and conference and office space for our organization and to rent to other local organizations and businesses. We are not planning to

develop incubator rental spaces for food entrepreneurs currently. The project has received funding from the Bush Foundation, Native American Agriculture Fund in their 2022 funding round, and the US Department of Commerce, Economic Development Administration (EDA). Potential issues associated with development include construction delays.[300]

Potential Partnerships

- Develop processing and retail/wholesale partnerships with Charging Buffalo Meat House and One Spirit.
- The OST Transportation Department has expressed willingness to support the food hub and local products through promotion and marketing of Native products to tourists and others traveling on the Crazy Horse Scenic Byway.[301]
- OST Credit and Finance could also provide support by helping to bring communities together and bringing in outside consultants to provide technical assistance to producers.[302]
- Pine Ridge Area Chamber of Commerce could support a local food system through tourism marketing and farmers' market support. There is also the opportunity to partner to supply a food truck they are adding to their museum, as well as a dinner theater program.[303]

Transportation plays a key role in the functioning of any food system, large or small. Dave Kelly, Director of OST Department of Transportation, shared useful insights on this topic during his KOL interview. He sees great potential for trucking capacity stemming from the Tourism Department's large, resource-rich network, and suggested that a 15-person crew of trucks with refrigeration for dry goods would be successful.[304] This potential, he acknowledged, is limited at least in part by a relative shortage of truck drivers. Kelly also touched on the intersection of transportation and marketing, noting the potential of promoting Native and local products along the Crazy Horse Scenic Byway and its many tourist attractions.[305]

A food hub will allow us to support producers in a variety of ways. Food processing and storage facilities will allow us to aggregate products from multiple producers, create consistent value-added products, and develop a consistent supply to meet the demand of local wholesale purchasers such as schools. By working with smaller schools to start, we'll be able to develop a model Farm to School partnership that we can scale to additional schools and districts as we expand our processing capacity and

our producer network. More details around school needs and recommendations for working with schools can be found in the Farm to School Network in Southwestern South Dakota in the Opportunities subsection of the Retail and Wholesale section of this report.

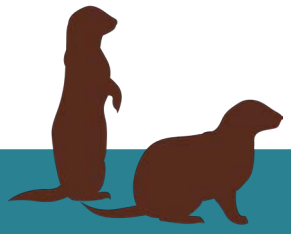
Recommendation

To address the shortage of truck drivers that can increase transportation issues for the agricultural sector, Makoce Ag could work with Oglala Lakota College and the OST Department of Transportation to develop a training program for community members to obtain their commercial drivers' license (CDL), which requires that individuals have access to commercial vehicles to practices for their driving test. The program could also work with a wider network of partners to support successful trainees through job placement or entrepreneurship when they obtain their CDL.

Our food hub will provide needed aggregation and storage space for local producers and allow us to start supplying local wholesale clients at a small scale. As our capacity grows and the number of local producers grows as well, we will be able to expand our ability to meet the demand of local wholesale purchasers such as schools and businesses. Our expanded staff, as of May 2023, has grown our internal capacity and will allow us to develop partnerships with organizations such as Black Hills Farmers' Market and support us in building digital infrastructure to complement our physical construction projects.

Recommendation

Makoce Ag may wish to consider hiring a dedicated position to support Farm to School initiatives, develop relationships with student nutrition managers and food service directors, including working with Oglala Lakota County school district's food service program. This position may or may not double as a wholesale program coordinator under the food hub. The Black Hills Farmers' Market has a dedicated Wholesale Customer Relationship Specialist on their staff in addition to the Market Manager to support wholesale customers and expand wholesale markets.



Case Study: Oglala Lakota County School District Food Service Program

Key Takeaways

Oglala Lakota County School District serves approximately 1,700 students in grades K–12 across the reservation at six schools. One of those schools is a virtual high school, and the other five of those schools have kitchens. All schools serve meals that follow state and federal nutrition and procurement regulations. In addition to serving breakfast and lunch, the district participates in the Fresh Fruit and Vegetable Program to provide a free snack for students. Teachers and staff can also purchase meals. Students receive free meals through the Community Eligibility Program at each school, and approximately 85% to 95% of students participate in breakfast throughout the district. The chart below shows the approximate number of students and staff who participate in lunch at each school in the district as well as the number of kitchen staff at each school. In addition to the five schools below, the district also operates a virtual high school, and each of the five physical schools offers lunch to those students should they wish to come in.

School	# of School Lunch Participants (Students and Staff)	# of Kitchen Staff
Batesland	160	4
Red Shirt	50	3
Rocky Ford	450	4
Wolf Creek	550	5
Lakota Tech	340	4
Total	1550	20

The district is reimbursed by the state of South Dakota's Child and Adult Nutrition Services for a little more than $2 for breakfast per student meal served and a bit over $3 for lunch per student meal served. The district is also reimbursed by the Department of Defense for the Fresh Fruit and Vegetable program and receives free food from the commodity food program.

The schools serve breakfast and lunch for summer school students (approximately 500 across the district). The five schools with a kitchen each receive an order from Cashway once a week. As the district is so remote, and the schools are far apart, there is a fuel surcharge added to their invoices for delivery. Since COVID-19, the food service program has had difficulty maintaining a full staff. The schools prepare homemade food as much as possible while still utilizing their funding sources

and commodity food program, which is a source of frozen and canned foods. However, some items sourced and served by the district are already prepared due to the labor it would take to prepare them, such as pancakes. Menus are created for the entire district but are influenced by feedback and ideas from each school and put together monthly.

There have been some updates to kitchen infrastructure since the release of the Thunder Valley Community Development Corporation grocery store feasibility study report in 2018, which included a survey of available kitchen, storage, and processing capacity at schools on the Pine Ridge Reservation. Lakota Tech is the newest school in the district and has a sufficient fridge and freezer, although their pantry has limited space. Wolf Creek will be getting a new kitchen and will have a total of two. The renovations will also include expanding the dining room. The addition of both an additional fridge and freezer, along with an additional staff person (for a total of six staff) will help improve service.

Challenges

Menu creation also considers the fact that many of the students' families may rely on SNAP funding to purchase food throughout the month, which is distributed on EBT cards. SNAP dollars are distributed on the 10th of the month in South Dakota. At the beginning and end of each month families may struggle to budget for food. The monthly food service menu is created to serve more popular items during those times of the month when students may not have food at home. They will also plan to serve popular or more filling menu items on a Friday before a weekend in case students don't have much to eat at home. The menus are also designed to adhere to the daily and weekly nutrition requirements stipulated by the state. Sometime during each week, each of the following must be served: dark greens, legumes, starch, etc. There is a total quantity requirement that must be met each week; for example, the starch requirement can be met by either corn or french fries (as well as other starches) or a combination of those items. To meet the legume requirements, schools will serve baked beans or refried beans, which are popular on the reservation. For dark greens, romaine and broccoli are popular. Ideally, menu items will not be repeated throughout the month or during a two-month cycle. Traditional foods are not commonly consumed or particularly popular among the student population.

Opportunities

Oglala Lakota County schools do not currently serve local foods. One of the challenges the district faces is that local supply is limited and is insufficient to meet the district's daily demand. The school district is responsible for feeding 1700 students on a daily basis. A proven track record is also a key factor that goes into selecting a supplier. However, the district is willing to explore the possibility of using micro-procurement regulations to source local foods for one of the smaller schools in the district, such as Red Shirt, to start off with. Batesland is also a smaller school that could source local foods for their salad bar. While there are individuals with home gardens, and those with large home gardens who sell excess produce as well as a community garden with a greenhouse in Batesland, there are not many individuals who are growing large quantities of produce for market.

In addition to local schools, Pine Ridge Elderly Nutrition Program is another potential wholesale customer for our food hub. The program provides curbside hot meals to elderly individuals aged 60 and over. The program does have an on-site garden, and the produce is used in meals. Elderly caregivers who pick up meals are also fed by the program. The program works with the state of South Dakota and has ten sites on the Pine Ridge Reservation, one for each district. The cost per meal is approximately $3.85 as per spending guidelines, but due to inflation and an increase in the number of seniors, the program's costs have gone up. Elderly participants are not charged for meals. In addition to the program's own garden produce, they source salad vegetables from the Oyate Teca Project. Items that they are unable to source locally they find from other suppliers, but they would prefer to provide local foods and are interested in providing local meat and bread. In addition to Oyate Teca, they work with Kyle Grocery and Wanblee Mart. In general, the program has noted a collaboration gap in the local food system where most organizations or businesses don't go out of their way to work together or support each other. Makoce's Food Systems Institute and Food Hub are well-poised to provide more opportunities for collaboration within the local and regional food system.[306]

The food hub will also expand local processing capacity and provide access to commercial kitchens for local food entrepreneurs who are interested in moving beyond direct-to-consumer sales. Currently, there are no commercial kitchens freely available for community use on the Pine Ridge Reservation. The need for commercial kitchen space for food entrepreneurs was also cited during an interview with Barbara Cromwell, Market Manager of Black Hills Farmers' Market. The market has home bakers who sell goods at the market and are limited by their kitchen and oven space. There are also few poultry processors in the region, and this is another key infrastructure need. As evidenced by the experience of the Taos County Economic Development Center, community infrastructure such as a food hub and commercial kitchens can play a key role in getting locally produced products into local retailers.

Regenerative Production Farm

"Regeneration doesn't happen on a brand or a farm or an individual level [. . .] it happens on an ecosystem level."[307]

Our regenerative farm will serve as a community and region-wide model of sustainable landscape restoration. We have obtained a lease from the Oglala Sioux Tribe for 40 acres of allotted land to establish our regenerative agricultural operation, which will be the first operational farm to also have education as a core focus on our reservation. There are other educational agricultural operations that do not operate as production focused farms. As we grow our operation, we plan to raise additional animals and establish diverse ecosystems of annual and perennial crops. Our initial revenue stream will come from poultry as we lay the groundwork for a fully regenerative productive and profitable farm in our early years.

Regional Needs

- Greenhouses for winter production
- Poultry and meat processing
- Mobile harvesting
- Federal/state inspection
- Community commercial kitchen
- Workforce development
- Poultry hatchery
- Organic/non-GMO feed grain

While we had originally intended to operate a mobile poultry processing unit and build permanent infrastructure to go along with it, due to community opposition to that component of the project, it was not included in the proposal that we submitted to the Bureau of Indian Affairs for approval under our planned construction project. In the future, if we find a need to add a mobile meat processing unit on the 40-acre production farm site, we will undertake additional study of the environmental impact.[308] Our original intention with the mobile poultry processing unit was to make the infrastructure available to local poultry producers who want to harvest their animals. We are pursuing USDA certification to allow producers who harvest using the unit to sell to a wider audience. We are continuing to learn about meat processing, and our CEO, Nick Hernandez, attended the Intertribal Agriculture Council's Tulsa, Oklahoma, fly-in event to visit local poultry and red meat processing facilities in March 2023. Producers who work with us will be allowed to store their wares in our future food storage facilities, which can extend their shelf life and producers' ability to sell products for a longer period throughout the year.

In the future, we'll be able to provide information to our community and show how to integrate regenerative landscape design into an agricultural operation by working with traditional plants and animals. Our regenerative farm will use waste to create a system where there is ultimately no waste, and all resources are re-used. To do so, we plan to create a community compost facility. We'll also restore the landscape surrounding our facility with native plants, vegetative wind buffers, and will ensure that our waterways remain healthy. Together with the Food Systems Institute, the regenerative farm will create the opportunity to support workforce development through ongoing community education programs, and potentially through more dedicated training programs. There is an ongoing need for a trained butcher workforce, both locally and across the nation. The Biden Administration had made funding available for workforce development programs in the food system, largely related to meat and poultry processing. The USDA deployed $100 million in support

of workforce development and training for high-paying jobs in the meat processing sector through partnerships with labor unions and other organizations,[309] including $14 million to support agricultural workforce training for marginalized and historically underserved communities.[310]

Hemp Production

Cannabis, including hemp and marijuana production, is the fastest growing local opportunity related to agriculture and food sales on the Reservation.[311] Recreational and medicinal marijuana use was legalized by the Oglala Sioux Tribe in 2020, which sparked renewed interest in growing the plant.[312] Hemp production is one of our five main initiatives, and we have planned infrastructure development related to hemp as part of our efforts to bring agricultural production on the Pine Ridge Reservation back under the control of our tribal members and Native peoples. As part of our purpose in serving as a demonstration site for regenerative farming and natural building, we plan to integrate hemp into our building construction as insulation and into our interior décor using hemp textiles.[313]

OST tribal code stipulates that "any members of the Oglala Sioux Tribe who wish to harvest or cultivate industrial hemp must first organize or join an existing land use association. Each land use association making use of industrial hemp will then appoint and arrange for the compensation of a liaison who will file a quarterly report to the Land Committee of the Oglala Sioux Tribal Council, delineating with specificity the industrial hemp acreage to be cultivated and/or harvested, the end products to be manufactured and the progress since the previous report. The liaison will serve as the interface between the land use association, the Oglala Sioux Tribal Council, and any interested law enforcement agencies [. . .]."[314] Makoce Ag will be well-positioned to have the staff and infrastructure to support a land use association.

The OST hemp industry struggled in 2021 after being legalized and supported through tribal legislation. According to Scott Weston, Executive Director of the Oglala Sioux Hemp Regulatory Commission and a former OST President and council representative from Porcupine, South Dakota, while most individuals he encounters believe that there is more money to be made on the THC and consumable cannabis side of the industry, non psycho-active hemp has more potential uses and market opportunities, including fibers, clothing, building materials, CBD, and edible foods. Licenses must be obtained each growing season and require an application that is 28-pages long, verification that the seeds that are planted will have less than 0.3% THC, complete a background check on the applicant who must not have any drug-related convictions during the previous decade, and be a tribal member with cleared land to grow it on. The Regulatory Commission has struggled due to lack of funding and support from the Tribe.[315]

Oceti Sakowin Food Systems Alliance

The Oceti Sakowin Food Systems Alliance was created by Makoce Ag to gather community members, leaders, food producers, and consumers who are all working to decolonize the current food system. The group functions as a dispersed thinktank focused on building regional food connections. One of the objectives of the Alliance is to complete a regional food system scan, policy assessment, and identify advocacy objectives. This report includes a regional food system scan of the Pine Ridge area, which overlaps with the Rosebud Reservation and the Black Hills.

In January 2023, we hosted the first of our working group sessions with local partners that arose from the Pine Ridge Convergence of the Oceti Sakowin Food Systems Alliance. In March 2023, our CEO attended the Regenerative Agricultural Alliance's 2nd annual convergence and the Intertribal Agriculture Council's Washington, D.C., fly-in event for Great Plains Region representatives for the 2023 Farm Bill. Advocacy work has also been an important part of our work with the Food Systems Alliance and will continue to be moving forward. In May, Nick Hernandez, Makoce Ag CEO/ President, attended another Native Farm Bill Coalition fly-in and represented Makoce Ag as a supportive organization of the Native American priorities of the 2023 Farm Bill. The Alliance will support grassroots organizations who are working to change their local food systems, including through the implementation of food codes and state and federal legislation, and ordinances to support local purchases.

Partnerships

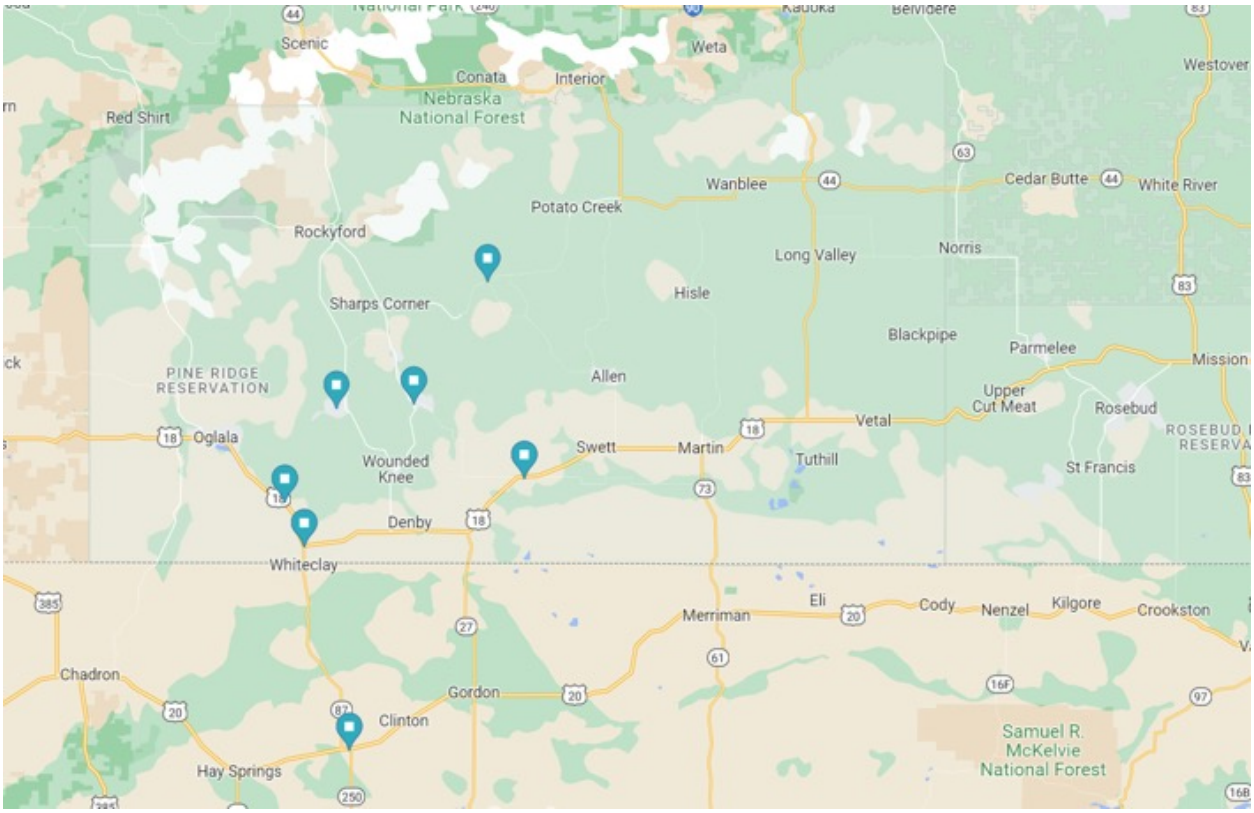
- Oceti Sakowin Food System Alliance
    - Sicangu Co. Food Sovereignty Initiative
- 4 Rosebud Community Group
- Oyate Teca
- Tanka Fund
- Oglala Sioux Tribe FDPIR Program
- Racing Magpie
- Akiptan CDFI
- Mayan Council of Omaha

Makoce Agriculture Development Internal Capacity

To achieve the objectives that we've determined are essential to building a regional food system for the Pine Ridge Reservation, maintaining a skilled workforce to carry out our mission is a key priority. Without support from our community and a capable and dedicated staff, none of the initiatives we've outlined above will be possible. We currently have a staff of 10 and four interns across our five initiatives. Ten staff members responded to a survey to gauge our internal capacity in July of 2023; their results are summarized here.

The surveyed employees work with our regenerative farm, food hub, communications, social media, construction, general operations, including finances and oversight. The average employee age is 35, and in general, our organization has a young workforce with employees ranging in age from 17 to 43. 70% of our employees are male. Of our seven leadership positions (Farm Director, Planning and Construction Manager, Communication Manager, Director of Operations, Finance Manager, Food Hub Manager, and President/CEO), six of those positions (86%) are filled by men. While our organization is still young, these statistics demonstrate a potential gender equity gap in our current leadership structure and recruitment efforts. 70% of employees were hired in May 2023. The CEO launched Makoce Ag in July 2019, and the first and second employees were hired in January and June of 2022, respectively.

90% of our workforce is Indigenous. Of those who are Indigenous, 100% are Lakȟóta, and one individual (12.5% of Indigenous employees and 10% of all employees) is also Northern Cheyenne. 80% of employees are Oglála Lakȟóta, one employee is white, and one employee (10%) is Húŋkpapȟa Lakȟóta from the Standing Rock Nation.



The map above shows where Makoce Ag staff live and call home. Staff live in Batesland, Porcupine, Calico Community, Kyle, Medicine Root, Manderson, and Pine Ridge/Mission Flats in South Dakota, and Rushville, Nebraska. 90% of staff call the place where they live home.

As seen in the map, Makoce Ag staff are primarily concentrated in the central area of the Pine Ridge Reservation, and their locations skew a bit south and west. Having staff who live in various communities can help Makoce Ag understand the various food-related needs across the Reservation so that the organization can better serve tribal members as a whole and may help connect to food networks across the Reservation.

70% of staff members are graduates of Oglala Lakota College. One staff member attended Red Cloud Indian School, and at the time of the survey, there was a high-school senior interning for the regenerative farm. Overall, 60% have received degrees in higher education, with 40% in possession of a bachelor's degree, 10% with a master's, and 10% with an associate's. One staff member (10%) is currently pursuing a bachelor's degree. One other staff member noted that they have a high school diploma. Fields of study include business and leadership, science, art, management, and computers.

Staff responses to the survey indicated three current areas where staff are devoting their time: general operations, the regenerative farm, and the food hub.

- The regenerative farm is currently focused heavily on poultry production and education, as well as developing processing infrastructure. There are three staff members (30% of all staff) who comprise the farm team: Farm Director, Farm Coordinator, and Farm Intern. Staff are primarily interested in learning to process poultry and scale poultry production. For our farm intern, they are interested in creating a business plan for the items they produce.

- General operations staff include the President/CEO, Director of Operations, Finance Manager, Communication Manager, and a Social Media Coordinator. The Director of Operations oversees day-to-day operations of the organization, while the President/CEO focuses on building and developing the organization and managing it to meet its full capacity. In addition to producing social media content, we maintain a podcast, newsletter, and written content. Staff are interested in developing skills and expertise in their area, including marketing and networking, financial management, and learning and teaching, as well as creating "[. . .] a stable and thriving community organization for many generations to come,"[316] which will depend on continual fundraising and strategic management by leadership.

- The food hub staff includes the Food Hub Manager and the Planning and Construction Manager. Our President/CEO is also heavily involved in food hub development. The Food Hub Manager was working on grants, a business plan, and research in July 2023. The Planning and Construction Manager manages the day-to-day planning and construction projects, including communication with contractors and colleagues, procuring materials and equipment, and contributing as a member of the food hub business team. Current objectives for this initiative include business plan development, and developing plans for "[. . .] policies, storage, transportation, and distribution strategies for this hub."[317]

Makoce Ag and the Farm Bill

The Native Farm Bill Coalition works to create provisions to support Native producers and tribes as they build community, create jobs, grow economies, feed people, safeguard natural resources, and prioritize tribal sovereignty. The 2018 Farm Bill and following legislation expanded federal farm program support for Native agricultural producers and tribal communities. Congress further enhanced community and economic development for tribes and provided additional support for historically underserved agricultural producers, including Native producers, in the American Rescue Plan Act of 2021. In their 2022 report, 'Gaining Ground,' released ahead of the renewal of the Farm Bill in 2023, the Native Farm Bill Coalition called for additional support related to production services and credit, nutrition and food sovereignty, and economic development for tribal producers and communities. **The tables below show significant changes to the 2018 Farm Bill that impact Indian Country, as well as 2023 recommendations from the Native Farm Bill Coalition and ways that our organization is already meeting or will be able to meet the needs identified by the Coalition.** In the future, our growth and the creation of the Makoce Community Food Hub and Food Systems Institute will allow us to support Native producers in accessing expanded USDA programming, agricultural financing, processing infrastructure, and developing and reaching new markets while strengthening our regional food economy.

Farm Bill 2018 Updates

Title	Major Modifications
Nutrition	75% of 2018 Farm Bill spending, includes SNAP, SNAP Employment and Training Program, FDPIR, The Emergency Food Assistance Program, the Commodity Supplemental Food Program, and created micro-grants for food security for small producers. FDPIR provides food for 90,000 individuals each month, and in 2018, the Farm Bill reduced the cost-sharing administrative burden on Tribes that offer FDPIR and expanded the ability of Tribes to use federal funds to meet the match requirement. Tribes who were unable to meet the cost share saw the waiver process simplified, and the 638-contract self-determination option for Tribes was expanded to FDPIR. Funding for Community Food Projects was cut by $4 million but was extended for the Gus Schumacher Food Insecurity Nutrition Incentive Program (FINI) and TEFAP. Funding for the Senior Farmers' Market Nutrition program was kept at the same level as 2014. FINI provides grants through a competitive process to organizations that expand fresh fruit and vegetable access for low-income individuals.

Title	Major Modifications
Rural Development	In general, expanded support to Tribes for broadband, rural economic development and small business, and water systems. Broadband: Grant program created within the Rural Broadband Program, turned the Community Connect Program into a secure grant funding source to expand broadband in disadvantaged rural communities, expanded funding for the Distance Learning and Telemedicine Program, created the Rural Broadband Integration Working Group. Rural businesses: created the Rural Innovation Stronger Economy (RISE) program to create rural jobs by supporting job accelerator programs, reauthorized the Rural Microentrepreneur Assistance Program (and expanded funding by $20 million) and the Rural Business Development Grants Program. Infrastructure: Doubled maximum financing for eligible projects applying to the Waste and Waste Disposal Loan Revolving Fund as well as the Emergency and Imminent Community Water Assistance Program. Allowed intermediaries to offer subgrants to rural homeowners for the Rural Decentralized Water Systems Program (formerly the Household Water Well Systems Program), reauthorized the Water Systems for Rural and Native Villages in Alaska program.
Research	Created New Beginnings for Tribal Students program (competitive grants to land grant TCUs), funded the federally-recognized Tribal Extension Program, supported the National Sustainable Agriculture Information Service (ATTRA), Organic Agriculture Research and Extension Initiative (OREI), Foundation for Food and Agriculture Research, authorizes USDA National Institute for Food and Agriculture Funding.
Forestry	Reauthorized the Cooperative Forestry Assistance Act of 1978, repackaged the Landscape Scale Restoration grant program, established the State and Private Forest Landscape Scale Restoration Fund, reauthorized the Healthy Forests Restoration Act of 2003 with less funding for fuel reduction; repealed the Wood Fiber Recycling Research Program, Forestry Student Grant Program, Biomass Energy Demonstration project, and the Biomass Commercial Utilization Program; expanded eligibility to Tribes for the Good Neighbor Authority to allow the Farm service or BLM to form agreements with Tribes for restoration and/or protection services on National Forest Service Lands, for the first time applied 638 self-determination contract authority to the Forestry Title; supported wildfire mitigation efforts for tribal and non-tribal land boundaries, expanded watershed protections.
Energy	Repealed the following programs: Repowering Assistance, Rural Energy Self-Sufficiency Initiative; created the Carbon Utilization and Biogas Education Program; updated the Rural Energy Savings Program, continued to include the Biobased Markets Program.
Horticulture	Reauthorized many existing provisions related to specialty crop, certified organic agriculture, and local foods; combined several programs (Farmers' Market Promotion Program, Local Food Promotion Program, Regional Food System Partnerships Program, and Value-Added Producer Grants Program) to create the Local Agriculture Market Program; provided $50 million in annual funding for the Commodity Credit Corporation; changed USDA's National Organic Program; expanded mandatory funding for the National Organic Certification Cost Share Program; legalized industrial hemp production.

Title	Major Modifications
Crop Insurance	There was a significant increase in indemnity payouts to farmers and ranchers during the pandemic due to disruptions related to the pandemic as well as weather such as drought and other natural disasters; changed definitions of beginning farmers/ranchers to someone with less than 10 years of experience actively managing and operating a farm or ranch, which expanded federal subsidy eligibility for those producers for creating Whole Farm insurance plans; increased the administrative fee for catastrophe coverage more than 100% per county, and reduced funding for research and development; specified that the Noninsured Crop Disaster Assistance Program can be used for crops that aren't eligible for catastrophe risk protection; expanded inclusion of underserved producers and required impact tracking to measure support.
Misc.	Tribal Advisory Council; 2014 Farm Bill created the Office of Tribal Relations; updated provisions focused on livestock - developed the National Animal Disease Preparedness Response Program, the National Animal Vaccine and Veterinary Countermeasures Bank, and updated definitions to the Emergency Livestock Feed Assistance Program, required a report from the Food Safety and Inspection Service on the services provided to small meat processors; created the Farming Opportunities Training and Outreach Program, Office of Urban Agriculture and Innovative Production, expanded USDA programs that serve beginner and veteran farmers and ranchers, as well as disenfranchised producers; codified access to federal resources and TA forTribal Promise Zones; reauthorized Rural Emergency Medical Services Training and Equipment Assistance Program; created a task force to address broadband connectivity gaps related to precision agriculture.

Category	Gaining Ground 2023 Recommendations	Makoce Ag Activities and/or Potential
Commodities (pages 16–23)	Increase the loss rate coverage for Tribal producers from 75% to 90% in the Livestock Indemnity Program if livestock perishes due to adverse weather due to tribal land inequities; add specific language to the Livestock Forage Disaster Program to ensure that Tribal producers are eligible and increase payments to 90%; do not exclude tribal lands from participation in these programs due to a lack of weather monitoring equipment; set carrying capacities for tribal lands at the national (not county) FSA office and ensure they are appropriate to tribal lands; expand eligibility for tribal producers to access funding for trees up to 80% - 90%; ensure Tribal governments, entities, and producers are eligible to receive reimbursement for transportation of agricultural commodities or inputs for greater than 30 miles.	Activities: Developing a regional poultry industry of small-scale producers and poultry processing infrastructure Potential: Support Native producers on the Pine Ridge Reservation in accessing Livestock Indemnity Payments, reimbursement payments for agricultural commodity transport, and payments from the Forage Disaster Loss Program should those programs apply; work with local Native producers to install drought and weather monitoring equipment on agricultural lands on the Pine Ridge Reservation to gather data about changing climate conditions and the impact on agriculture; support Native producers in gaining seta on their county's FSA Committee.

Category	Gaining Ground 2023 Recommendations	Makoce Ag Activities and/or Potential
Conservation (pages 24–35)	Expanding eligibility for Tribes to participate in USDA conservation programs; fund BIA adequately so that Native producers are able to access conservation programs in a timely manner and within lease terms; reduce inconsistencies between BIA and FSA program participating approvals/ permitting; remove barriers for beginner producers to participate in conservation programs by removing the requirement for one previous year of control; Add section to conservation title to allow a Tribe or group of Tribes to develop technical standards for Traditional Ecological Knowledge (TEK) to control implementation of conservation projects supported under the Farm Bill, codifying existing NRCS practices to support TEK conservation; allow CRP lands or other conservation lands to be used by beginning farmers and ranchers who are enrolled tribal members, so long as their activities don't damage the land or resources; include Tribes in language about Priority Resource concerns; do not require Tribes to compensate former lessees for the installation of the conservation practice.	Activities: Incorporating TEK into food sovereignty programming and the business models Potential: Support tribal producers in accessing conservation programs, specifically support beginning producers in accessing conservation programs; support tribal landowners in accessing EQIP programs; access multi-year technical assistance funding to support tribal producers.
Trade (pages 36–41)	The 2018 Farm Bill expanded requirements to include Tribes and Native producers in activities related to international and federal trade, but as of 2022, the provision that did so had not been implemented. In 2023, recommending increasing Market Access Program funding to IAC to support Tribal producers (current allocation levels reflect the 2014 Farm Bill) in accessing new and international markets.	Potential: Support producers with developing market-ready products; help connect producers with organizations such as the Intertribal Agriculture Council's American Indian Foods Program to access programs such as the Market Access Program to build export markets and supporting international marketing. Provide TA in accessing other trade programs including the Foreign Market Development Program, which supports US agricultural exports, as well as programs such as the Emerging Markets Program and Technical Assistance for Specialty Crops.

Category	Gaining Ground 2023 Recommendations	Makoce Ag Activities and/or Potential
Nutrition (pages 42–53)	Food Distribution Program on Indian Reservations (FDPIR) recommendations: expand or make permanent the '638' self-determination contract provision; eliminate the match requirement for Tribes; continue funding for nutrition education that was requested by USDA in appropriations bills in 2022; create a people program to directly source local herbs and spices for nutrition education; clarify language to permit Tribes that transcend international borders to source food from their bands across the US border for FDPIR, and consider those foods domestic for FDPIR purposes; allow Tribes to source non-domestic produce in emergencies to reduce food waste and expand options for FDPIR program participants; provide funding for facilities and infrastructure upgrades for FDPIR sites; expand traditional and regionally Tribally-produced foods in FDPIR on an ongoing basis. SNAP recommendations: permit Tribes to administer SNAP.	Potential: Support local food producers in developing, launching, and scaling their food businesses to become suppliers for FDPIR programs on Pine Ridge and across the region.
Credit (pages 54–61)	Pilot program to authorize CDFIs to administer funding directly to clients from USDA Rural Development and Farm Service Agency; reimagine agricultural finance to support climate change adaptation; relevant opportunities that were identified by IAC in the 2018 Farm Bill include allowing loans to be structured to suit business needs, debt restructuring if FSA Planning Prices were over 20% higher than market price, extend first payment date to 18 months rather than 1 year, Keeps eagle class forgiveness to allow thousands of disenfranchised producers who were unable to file as part of the settlement to borrow from the FSA, support consolidation of highly fractionated land ownership by amending and expanding the Indian Land Acquisition Program to provide loans for individual Tribal members, rather than solely Tribes or Tribal corporations as is permitted now, remove FSA program requirement for graduation, remove private credit denial requirement for Tribal producers to participate in FSA programs, create a common definition of 'land owned by Indian Tribes' across the USDA's various agencies and programs. Other recommendations include expanding credit access to Native producers by requiring the Farm Credit System to make those loans, providing loans and loan guarantees for seafood, fish, meat, and poultry processing,	Potential: Through the Food Systems Institute, provide technical assistance to Native producers on the Pine Ridge Reservation and across the Oceti Sakowin Food Systems Alliance to support them in accessing credit and agricultural financing, and connect producers with Native CDFIs such as Akiptan and Four Bands that provide agricultural financing in South Dakota.

Category	Gaining Ground 2023 Recommendations	Makoce Ag Activities and/or Potential
Rural Development (pages 62–75)	Add SUTA (Substantially Underserved Trust Area) provisions to all Rural Development programs, which would allow applicants to access waivers for program requirements including better loan terms and reduced or waived matching requirements; create a Tribal set-aside for all Rural Development program allocations; keep the position of Under Secretary for Rural Development; support smaller and newer CDFIs in accessing larger funding pools to bring capital to Indian Country; expand the Rural Electric Loan and Grant Program to CDFIs; $10 million for the Essential Community Facilities Grant Program at tribal colleges and universities; $24 million annual permanent funding for TCU's Rural Utilities Services Fund; almost $1 billion in funding for the Rural Utility Service; $1.5 million for USDA Rural Development Tribal Technical Assistance program; authorize a minimum $29 billion in loans for the Rural Housing and Community Facilities Programs; $50 million Tribal set-aside from the RD 502 Direct Loan Program for an Indian Country national relending program.	Activities: Developing poultry processing infrastructure and economic development through the regenerative poultry producer program Potential: Support Tribal producers in accessing Rural Development credit and financing programs through Native CDFIs.
Research (pages 76–85)	Adequately fund the Federally Recognized Tribal Extension Program (FRTEP); provide parity in funding accessibility and opportunities for 1994 TCUs in funding competitions with state land grant institutions; make TCUs eligible for all funding from the National Institute of Food and Agriculture (NIFA); Fund and support research projects at the Agricultural Research Service on Traditional Ecological Knowledge; provide multi-tribal funding for research title programs; fund grants for organizations supporting Native youth working in food and agriculture.	Activities: Has hosted youth internships and worked with Red Cloud Indian School on their garden and food production for a Farm to School program Potential: Work with Oglala Lakota College Agricultural Extension to develop TEK agriculture and food-related research projects using MAD's regenerative farm as a research facility; continue to expand educational programming opportunities for Native youth.
Forestry (pages 86–93)	Intertribal Timber Council recommendations include cooperative management of federal forests adjacent to tribal lands, develop forestry workforce for Indian Country, defining Indian sacred places and requiring protection for them, including maintenance of local and information confidentiality about sacred places, support Tribes in participating in the Tribal Forest Protection Act (TEPA) through 638 self-determination contracts on BLM or Forest Service lands, expand funding for 638 tribal self-governance contracts, return lands to Native nations.	Potential: Work with OST's Forestry Department to provide opportunities for youth to learn about forest food systems and provide community education through the Food Systems Institute about management of riparian woodland ecosystems on the prairie, as well as forest management for traditional resources in the Black Hills.

Category	Gaining Ground 2023 Recommendations	Makoce Ag Activities and/or Potential
Energy (pages 94–99)	Indian Country has a significant potential for biomass, wind, and solar energy production, including 5% of US solar energy potential and just less than 4% of the country's wind potential (95). Recommendations include establishing tribal bio-based energy grants, develop grant programs for solar energy either as a REAP Tribal set-aside or a separate program, and create Tribal set-asides in REAP, and clarify Tribal eligibility in energy authorities to ensure that tribal corporations are eligible.	Potential: Support Pine Ridge based producers who are interested and eligible in programs to support renewable energy production on agricultural lands in accessing USDA programs to install renewable energy infrastructure.
Horticulture (pages 100–105)	Recognize Tribal sovereignty in the realm of horticulture and specifically pesticide regulation on Tribal lands; include Tribes in the Specialty Crop Block Grant program; support Tribal honey and beekeeping operations; support Tribal farmers' markets through set-asides of 10% of funding in program such as the Local Food Promotion Program; support Tribal organic producers and programs; increase support for the Good Agricultural Practice program and other food safety and compliance audits; protect traditional foods and Tribal seeds.	Potential: Assist producers in applying for organic and other certifications that can help them appeal to customers in the market; help coordinate USDA GAP audits for local producers; support efforts to develop local and regional seed banks on the Pine Ridge Reservation and within the Oceti Sakowin Food Systems Alliance.
Crop Insurance (pages 106–133)	Require additional training on federal programs available to Tribes and individual Tribal producers and support TA providers in Indian country in providing those trainings; allow a 90% subsidy of the crop insurance premium for Native livestock commodity producers who are applying for the first time for pasture, forage, and rangeland policies; require insurance providers receive better training on how to serve Indian Country and support curriculum development; develop crop insurance programs for traditional foods and livestock, which should include protection for cross-pollination of patented commercial corn varieties that would prevent seed-saving; require 10% of projects funded through the Risk Management Education Program support training needs related to tribal producer risk management; allow tribal producers to be insured by tribal insurance companies; appoint a tribal producer to the FCIC Board.	Potential: Become a technical assistance provider to provide trainings to educate Native producers of their rights regarding the Crop Insurance Title and how to access funding; build connections with local and/or regional crop insurance providers to support beginning Native producers who want to take out crop insurance.

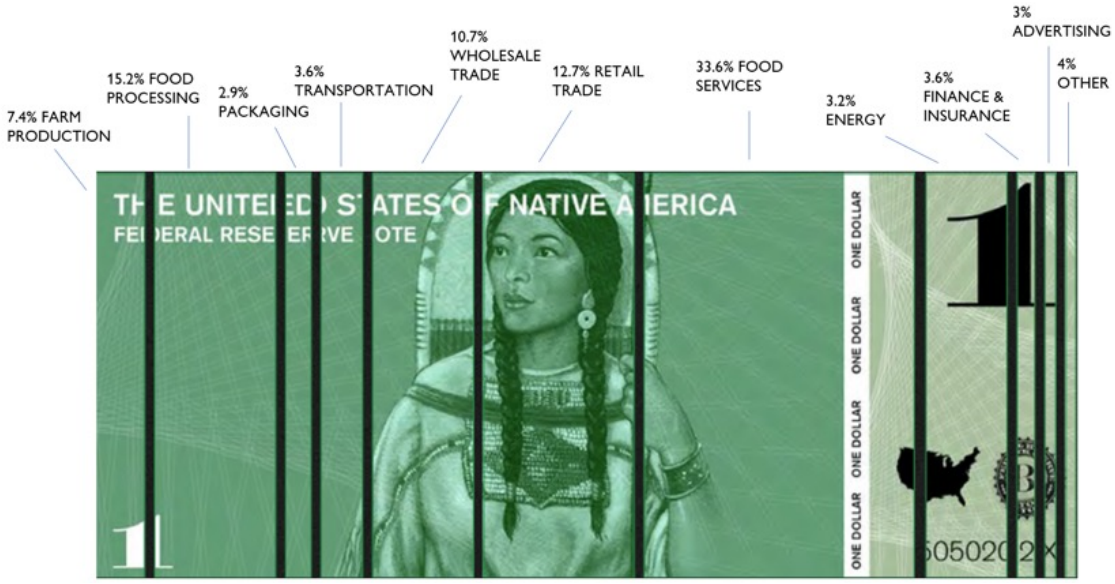
Category	Gaining Ground 2023 Recommendations	Makoce Ag Activities and/or Potential
Misc. (page 114)	Designate the Under Secretary of Agriculture for Farm Production and Conservation coordinate Intertribal tourism demonstration projects; provide competitive advantage and priority consideration for Tribal Promise Zones, Fund a study of fraudulently marketed 'Native-American' foods and seeds; expand the Buy Indian Act and Indian Employment Preference Hiring for all USDA programs; Establish a right of first refusal for Tribal Nations to support purchases of USDA lands in their ancestral homelands; create a USDA 638 Office and apply 638 to all USDA programs; seat the Tribal Advisory Committee; expand food assistance programs for urban Native communities; recognize Tribal food and agriculture departments; expand cooperative agreements between Tribes and the USDA Animal and Plant Health Inspection Service to prevent animal disease outbreaks that would decimate food production; require BIA coordination with the USDA on Agricultural Resource Management Plans for Tribes; provide grant funding for seafood, fish, meat, and poultry processing in Tribal communities.	Activities: Developing poultry processing infrastructure Potential: Explore the potential legal protections for Oceti Sakowin traditional foods and seeds; support Native producers in accessing markets through the Buy Indian Act.

Economic and Health Multiplier Effect of Increased Food Sovereignty

The economic multiplier effect refers to the fact that every dollar spent in a local area will be recirculated throughout the economy. Making local foods available for sale on our lands will help keep dollars in our communities and circulating throughout the local economy.

The USDA 2021 food dollar reflects slight changes to the percentage spent on each category from 2017. In both 2021 and 2017 (from the Census of Agriculture), 'other' spending related to agribusiness and legal and accounting needs. In the four years from 2017 to 2021, the share of agricultural spending related to farm production, food processing, wholesale and retail trade, energy, and other spending decreased, while the share of spending related to packaging, food services, finance and insurance, and advertising increased. The share of spending allocated to transportation costs remained the same.[318] The image below shows the estimated industry allocation of every dollar spent on food in the United States in 2021.[319]

USDA Food Dollar (2021)



Using the percentages provided by the 2021 food dollar industry group data from the USDA (the most up-to-date data as of July 2023) and the 2017 Census of Agriculture for the total value of agricultural production on Pine Ridge, the total dollar amounts associated with each of the 11 food dollar industries were extrapolated if 1%, 2%, and 5% of locally produced foods are packaged, processed, transported, and sold on the Reservation. We then provide estimates if 10%, 20%, and 40% of locally produced foods are kept local. The total market value of agricultural products produced on the reservation in 2017 was $102,174,000. The revenue associated directly with food production and sales on the Reservation was totaled (this sum does not include the estimated spending on energy, finance and insurance, advertising, agribusiness, legal services, and accounting). The Keynesian economic multiplier effect calculation was then used to estimate the cash circulated within our local economy if the revenue directly from food production, processing, and sales stayed in the community. We looked at five further scenarios:

1. If 80% of that revenue was spent locally;
2. If 60% of that revenue was spent locally;
3. If 40% of that revenue was spent locally;
4. If 20% of that revenue was spent locally;
5. If 10% of that revenue was spent locally.

The first three columns use the value of all agricultural products in the 2017 Census of Agriculture for Pine Ridge, while the second set of three columns shows the economic impact that would result even if only agricultural products on farms owned by American Indians or Alaska Natives were sold locally. The total value of AIAN farm production on Pine Ridge was $2,790,688 (7.4% of $37,712,000) in 2017.

If only 5% of the value of AIAN farm production was re-circulated locally, it would generate an additional $139,534 in revenue for the local economy. If 5% of the value of AIAN-produced agricultural products was re-circulated locally (excluding the value associated with energy, advertising, finance and insurance, accounting, legal services, and agribusiness), and 40% of that again spent locally, the total amount that would re-circulate in the local economy would be $2,272,902.

Economic Multiplier Effect: Local Agriculture (Part I)

		2017 Census					
		Based on Market Value of Agricultural Products Sold: $102,174,000			Based on Market Value of Agricultural Products Produced by AIAN-Owned/Operated Farms: $37,712,000		
% sold on-reservation		1%	2%	5%	1%	2%	5%
$ sold on-reservation		$1,021,740	$2,043,480	$5,108,700	$377,120	$754,240	$1,885,600
Service-to-product	Farm production (7.4¢/$1)	$75,609	$151,218	$378,044	$27,907	$55,814	$139,534
	Processing (15.2¢/$1)	$155,304	$310,609	$776,522	$57,322	$114,644	$286,611
	Packaging (2.9¢/$1)	$29,630	$59,261	$148,152	$10,936	$21,873	$54,682
	Transportation (3.6¢/$1)	$36,783	$73,565	$183,913	$13,576	$27,153	$67,882
	Wholesale trade (10.7¢/$1)	$109,326	$218,652	$546,631	$40,352	$80,704	$201,759
	Retail trade (12.7¢/$1)	$129,761	$259,522	$648,805	$47,894	$95,788	$239,471
	Food services (33.6¢/$1)	$343,305	$686,609	$1,716,523	$126,712	$253,425	$633,562
	Energy (3.2¢/$1)	$32,696	$65,391	$163,478	$12,068	$24,136	$60,339
	Finance and insurance (3.6¢/$1)	$36,783	$73,565	$183,913	$13,576	$27,153	$67,882
	Advertising (3¢/$1)	$30,652	$61,304	$153,261	$11,314	$22,627	$56,568
	Other (4¢/$1)	$40,870	$81,739	$204,348	$15,085	$30,170	$75,424
Food production and sale total revenue on-reservation		$879,718	$1,759,436	$4,398,591	$324,700	$649,401	$1,623,502
If revenue was spent locally (economic multiplier effect)	If 80% was spent locally	$703,775	$1,407,549	$3,518,873	$259,760	$519,521	$1,298,801
	If 60% was spent locally	$527,831	$1,055,662	$2,639,154	$194,820	$389,640	$974,101
	If 40% was spent locally	$351,887	$703,775	$1,759,436	$129,880	$259,760	$649,401
	If 20% was spent locally	$175,944	$351,887	$879,718	$64,940	$129,880	$324,700
	If 10% was spent locally	$87,972	$175,944	$439,859	$32,470	$64,940	$162,350
Total							
80%		$1,583,493	$3,166,985	$7,917,463	$584,461	$1,168,921	$2,922,303
60%		$1,407,549	$2,815,098	$7,037,745	$519,521	$1,039,041	$2,597,603
40%		$1,231,605	$2,463,211	$6,158,027	$454,580	$909,161	$2,272,902
20%		$1,055,662	$2,111,324	$5,278,309	$389,640	$779,281	$1,948,202
10%		$967,690	$1,935,380	$4,838,450	$357,170	$714,341	$1,785,852

Economic Multiplier Effect: Local Agriculture (Part II)

		2017 Census					
		Based on Market Value of Agricultural Products Sold: $102,174,000			Based on Market Value of Agricultural Products Produced by AIAN-Owned/Operated Farms: $37,712,000		
% sold on-reservation		10%	20%	40%	10%	20%	40%
$ sold on-reservation		$10,217,400	$20,434,800	$40,869,600	$3,771,200	$7,542,400	$15,084,800
Service-to-product	Farm production (7.4¢/$1)	$756,088	$1,512,175	$3,024,350	$279,069	$558,138	$1,116,275
	Processing (15.2¢/$1)	$1,553,045	$3,106,090	$6,212,179	$573,222	$1,146,445	$2,292,890
	Packaging (2.9¢/$1)	$296,305	$592,609	$1,185,218	$109,365	$218,730	$437,459
	Transportation (3.6¢/$1)	$367,826	$735,653	$1,471,306	$135,763	$271,526	$543,053
	Wholesale trade (10.7¢/$1)	$1,093,262	$2,186,524	$4,373,047	$403,518	$807,037	$1,614,074
	Retail trade (12.7¢/$1)	$1,297,610	$2,595,220	$5,190,439	$478,942	$957,885	$1,915,770
	Food services (33.6¢/$1)	$3,433,046	$6,866,093	$13,732,186	$1,267,123	$2,534,246	$5,068,493
	Energy (3.2¢/$1)	$326,957	$653,914	$1,307,827	$120,678	$241,357	$482,714
	Finance and insurance (3.6¢/$1)	$367,826	$735,653	$1,471,306	$135,763	$271,526	$543,053
	Advertising (3¢/$1)	$306,522	$613,044	$1,226,088	$113,136	$226,272	$452,544
	Other (4¢/$1)	$408,696	$817,392	$1,634,784	$150,848	$301,696	$603,392
Food production and sale total revenue on-reservation		$8,797,181	$17,594,363	$35,188,726	$3,247,003	$6,494,006	$12,988,013
If revenue was spent locally (economic multiplier effect)	If 80% was spent locally	$7,037,745	$14,075,490	$28,150,980	$2,597,603	$5,195,205	$10,390,410
	If 60% was spent locally	$5,278,309	$10,556,618	$21,113,235	$1,948,202	$3,896,404	$7,792,808
	If 40% was spent locally	$3,518,873	$7,037,745	$14,075,490	$1,298,801	$2,597,603	$5,195,205
	If 20% was spent locally	$1,759,436	$3,518,873	$7,037,745	$649,401	$1,298,801	$2,597,603
	If 10% was spent locally	$879,718	$1,759,436	$3,518,873	$324,700	$649,401	$1,298,801
Total							
80%		$15,834,927	$31,669,853	$63,339,706	$5,844,606	$11,689,212	$23,378,423
60%		$14,075,490	$28,150,980	$56,301,961	$5,195,205	$10,390,410	$20,780,820
40%		$12,316,054	$24,632,108	$49,264,216	$4,545,804	$9,091,609	$18,183,218
20%		$10,556,618	$21,113,235	$42,226,471	$3,896,404	$7,792,808	$15,585,615
10%		$9,676,900	$19,353,799	$38,707,598	$3,571,704	$7,143,407	$14,286,814

The table on page 162 estimates the value of that would be re-circulated throughout the regional economy if 42%, 60%, and 80% of spending on groceries were captured locally. The amount spent on groceries was extrapolated from the 2016 Oglala Oyate Survey and 2014 Food Assessment, both of which were conducted by Sweet Grass Consulting for Thunder Valley Community Development Corporation on the Pine Ridge Reservation. The findings from those studies related to grocery spending on Pine Ridge were published and made public in the 2018 report "Wakígnakapi: Developing a Food Hub and Grocery Store for the Oglala Lakota Oyáte." The associated study and report were commissioned by Thunder Valley Community Development Corporation and completed by Sweet Grass and was intended to better understand needs across the reservation and develop a baseline metric to measure the impact of Thunder Valley CDC over time. The survey was conducted using a computer-generated random sample of 175 households through Quantum GIS, which is an opensource GIS software. Household surveys were conducted in all districts on the reservation relative to their population, other than Medicine Root, where an unforeseen circumstance prematurely ended the survey process. As a result, the intended 70% response rate was not met, and only 147 households were surveyed. The 2014 food assessment surveyed 211 households.[320]

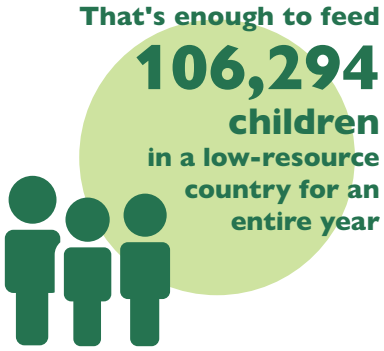
When comparing the surveys to scale, the total monthly spending on foods by survey participants was approximately the same. The 2016 Oglala Oyáte Survey found that the total estimated spending for groceries on the Reservation per month by households was $1,100,116.10, or $13,201,393.22 per year. Total grocery spending was estimated at $2,022,486.56 each month, which is $24,269,838.78 per year. These figures are based on estimates of 4,019 occupied households. On average, those households were spending $273.73 per month for groceries on-reservation, and $229.50 off-reservation, or a total of $503.23 on groceries per household per month. The most common response to the survey question that asked about monthly spending on groceries was $400.[321]

According to updated figures from the US Census Bureau's 2021 American Community Survey 5-Year Estimates Data Profiles, there are 3,962 occupied housing units on the Pine Ridge Reservation.[322] Adjusting the estimated grocery spending that was found in the 2016 Oglala Oyáte Survey to reflect inflation from 2016 to 2023, as well as the decline in occupied households, we estimated the average monthly spending on groceries per household in 2023 as well as the total and on-reservation spending on groceries. These figures were then used to estimate the economic impact that purchasing from local grocery stores can have by recirculating money throughout the Reservation economy.

Updated for inflation using the estimated average household grocery spending from the 2016 Oglala Oyáte Survey, the estimated average household spending on groceries on-reservation in 2023 is $350.45.[323] The estimated average household spending off-reservation is $295.25. Households spent an estimated $645.70 on groceries in May 2023.[324] With 3,962 occupied households on the Reservation, the total estimated grocery spending by tribal members per month is $2,558,263.40, or $30,699,160.80 per year. Of that, an estimated $1,083,591.40 is spent on-reservation each month, and $13,003,096.80 is spent at Reservation grocery stores each year by Reservation residents. 58% of total grocery spending, or an estimated $17,696,064, is spent at off-reservation grocery stores. 42% of grocery spending is therefore spent at grocery stores on the Reservation, and this estimated percentage is reflected in the chart on page 162.

These sales generate an estimated $580,214.14 in sales tax revenue for the Oglala Sioux Tribe annually. If reservation residents doubled their on-reservation grocery spending and bought 80% of their groceries on the reservation, it would generate a total of $1,105,169.79 in sales tax revenue for the tribe each year, or an additional, $524,955.65.[325]

The chart on page 162 shows the economic multiplier effect of purchasing groceries from stores on the Reservation. The chart compares the EME if 42%, 60%, and 80% of total household spending for groceries is spent on-reservation each month and for the year. The potential tribal revenue is shown, and the multiplier effect if 80%, 60%, and 42% of the total revenue is then re-circulated locally once more. This cycle can continue indefinitely; the more dollars that are spent locally, the greater the amount of wealth that will circulate over time. If current spending at on-reservation grocery stores remains at 42% of total grocery spending by Reservation residents, and 42% of what is spent at local grocery stores is re-circulated again in the local economy, it would generate $1,594,406.96 per month for the Pine Ridge economy, or $19,132,883.58 per year.



Economic Multiplier Effect: Local Grocery Spending

		$2,558,263.40 on Total Groceries per Month			$30,699,160.80 on Total Groceries per Year		
% purchased on-reservation		42% (actual)	60%	80%	42% (actual)	60%	80%
$ purchased on-reservation		$1,074,470.63	$1,534,958.04	$2,046,610.72	$12,893,647.54	$18,419,496.48	$24,559,328.64
Possible total revenue in tribal tax		$48,351.18	$69,073.11	$92,097.48	$580,214.14	$828,877.34	$1,105,169.79
Total $ spent + total revenue in tribal tax		$1,122,821.81	$1,604,031.15	$2,138,708.20	$13,473,861.68	$19,248,373.82	$25,664,498.43
EME If revenue was spent locally	80%	$898,257.45	$1,283,224.92	$1,710,966.56	$10,779,089.34	$15,398,699.06	$20,531,598.74
	60%	$673,693.08	$962,418.69	$1,283,224.92	$8,084,317.01	$11,549,024.29	$15,398,699.06
	42%	$471,585.16	$673,693.08	$898,257.45	$5,659,021.90	$8,084,317.01	$10,779,089.34
Total	80%	$2,021,079.25	$2,887,256.07	$3,849,674.76	$24,252,951.02	$34,647,072.88	$46,196,097.17
	60%	$1,796,514.89	$2,566,449.84	$3,421,933.12	$21,558,178.68	$30,797,398.11	$41,063,197.49
	42%	$1,594,406.96	$2,277,724.24	$3,036,965.65	$19,132,883.58	$27,332,690.83	$36,443,587.77

Grocery stores and packaged frozen foods are the regional food-related industries that generate the highest sales volumes. The charts on page 163 show the economic impact if some of the spending at regional grocery stores and from the packaged frozen food vendor, Yelloh (formerly Schwan's), were instead captured by businesses on the reservation.

As a low estimate, if only 5% of the sales volume of regional grocery stores off the Reservation were captured on the Reservation, $7,272,950 would be captured locally and $327,282.75 of tribal tax revenue would be generated. If just 40% of those sales and tribal tax revenue were then re-circulated locally, an additional $3,040,093.10 in sales and $136,804.19 in tribal tax would re-circulate throughout the local economy, adding a total of $10,777,130.04 to the local food economy. However, if 20% of the off-reservation regional grocery store sales volume could be captured by stores on the Reservation, and then 80% of the revenue from those sales remained local, the total economic impact for local spending and tribal tax revenue would be $55,816,109.32.

Impact Comparison for Potential Regional Grocery Store Sales Capture Rates

		If X% of sales were instead sold on the Reservation, the amount captured locally would be:		
Grocery stores regional sales volume: $145,459,000.00		5%	10%	20%
		$7,272,950.00	$14,545,900.00	$29,091,800.00
Potential tribal tax revenue (4.5%)		$327,282.75	$654,565.50	$1,309,131.00
Potential sales revenue + tribal tax revenue		$7,600,232.75	$15,200,465.50	$30,400,931.00
If X% of the potential sales revenue and tribal tax revenue were spent locally	40%	$3,040,093.10	$6,080,186.20	$12,160,372.40
	60%	$4,560,139.65	$9,120,279.30	$18,240,558.60
	80%	$6,080,186.20	$12,160,372.40	$24,320,744.80
Potential tribal tax revenue (4.5%)	40%	$136,804.19	$273,608.38	$547,216.76
	60%	$205,206.28	$410,412.57	$820,825.14
	80%	$273,608.38	$547,216.76	$1,094,433.52
Total	40%	$10,777,130.04	$21,554,260.08	$43,108,520.16
	60%	$12,365,578.68	$24,731,157.37	$49,462,314.74
	80%	$13,954,027.33	$27,908,054.66	$55,816,109.32

If 5% of the revenue from regional packaged frozen foods sales were captured on the Reservation, $2,339,750 would be captured locally and $105,288.75 of tribal tax revenue would be generated. If just 40% of those sales and tribal tax revenue were then re-circulated locally, the total economic impact would be $3,467,064.95.

Impact Comparison for Potential Regional Packaged Frozen Foods (Schwan's/Yelloh) Sales Capture Rates

		If X% of sales were instead sold by tribal producers on the Reservation, the amount captured locally would be:		
Packaged frozen foods (Schwan's/ Yelloh) regional sales volume: $46,795,000.00		5%	10%	20%
		$2,339,750.00	$4,679,500.00	$9,359,000.00
Potential tribal tax revenue (4.5%)		$105,288.75	$210,577.50	$421,155.00
Potential sales revenue + tribal tax revenue		$2,445,038.75	$4,890,077.50	$9,780,155.00
If X% of the potential sales revenue and tribal tax revenue were spent locally	40%	$978,015.50	$1,956,031.00	$3,912,062.00
	60%	$1,467,023.25	$2,934,046.50	$5,868,093.00
	80%	$1,956,031.00	$3,912,062.00	$7,824,124.00
Potential tribal tax revenue (4.5%)	40%	$44,010.70	$88,021.40	$176,042.79
	60%	$66,016.05	$132,032.09	$264,064.19
	80%	$88,021.40	$176,042.79	$352,085.58
Total	40%	$3,467,064.95	$6,934,129.90	$13,868,259.79
	60%	$3,978,078.05	$7,956,156.09	$15,912,312.19
	80%	$4,489,091.15	$8,978,182.29	$17,956,364.58

Food and beverage stores on the Pine Ridge Reservation have a total sales volume of $72,888,000. If 20% of the total sales volume captured locally were spent locally, it would generate an additional $14,577,600 in sales and $655,992 in tribal tax revenue. If 40% of that were then spent locally, an additional $6,093,436.80 would re-circulate, adding an overall total of $21,601,233.46 to the local economy. Capturing just 5% locally and re-circulating 40% would add over $5.4 million to the local economy.

Impact Comparison for Potential Food and Beverage Sales Capture Rates

		If X% of sales were instead sold on the Reservation, the amount captured locally would be:		
Pine Ridge food and beverage store sales volume: $72,888,000.00		5%	10%	20%
		$3,644,400.00	$7,288,800.00	$14,577,600.00
Potential tribal tax revenue (4.5%)		$163,998.00	$327,996.00	$655,992.00
Potential sales revenue + tribal tax revenue		$3,808,398.00	$7,616,796.00	$15,233,592.00
If X% of the potential sales revenue and tribal tax revenue were spent locally	40%	$1,523,359.20	$3,046,718.40	$6,093,436.80
	60%	$2,285,038.80	$4,570,077.60	$9,140,155.20
	80%	$3,046,718.40	$6,093,436.80	$12,186,873.60

Food assistance programs on Pine Ridge spent $1,420,000 in 2022. If 20% of those sales could be supplied locally, that would generate $284,000 in sales for local agricultural producers and $12,780 in tax revenue for the tribe. If 40% of captured dollars from revenue and sales tax were spent locally, it would generate an additional $118,712 in sales and a total economic impact of $420,834.04. Even supplying only 5% of food assistance purchases locally and re-circulating 40% of those sales would generate over $100,000 in local spending.

Impact Comparison for Potential Pine Ridge Food Assistance Sales Capture Rates

		If X% of sales were sourced from tribal producers on the Reservation, the amount captured locally would be:		
Pine Ridge food assistance sales volume: $1,420,000.00		5%	10%	20%
		$71,000.00	$142,000.00	$284,000.00
Potential tribal tax revenue (4.5%)		$3,195.00	$6,390.00	$12,780.00
Potential sales revenue + tribal tax revenue		$74,195.00	$148,390.00	$296,780.00
If X% of the potential sales revenue and tribal tax revenue were spent locally	40%	$29,678.00	$59,356.00	$118,712.00
	60%	$44,517.00	$89,034.00	$178,068.00
	80%	$59,356.00	$118,712.00	$237,424.00
Potential tribal tax revenue (4.5%)	40%	$1,335.51	$2,671.02	$5,342.04
	60%	$2,003.27	$4,006.53	$8,013.06
	80%	$2,671.02	$5,342.04	$10,684.08
Total	40%	$105,208.51	$210,417.02	$420,834.04
	60%	$120,715.27	$241,430.53	$482,861.06
	80%	$136,222.02	$272,444.04	$544,888.08

If food service providers (restaurants, caterers, etc.) sourced 20% of their ingredients from local producers it would generate $1,246,000 in sales for local agriculture and $56,079 in tribal tax revenue. If 40% of that agricultural revenue were then spent in the local economy, an additional $520,911.60 would re-circulate. If 80% re-circulated, it would generate an additional $1,041,823.20 in local sales. The total economic impact for any situation between either of those scenarios would range from $1,846,631.62 to $2,390,984.24. If only 5% were spent locally and 40% of that re-circulated, the total economic impact would be $461,657.91.

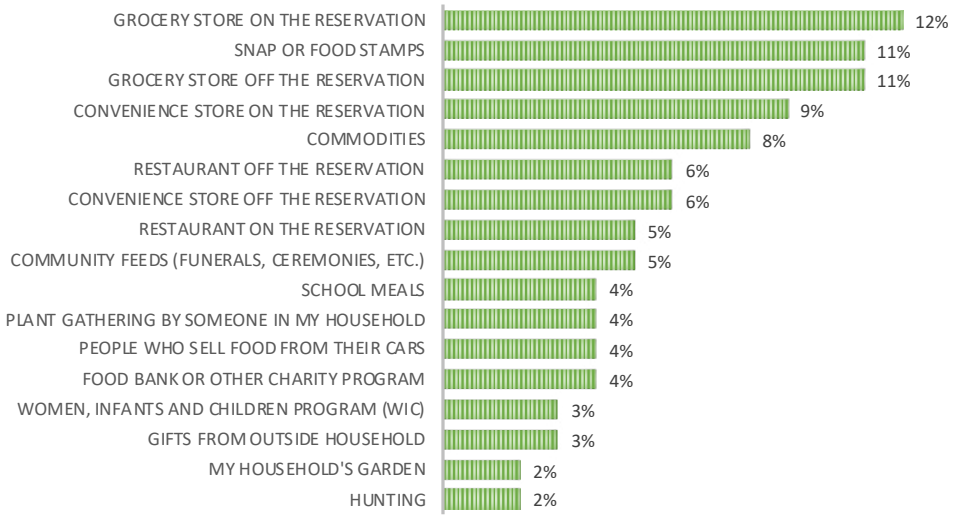
Impact Comparison for Potential Pine Ridge Food Service Sales Capture Rates

		If X% of sales were sourced from tribal producers on the Reservation, the amount captured locally would be:		
Pine Ridge food service sales volume: $6,231,000.00		5%	10%	20%
		$311,550.00	$623,100.00	$1,246,200.00
Potential tribal tax revenue (4.5%)		$14,019.75	$28,039.50	$56,079.00
Potential sales revenue + tribal tax revenue		$325,569.75	$651,139.50	$1,302,279.00
If X% of the potential sales revenue and tribal tax revenue were spent locally	40%	$130,227.90	$260,455.80	$520,911.60
	60%	$195,341.85	$390,683.70	$781,367.40
	80%	$260,455.80	$520,911.60	$1,041,823.20
Potential tribal tax revenue (4.5%)	40%	$5,860.26	$11,720.51	$23,441.02
	60%	$8,790.38	$17,580.77	$35,161.53
	80%	$11,720.51	$23,441.02	$46,882.04
Total	40%	$461,657.91	$923,315.81	$1,846,631.62
	60%	$529,701.98	$1,059,403.97	$2,118,807.93
	80%	$597,746.06	$1,195,492.12	$2,390,984.24

Only 23% of combined respondents from the 2016 Oglala Oyáte Survey and 2014 Thunder Valley Food Assessment sourced food from a grocery store either on or off the Reservation. The chart on page 168 (Sources of Food Used in the Past Year, 2013–2016) shows the cumulative percentage of respondents who sourced food from various sources; the next two paragraphs discuss the individual survey results.[326]

Only 12% of the respondents from both surveys mentioned a grocery store on the Reservation that they shop at. The 2016 survey found that out of a sample of 165 tribal members and residents, participants source food from an average of 6.15 sources.[327] 4% of 265 respondents from both the 2014 food assessment and 2016 survey specified that they received free food distributions. 19% of survey respondents to the 2016 study identified that the most needed resources of community members were stores and food, which were more than any other category. 17% of respondents, in 2016, mentioned that lack of sufficient funds was a barrier to accessing resources, and 29% reported that transportation was a barrier.[328]

Sources of Food Used in the Past Year (2013–2016)
N=1858



In 2016, SNAP was the most utilized food funding source reported by Reservation residents (14%), with off-reservation grocery stores (13%) coming in as the second most common food source and possibly where a significant portion of SNAP dollars were spent.[329] In 2014, the most reported food source (11%) was an on-reservation grocery store. 15% of respondents across the two surveys shopped for food at convenience stores and 14% of all respondents across the two surveys use SNAP or WIC (Women, Infant, and Children) program funding for food.

According to a small grocery store operator on Pine Ridge, their largest competitor was organizations such as the Native American Heritage Associate (NAHA) and other charitable groups that provide food donations to Reservation residents. NAHA donates approximately 350,000 pounds of food every month to residents of the Pine Ridge, Rosebud, Cheyenne River, Lower Brule, and Crow Creek Reservations. Between January and the end of June in 2022, NAHA distributed 908,284 pounds of food on the Pine Ridge Reservation, with a wholesale value of $1,625,828. In 2021, a total of 1,468,856 pounds of food were delivered.[330]

If NAHA delivered the same amount of food in the second half of 2022 as they did in the first, the total wholesale value of food distributed on the Pine Ridge Reservation in 2022 by NAHA was estimated to be $3,251,656. The chart on page 169 shows the economic multiplier effect that would result if NAHA sourced 5%, 10%, and 20% of the total wholesale value of those food products from Reservation producers, and if 40%, 60%, or 80% of those dollars were then re-circulated locally. The total economic impact would be between $240,916.82 and $1,247,738.45.

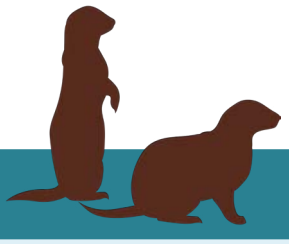
Impact Comparison for Potential Pine Ridge NAHA Annual Food Sales for Distribution Capture Rates

		If X% of sales were sourced from tribal producers on the Reservation, the amount captured locally would be:		
Pine Ridge NAHA annual food distribution: $3,251,656.00		5%	10%	20%
		$162,582.80	$325,165.60	$650,331.20
Potential tribal tax revenue (4.5%)		$7,316.23	$14,632.45	$29,264.90
Potential sales revenue + tribal tax revenue		$169,899.03	$339,798.05	$679,596.10
If X% of the potential sales revenue and tribal tax revenue were spent locally	40%	$67,959.61	$135,919.22	$271,838.44
	60%	$101,939.42	$203,878.83	$407,757.66
	80%	$135,919.22	$271,838.44	$543,676.88
Potential tribal tax revenue (4.5%)	40%	$3,058.18	$6,116.36	$12,232.73
	60%	$4,587.27	$9,174.55	$18,349.09
	80%	$6,116.36	$12,232.73	$24,465.46
Total	40%	$240,916.82	$481,833.64	$963,667.28
	60%	$276,425.72	$552,851.43	$1,105,702.86
	80%	$311,934.61	$623,869.22	$1,247,738.45

By supporting local food providers in sourcing from local agricultural producers and expanding investment and opportunities for value-added food production through infrastructure such as a food hub, Makoce Ag will create a ripple effect throughout the local economy by keeping production local and building linkages between producers and retail and distribution outlets. Increasing local production and supporting local consumption will increase tax revenue for the Oglala Sioux Tribe and will support agricultural innovation by expanding entrepreneurship opportunities.

Recommendation

Makoce Ag may wish to work with organizations that provide free food distributions across the state and on Pine Ridge, such as NAHA or Feeding South Dakota, to support them in purchasing items from local producers.



Case Study: Feeding South Dakota

Key Takeaways

As the largest hunger-relief organization in the state, Feeding South Dakota works to alleviate hunger among disadvantaged communities in rural, urban, and reservation settings across all 66 counties. Since 1975, Feeding South Dakota and its preceding entities have provided food to South Dakotans experiencing food insecurity. Originally a food pantry in Sioux Falls, the organization has since grown exponentially, with several large storage facilities and many distribution sites.[331]

During and since the COVID-19 pandemic, Feeding South Dakota moved away from a centralized location distribution model to a delivery-based distribution model, expanding their Mobile Food Pantry Program that began in 2013. This model helps the organization better serve rural areas where food insecurity is an especially wicked problem. As one of our KOLs pointed out, the organization's large warehouse facility is an essential component of their ability to meet the statewide needs of food insecure communities.[332]

Challenges

The organization has had to adapt their strategy many times over the course of the past four-plus decades, reflecting a learning and growth process aligned with their mission to alleviate food insecurity in the state. In their early years, Feeding South Dakota (known as Black Hills Regional Food Bank from 1975 to 2004) moved their center of operation quite frequently. In 2004, Black Hills Regional Food Bank merged with Community Food Banks of South Dakota, Inc., drastically increasing their capacity and institutional knowledge. In 2013, the organization, now known as Feeding South Dakota, leveraged a capital campaign to move into a location in Rapid City with expanded freezer and refrigeration infrastructure. The organization's scope reached the state-wide level in 2016 with similar moves into expanded storage facilities in Pierre and Sioux City. The COVID-19 pandemic forced yet another adaptation, as the organization simultaneously doubled the number of families in their distribution network and moved to a delivery-only distribution strategy. To meet this unprecedented demand, Feeding South Dakota partnered with Feeding America, local governments, and the CDC.[333]

Opportunities

Feeding South Dakota's history and success highlights the importance of organizational adaptiveness. By being both proactive and responsive to societal changes at the local, state, national, and international levels, the organization has firmly established itself as an invaluable resource for food insecure communities in South Dakota. A scan of their FY2022 activities drives this point home: 12.9 million pounds of food distributed (2.6 million of produce, 1.5 million of meat, 1.6 million of dairy), 10,114 families served, 1,859 senior boxes delivered each month, and 3,422 backpacks given to children at schools each week.[334]

Implications for Community Health

Access to healthy, affordable, local foods is a crucial goal for our food system. Equitable access to these types of foods will impact our community beyond the economic benefits that will accrue from income re-circulating in our Native economy. Unfortunately, lack of adequate access to these foods' plagues low-income "food desert" communities, like Oglala Lakota County, where choice of high-quality produce is in short supply. In such contexts, more readily available foods are often highly processed and full of inexpensive ingredients like high fructose corn syrup, leading to higher rates of obesity and the serious health risks that accompany it. Within the US, approximately 20% of deaths stem from obesity-related factors.[335] In economically distressed communities with lower-than-average levels of access to affordable healthy foods, this figure is likely much higher.

> I think now, in today's world, if you want something you just go down to McDonalds and say, well supersize it. They didn't have the Super-Size it. And [back then] you could eat what you all wanted because, of course, you burned it off. The food that you ate [back then] was good food. And that's the sort of the difference. – *Arthur W. Ziniga, Elder*

Expanding access to local foods through educational offerings, the Food Systems Institute, a food hub, and Oceti Sakowin Food Systems Alliance will help families and individuals heal intergenerational trauma for both their current benefit and the benefit of future generations. Physical, spiritual, mental, and emotional health can be supported by re-connection to community and traditional Lakȟóta values that we will embody through our work now and in the future with the Food Systems Institute. The intergenerational transfer of knowledge and the lasting benefit to holistic health cannot solely be quantified through economic value, but regarding physical health, there are figures we can draw upon to demonstrate some of the potential impact of our work.

Obesity is closely linked to diabetes, which afflicts Native Americans at a rate three times higher than the national average.[336] Heightened rates of obesity and diabetes play a key role in the fact that Native American life expectancy is five years lower than the overall US average; this discrepancy is even higher for those living on Pine Ridge Reservation, as an estimated 50% of adults over age 40 live with diabetes.[337] Our Lakȟóta people die at astronomically higher rates than Americans with non-Indigenous heritage from a host of diseases, many of which are caused by unhealthy lifestyles that tie back to intergenerational trauma, the destruction of our foodways, and the ongoing economic exploitation of our communities by some food purveyors.

The rate that Lakȟóta people die from diabetes is 800% higher than other Americans. Infant mortality rates are 300% higher, alcoholism death rates are 552% higher, and rates for violence, suicide, and cancer and disease are also higher than the average.[338]

It is difficult to economically quantify the quality-of-life benefits that individuals and families experience from eliminating these lifestyle and diet-driven diseases that are a direct result of colonialism's legacy of intergenerational trauma and destruction of Indigenous foodways, but the chart on page 171 estimates the economic savings to the community from eliminating Type II diabetes among the adult population. The chart assumes the following: There are 25,000–30,000 tribal members living on the Pine Ridge Reservation; an estimated 50% of adults over the age of 40 have been diagnosed with diabetes, 31% of the population on the Reservation are 40 years old or older,[339] and therefore, there are approximately 4,650 people on the Reservation who

are living with diabetes.[340] The average annual medical cost associated with diabetes is $9,601 per diagnosed individual.[341] We, therefore, estimate the cost of diabetes treatment for all adults on the Pine Ridge Reservation to be $44,644,650 annually.

The average lifespan for individuals born on the Pine Ridge Reservation is 66 years old.[342] While recognizing that 50% of adults over the age of 40 living with diabetes means that some individuals are diagnosed with diabetes before age 40 and others after age 40, for the purposes of these estimates, we will assume that diabetes diagnoses begin at age 40. Effectively managing diabetes can increase expected lifespan,[343] but failure to receive adequate medical treatment for diabetes can reduce life expectancy. However, we will also assume that all individuals live to the expected age of 66. If 4,650 individuals are each diagnosed with Type II diabetes at age 40 and have diabetes healthcare related costs of $9,601 per year and live to be 66 years old, the total estimated lifetime diabetes-related healthcare cost for each individual would be $249,626. Cumulatively, the lifetime diabetes-related healthcare costs for all current tribal members are estimated to be over $1.16 billion ($1,160,760,900, to be precise). If 1% of that cumulative lifetime spending were re-allocated to local foods spending, it would add $11,607,609 to the local food and agricultural economy.

By re-building local and healthy food systems, our work will help to eliminate the diet-related diseases that plague our communities. Not only will eradicating diabetes improve our people's quality of life, but it will also drastically reduce medical costs for our community. While the healthcare-insurance complex may not allow for a direct transfer of those savings to our Nation to spend on community-based health related projects, the chart on page 173 estimates the economic benefit that our communities would experience if 1%, 5%, 10%, 20%, 50%, and 100% of the annual spending on diabetes related health care was instead used to support purchases of local foods.

That's enough to provide

580,380

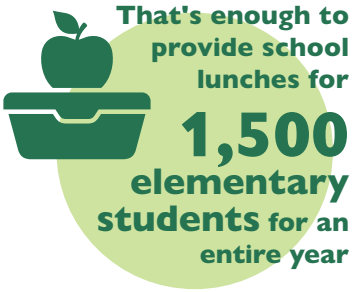
families

in South Dakota with food gardens

Re-Allocating Annual Diabetes Spending to Local Foods ($44,644,650)

If X% were spent on local foods instead		1%	5%	10%	20%	50%	100%
$ sold on-reservation		$446,447	$2,232,233	$4,464,465	$8,928,930	$22,322,325	$44,644,650
Tribal sales tax		$20,090	$100,450	$200,901	$401,802	$1,004,505	$2,009,009
If X% of revenue was spent locally	80%	$357,157	$1,785,786	$3,571,572	$7,143,144	$17,857,860	$35,715,720
	60%	$267,868	$1,339,340	$2,678,679	$5,357,358	$13,393,395	$26,786,790
	40%	$178,579	$892,893	$1,785,786	$3,571,572	$8,928,930	$17,857,860
	20%	$89,289	$446,447	$892,893	$1,785,786	$4,464,465	$8,928,930
	10%	$44,645	$223,223	$446,447	$892,893	$2,232,233	$4,464,465
Tribal sales tax income if X% was spent locally	80%	$16,072.07	$80,360.37	$160,720.74	$321,441.48	$803,603.70	$1,607,207.40
	60%	$12,054.06	$60,270.28	$120,540.56	$241,081.11	$602,702.78	$1,205,405.55
	40%	$8,036.04	$40,180.19	$80,360.37	$160,720.74	$401,801.85	$803,603.70
	20%	$4,018.02	$20,090.09	$40,180.19	$80,360.37	$200,900.93	$401,801.85
	10%	$2,009.01	$10,045.05	$20,090.09	$40,180.19	$100,450.46	$200,900.93
Total spent on local foods	80%	$803,604	$4,018,019	$8,036,037	$16,072,074	$40,180,185	$80,360,370
	60%	$714,314	$3,571,572	$7,143,144	$14,286,288	$35,715,720	$71,431,440
	40%	$625,025	$3,125,126	$6,250,251	$12,500,502	$31,251,255	$62,502,510
	20%	$535,736	$2,678,679	$5,357,358	$10,714,716	$26,786,790	$53,573,580
	10%	$491,091	$2,455,456	$4,910,912	$9,821,823	$24,554,558	$49,109,115
Total sales tax generated	80%	$36,162	$180,811	$361,622	$723,243	$1,808,108	$3,616,217
	60%	$32,144	$160,721	$321,441	$642,883	$1,607,207	$3,214,415
	40%	$28,126	$140,631	$281,261	$562,523	$1,406,306	$2,812,613
	20%	$24,108	$120,541	$241,081	$482,162	$1,205,406	$2,410,811
	10%	$22,099	$110,496	$220,991	$441,982	$1,104,955	$2,209,910
Total economic impact	80%	$839,766	$4,198,829	$8,397,659	$16,795,317	$41,988,293	$83,976,587
	60%	$746,459	$3,732,293	$7,464,585	$14,929,171	$37,322,927	$74,645,855
	40%	$653,151	$3,265,756	$6,531,512	$13,063,025	$32,657,561	$65,315,123
	20%	$559,844	$2,799,220	$5,598,439	$11,196,878	$27,992,196	$55,984,391
	10%	$513,190	$2,565,951	$5,131,903	$10,263,805	$25,659,513	$51,319,025

Even if only 1% of annual diabetes spending was re-allocated to purchase local foods, and only 10% of that spending was re-circulated on local foods spending, the total economic impact would be $513,190. If 5% of spending is re-allocated and 10% of that revenue re-circulated in the local food economy, the economic impact jumps to $2,565,951. If 1% of diabetes spending were re-allocated to local foods and 80% of that revenue then remained in the local economy, the annual economic impact on the food system would be $839,766.



A junk food tax is another potential way to fund purchases of local foods. The Navajo Nation passed the Healthy Dine Nation Act of 2014 which removed an existing 6% sales tax on water, vegetables, and fruits, and added a 2% tax on sales of foods and beverages that have limited health benefits. In October 2022, it was estimated that the tax had generated a cumulative $7.58 million in revenue for the Nation since implementation in 2015. The majority of the tax revenue has been returned to each of the 110 communities of the Nation to use for community health and agriculture related projects. The tax was reauthorized at the end of 2020.[344] Studies of the tax found that tax revenue, adjusted for inflation, declined approximately 1% to 4% per year, and up to 20% in some other localities, indicating reduced purchases of nutritionally poor foods. The Navajo Nation generated approximately $13,000 per year to redistribute to small rural communities via the tax.[345]

There are other ways to quantify the significance of our work to our community's economic, physical, and cultural health. In 2022, we sponsored 22 buffalo kills in 20 Indigenous communities across eight states, which provided approximately 6,270 pounds of nutritious buffalo meat to Native communities. These harvests are also helping to lay the foundation to re-establish the Indigenous trade routes that were destroyed by colonization.[346]

Health Insurance and IHS

Maternal mortality is also a major issue affecting Indigenous Americans due to large health disparities, especially for women who live in rural areas. These disparities, including poor access to healthy foods, a lack of health insurance, and an inability to access prenatal care, can lead to health complications and ultimately death.[347] However, 60% of maternal deaths related to pregnancy and childbirth can be prevented.[348] Researching and creating appropriate responses to the issues causing high death rates are necessary to prevent maternal mortality among Indigenous women,[349] who have a maternal mortality rate that is double that of white women in the United States.[350] It is estimated that among American Indian women in South Dakota, there are 121.77 maternal deaths per 100,000 births. The 2018 national maternal mortality rate was 17.9 deaths for every 100,000 births, and the South Dakota overall maternal mortality rate is 59 deaths per 100,000 births. In comparison, 44 white women in South Dakota die for every 100,000 births. American Indian women are responsible for only 18% of the births in the state, compared to white women who are responsible for 75% of the state's births,[351] yet have a disproportionately higher maternal mortality rate than white women in South Dakota and in comparison, to all populations across the country.

These health disparities are exacerbated by the fact that in South Dakota, 93.6% of white individuals in the state are estimated to be insured, but only 65%

of the AIAN population is estimated to be insured.[352] While Indian Health Service (IHS) does provide services to uninsured tribal members as well as insured members, tribal members may be obligated to seek health care at a facility where they are tribally enrolled, which may be a great distance away from where they live. Lack of insurance therefore can exacerbate health issues by causing individuals not to seek out care unless the situation has progressed to an emergency. If they can access care at IHS, the lack of insurance further exacerbates the funding difficulties facing IHS facilities.

Across the country, IHS provides medical care for over 2.2 million tribal members.[353] On Pine Ridge, there are approximately 30,000 enrolled tribal members who live on the Reservation that presumably seek primary and emergency care at IHS, as well as other tribal members living off the Reservation but nearby who may travel to the Reservation to seek health care if they are uninsured. On average, IHS hospitals have approximately a 20% staffing gap for health care professionals, specifically nurses and doctors. The remote location of many IHS hospitals exacerbates the difficulty the agency has in hiring. Most IHS hospitals have only eight patients admitted each day, and their total capacity is 50 beds. A majority of IHS facilities are approximately four times as old as healthcare facilities in the private sector, and the total cost of needed repairs to these facilities is estimated to be $500 million. If that figure is averaged by the number of hospitals IHS operates (46), the value of repairs required to the Pine Ridge IHS is over $10.8 million.

The National Indian Health Board estimated in 2018 that the IHS actual needed budget was $32 billion to adequately provide services and meet the needs of eligible tribal members. In 2019, the annual budget was increased from $5 billion to $5.4 billion. The additional funding was intended to support diabetes, opioid abuse, and general health services. In addition to allocations from US Congress, IHS receives funding by billing insurance for services provided, including private insurance companies, Medicare, Medicaid, and veteran's insurance programs. In 2017 and the several years prior, approximately $1.2 billion per year was billed to insurance. Medicare makes up approximately $249 million of the $1.2 billion insurance reimbursement.

Compared to other federally funded health insurance programs, IHS spent the least per patient in 2015. IHS spent $3,700 per patient, while Medicare spent $11,000, and Medicaid spent $5,700. South Dakota voters did approve Medicaid expansion in 2022, after the measure had been repeatedly turned down by the governor and state legislators in years prior. Medicaid expansion went into effect on July 1, 2023. The change is based on the 2023 poverty level and means that single adults earning less than $20,120 per year will qualify for Medicaid,[354] while families of four may earn up to $41,400 and still be eligible. Under the expansion, the income limit to qualify for coverage is 138% of the Federal Poverty Level (FPL). Approximately 52,000 individuals in the state are now newly eligible for insurance through Medicaid.

One of the factors that influences the amount of Congressional funding IHS receives is that AIAN populations have historically been undercounted by the Census Bureau. An independent study conducted in 2005 by Colorado State University estimated the population of tribal members living on the Pine Ridge Reservation to be 28,787; that study was accepted by the US Department of Housing and Urban Development (HUD).[355] However, AIAN populations are still being undercounted by the Census Bureau, which has affected funding that the reservation receives: according to the American Community Survey, the total population of the Pine Ridge Reservation between 2017 and 2021 was 19,157, with a American Indian and Alaska Native population of 16,649.[356] According to the US Census Bureau, if the population on Pine Ridge is assumed to be 19,109, 11,914 individuals (62% of the population) have health insurance, 77% of whom have public coverage. 7,195 individuals were reported to have no insurance coverage. Of the individuals without coverage, 1,719 were under 19 years of age. 42% of all families were estimated to have income below the poverty level.[357]

If the population has increased since 2005 and only 62% of the 25,000–30,000 tribal members or other AIAN individuals that live on the Pine Ridge Reservation are insured, only 18,600 individuals have health insurance. For the tribe's entire 46,855 enrolled members,[358] approximately 29,050 can be assumed to be insured, leaving 17,805 individuals without insurance. For those who live off the Reservation and are unable to access IHS services, it can be estimated that 6,405 of the approximately 16,855 people who live off the Reservation are uninsured. Given that Oglala Sioux Tribe estimates that half of the adults older than 40 have been diagnosed with diabetes on Pine Ridge,[359] it can be assumed that there is a significant funding gap to provide healthcare for individuals with diet and lifestyle related diseases.

This funding gap was exacerbated by the fact that in November 2017, Medicare stopped payment for acute care services to the Pine Ridge IHS due to witnesses of acute deficiencies in care. In one case, a nurse did not take the blood glucose levels of a diabetic person who had not taken insulin in several days. By the time the patient's blood glucose levels were assessed two hours later, they were high enough to threaten his life. He was transferred several hours later to a different facility with an intensive care unit, then sent to another facility, before passing away the following day during surgery to treat an organ that had been damaged by high levels of glucose in the blood.[360]

Community Health

The 2016 Oglala Oyáte Survey results underscored the fact that Oglála Lakȟóta communities are burdened with extreme health issues. Despite these serious health issues impacting their homes, many participants in the 2016 Oglala Oyáte Survey reported "good" or "very good" health in several areas.[361] The survey found that while 82% of respondents indicated that they knew how to eat healthy, only 54% said that they did so regularly.[362] In addition to addressing structural barriers to healthy eating habits, educating community members on the topic is also a key component of strengthening the local food system. Central locations like food hubs, community centers, community gardens, and other community nodes are common sites for this kind of education.[363] Employees at local schools, restaurants, and stores can also be important ambassadors for healthy eating within communities, as these individuals encounter a broad range of community members on a regular basis.

Responses to a 2007 survey of Oglála Lakȟóta households also revealed that community members recognize the connection between food choices and health. For example, 28% of respondents listed personal health-related issues in answering the question, "What do you dislike about your current diet?" and almost a third of those surveyed felt that local grocery stores did not adequately supply quality foods.[364] These trends suggest that community members often have difficulty implementing their knowledge of the importance of eating healthy foods due to structural barriers that limit access to such foods. A lack of local access to healthy and nutritious food options relative to most US communities has been a damaging legacy of colonialism in Oglála Lakȟóta communities. Convenience stores—whose offerings are generally limited to pre-packaged foods that are high in sugar, fat, and sodium—are often relied upon for grocery shopping due to a dearth of grocery stores.[365]

Overall, colonialism, intergenerational trauma, and subsequent food and lifestyle related diseases are major drivers of the high mortality rate that afflicts our Oyáte, including opioid and other substance abuse and diabetes. Addressing these issues is of vital importance, and adequate health care funding allocations are essential to provide the exceptional care that tribal members deserve. However, in the long term, addressing the root causes of these crises will help to reduce the cost burden on the community and will help to improve the quality of life for individuals, families, and entire communities on the Pine Ridge Reservation and surrounding area. Improving access to good food and supporting individuals in connecting to their culture and

community will help reduce infant and maternal mortality rates, and mortality rates from lifestyle diseases and mental illnesses. By making healthy, local, and traditional foods more widely accessible and empowering families to produce their own food, we are tying together the physical, emotional, and spiritual needs of our people by creating a space for intergenerational healing and cultural connection. Our programming will also equip people with the skills needed to improve their own economic situation and bolster their standard of living. Strengthening our relationship with our local food system reminds us of the truth of Mitákuye Oyás'iŋ—we are all related.

We live in a world today that doesn't see how people can be more self-sufficient and it's sad to say but we see more people living, and just struggling, and we are creating more poverty. And poverty is a sin against all humankind. I don't think that western civilization is ever going to change. They say that there is an issue having to do with global warming. But it's all words. We have a dialogue that is going on, and they say well this is what we are going to do, and you see people that you select to lead but there is no action, it's just words. – ***Arthur W. Ziniga, Elder***

Summary of Strengths, Gaps, and Opportunities in the System

There are existing regional networks that are already addressing issues of connection in the local food system, such as the Farm to School networks that the Black Hills Farmers' Market is facilitating the development of. The knowledge and experience that comes from having already begun to build those networks is a regional strength that we can tap into as we expand our food hub and build regional food connections on the Pine Ridge Reservation. Supporting the next generation of food producers in becoming part of these networks is a key need. Partnering with Oglala Lakota County Schools and youth agricultural programs such as the Future Farmers of America program can help youth develop viable agricultural enterprises to sustain themselves and their families while also filling a vital role in the local food system.

Throughout this study, we have identified a need for increased meat processing capacity on the Pine Ridge Reservation, for poultry, buffalo, and beef, as well as wild game. There is limited processing capacity on the Reservation, and transportation to slaughterhouses off-reservation increases the cost of meat. Expanded local meat processing can help facilitate Farm to School networks; Wall School District is one example where a local school has developed a partnership with a local processing plant to source local beef. Mobile meat processing would help reduce transportation costs and stress to the animals, ultimately improving the quality of the meat. Another gap identified by interviewees for this study is funding support for their operations. This was an issue expressed both by the OSPRA buffalo herd manager, as well as private livestock ranchers we spoke with. We have already established partnerships with Indigenous organizations that are working to fund and provide technical assistance to Native producers to access capital, and moving forward can continue to facilitate connections between local producers and these organizations.

Adopting tribal food codes is one pathway that several tribes have taken to assert sovereignty over their food systems and traditional food practices. Makoce Ag could work with the Oglala Sioux Tribe to advocate for and develop food codes that will support food sovereignty for the Oglála Lakȟóta Oyáte and agricultural and food-related economic development. Developing regional supply chains for agricultural inputs is one area where we can provide support. While local grain is available, there is not a supply of organic or non-GMO animal feed grain in the region. There are potential ways to reduce the cost of grain for farmers, but doing so will require updating and installing new infrastructure, which will require up-front costs. A poultry hatchery would also create local jobs and generate income for the local economy, while reducing the ecological impact of sourcing birds from far-off hatcheries.

Recommendations Summary

Recommendations cover the following themes: policy, land, partnerships, training, production, markets, and food access, including a specific market subsection on selling to schools.

Policy

Page 58 | Food Sovereignty Legislation

Work with the Oglala Sioux Tribe to pass legislation in support of food sovereignty and Indigenous managed agriculture and food systems.

Land

Page 77 | Strategic and Succession Planning

To help address and prevent issues related to further land fractionation, one of the areas of technical assistance that Makoce Ag can provide to Native landowners is support in strategic planning and succession planning, including writing wills, gifting deeds, and estate planning. Makoce Ag may eventually develop these services in house but could also help connect the region's producers with organizations that already provide support with these types of services, such as Indian Land Tenure Foundation and Akiptan CDFI.

Page 79 | District Leasing and Community Wealth Building

The Oglala Sioux Tribe has policy that favors district policy, it is just lesser known and not implemented. Makoce Ag can work with OST and district councils to plan for district buffalo herds, district agriculture production, and workforce development to enhance access to foods, enhance district income, perpetuate community wealth, and revitalize ecosystems.

Training Programs

Page 84 | Beginner Farmer-Rancher Development Program

Through the Food Systems Institute and partnerships with local organizations, including a potential partnership with Oglala Lakota College's agricultural extension office, Makoce Ag could develop a Beginning Farmer and Rancher Development program. These programs take different forms throughout the US and can receive grant funding from the USDA to get started. Other training opportunities include the possibility of offering permaculture design certificates, which could be holistically integrated into Makoce Ag's programming through the Food Systems Institute.

Makoce Ag already has plans to integrate regenerative landscape and building design into the site plan of the Food Systems Institute and Food Hub, and partnering with Indigenous permaculture practitioners would allow Makoce Ag to teach community

members skills such as natural building and food production through a holistic framework that fits into the existing mission and vision. Training and apprenticeship programs can bolster the resiliency of the local food system by providing necessary workforce development for the agricultural industry.

Page 102 | Apprenticeship Program

Help increase the number and capacity of local producers through a program like the Sicangu Food Sovereignty Initiative's Waicahya Icagapi Kte (*They Will Grow into Producers*) Beginning Farm Apprenticeship Program. The program is an eight-month paid apprenticeship to learn the basics of small-scale vegetable and chicken market gardening. Participants can apply for seed capital for their operation upon completion of the program.

Page 138 | CDL and Other Workforce Development

To address the shortage of truck drivers that can increase transportation issues for the agricultural sector, Makoce Ag could work with Oglala Lakota College and the OST Department of Transportation to develop a training program for community members to obtain their commercial drivers' license (CDL), which requires that individuals have access to commercial vehicles to practice for their driving test. The program could also work with a wider network of partners to support successful trainees through job placement or entrepreneurship when they obtain their CDL.

Partnerships

Page 85 | Associations, Convergences, and Resource Sharing

Makoce Ag may wish to further explore community interest in a locally based livestock producers' association; once construction on the food hub is complete, begin offering producers the opportunity to gather at the food hub/Food Systems Institute and a centralized space for storage.

Markets and Food Access

Page 92 | Marketing and Production

Makoce Ag can support entrepreneurs in developing food products and work with local buyers such as schools (through micro-procurement regulations) and businesses to help get those products to local markets. Makoce Ag can also work with NANF to support producers who are interested in accessing larger markets in selling their products to larger distributors.

Page 107 | Retail and Wholesale Modeling

Makoce may be interested in adapting Black Hills' Farmers' Market retail and wholesale model, including specifically their use of an online marketplace, which has allowed the market to aggregate producers for ease of ordering for institutional buyers while still supporting those producers as independent entrepreneurs. Black Hills Farmers'

Market has also expressed in interviews that they are open and willing to support Makoce Ag's efforts to expand local food markets in West River, South Dakota, including inviting producers Makoce Ag may work with to join the Black Hills Farmers' Market and the online marketplace as vendors.

Page 116 | Location-Based Marketing

Makoce Ag should consider incorporating a location-based marketing campaign into its packaging operations to boost retail prices in outside communities. This could include a brief description of Makoce Ag's food sovereignty efforts and the unique natural and cultural environments of the Oglála Lakȟóta Oyáte.

Page 169 | Food Distribution and Purchasing

Makoce Ag may wish to work with organizations that provide free food distributions across the state and on Pine Ridge, such as NAHA or Feeding South Dakota, to support them in purchasing items from local producers.

Schools

Page 100 | Starting Small and Scaling

Overall, when working with schools and school districts to supply a Farm to School program, it's important to start small and scale at a pace that is sustainable in terms of financing and production.

Page 107 | Local Purchasing Procurement

Makoce Ag should work with schools and food service directors who are willing to use micro-procurement regulations to purchase from Makoce Ag and/or a food hub/farmers' market. This work will need to involve educating and supporting schools in sourcing local foods in ways that work for them, including providing in-demand products, offering a seamless ordering experience, and delivering a consistent product.

Page 138 | Farm to School Position

Makoce Ag may wish to consider hiring a dedicated position to support Farm to School initiatives and develop relationships with student nutrition managers and food service directors, including working with Oglala Lakota County School District's food service program. This position may or may not double as a wholesale program coordinator under the food hub. The Black Hills Farmers' Market has a dedicated Wholesale Customer Relationship Specialist on their staff in addition to the Market Manager to support wholesale customers and expand wholesale markets.

Potential local foods products to prioritize

- Eggs
- Milk (packaged in single-serving sized cartons)
- Chicken (processed into the cuts required for existing school menus)
- Beef
- Bread
- Dehydrated green peppers
- Dehydrated onions
- Fresh produce

Recommendations

- Offer a consistent line of products that are available through a seamless online ordering experience.
- Provide delivery to individual school kitchens.
- Support producers in constructing greenhouses to supply fresh produce on a year-round basis to local schools.
- Set a realistic potential goal to work towards as a first step towards expanding regional food connections. For example, Makoce Ag could seek to become the sole supplier of eggs or a certain type of preserved or fresh produce at one Oglala Lakota County school before expanding to supply even more ingredients and more schools.
- Provide local USDA-inspected meat through a relationship directly with a meat processing facility. Work with a meat processing facility to create products that will work with existing school menus without needing to change them in any way since they've already been created to meet USDA nutrition standards. A list of meat processors in southwest South Dakota is included in Appendix A. Charging Buffalo Meat House is currently the only processor located on the Pine Ridge Reservation, and they are currently expanding their facility to apply for USDA inspection.[366]
- If there is interest in increasing bison use in school meals, develop bison products that students will enjoy, such as buffalo hot dogs and smoked burgers.[367]
- Invite producers into a school kitchen so they can see the set-up and get a sense of the challenges that schools have in trying to serve kids, expanding understanding on both sides.
- Work with local schools to develop a Farm to School program, including joining and/or leading a Farm to School committee with diverse stakeholders.

Sicangu Co. Food Sovereignty Initiative has developed a local task force to work with members of the administration and food service department at Todd County Schools on the Rosebud Reservation. Through this taskforce they're planning to address district barriers to sourcing local foods, including identifying what barriers exist, what USDA requirements have to be followed, and ways to sustainably fund local food purchases.

Production

Page 133 | Enhance Poultry Production

With enough of these mid-sized poultry production farms, our communities could sustainably supply poultry to the region, keeping local money in local hands, diminishing the need to bring in poultry products through the global commodities market and greatly increasing the availability of good-quality local food in Oglála Lakȟóta communities.

Conclusion

"By creating a local food system, we will create uses of our own lands that will build our local economy and strengthen our community and relationship to the natural environment."[368]

There is a food oasis surrounding our people, and this report documents that well. It also captures ideas and presents next steps to regenerate the existing food system through new innovations and strengthened partnerships.

"When we use the word Makoce we are talking about a place and the land that is the foundation of who we are, that which created us, a relative past that we will not forget, and the future that is ours to create."[369]

We know that our food sovereignty did not begin with Makoce Ag or many of the federal or local policies from the past or present. It began with the ingenuity and just the very 'being' of our ancestors. That ingenuity has been carried on through the knowledge of agricultural mentors like Leslie Henry, buffalo caretakers like Edward Iron Cloud III, ally entrepreneurs like Mark Tilsen, and young learners like us and the youth that convene in our spaces.

We will cultivate a viable, regional food system by forming partnerships to strengthen our work, adopting new policies for continued equity, building new infrastructure, fostering entrepreneurship to spur fresh economic activity, and securing monetary resources to support our ideas.

Our ability to grow the vision of those before us, use the lands that have long provided for us, and unite the youngest and eldest of generations to work together is greater than any time before.

We are not colonized. We are not confined.

As individuals, families, and communities, we grow.

Appendices

Appendix A

Partnerships

Potential and Current Partners

Organization	Potential Collaboration	Location	Point of Contact	Recommended by/ Affiliation
Black Hills Farmers' Market		Rapid City, SD	Cori DeGeest, Wholesale Customer Relationship Specialist orders@blackhillsfarmersmarket.org 605-388-2747	AJ Granelli, Makoce Ag Farm Director
Feeding South Dakota		Rapid City, SD	https://www.feedingsouthdakota.org/mobile?location=Rapid-City,-SD&radius=50 605-335-0364	One Spirit
Butcher Box	Tanka Fund is a grass-fed producer; partners with producers of sustainable, humanely-raised livestock and wild caught fisheries	Watertown, MA	support@butcherbox.com 855-981-8568	Tanka Fund
One Spirit		Pine Ridge Reservation, SD	jbaker@nativeprogress.org 570-460-6567	Tanka Fund, Charging Buffalo Meat House
Oglala Lakota County School District	(See specific schools in institutional food buyers KOL— Batesland and specific products..)	Batesland, Hermosa, Porcupine, Pine Ridge, SD	Julia Yellowcloud, Food Service Director julia.yellowcloud@k12.sd.us 605-455-6703	
*Red Cloud Indian School	Produce, maybe meat	Pine Ridge, SD	Katie Chusak, Farm to School Program Manager catherinechustak@redcloudschool.org 574-261-8458 Food Service: 605-867-5498	Ivan Sorbel
Rapid City Area Schools	Produce, maybe meat	Rapid City, SD	Krista Leischner, Student Nutrition Manager krista.leischner@k12.sd.us	Barb Cromwell, Manager, Black Hills Farmers' Market
Meade County School District		Meade County, SD	Rhonda Ramsdell, Food Service Director rhonda.ramsdell@k12.sd.us 605-347-3601	Barb Cromwell, Manager, Black Hills Farmers' Market

Organization	Potential Collaboration	Location	Point of Contact	Recommended by/ Affiliation
Wall School District	Poultry (already has source for beef, but interested in local meat)	Wall, SD	Lynn Dunker, Food Service Director, Lynn.Dunker@k12.sd.us	Rhonda Ramsdell, Meade County School District Food Service Director
*Oglala Lakota College Agriculture Extension		Pine Ridge Reservation, SD		
*University of Arkansas		Fayetteville, AR		Makoce Ag
FFA (Future Farmers of America)	Youth develop agricultural businesses; must first start an agricultural program at local schools		https://www.ffa.org/start-an-ffa-chapter/	AJ Granelli, Makoce Ag Farm Director
South Dakota Specialty Producers Association	Offers grants		https://sdspecialtyproducers.org/contact-us/ 605-681-6793	
South Dakota Local Food Coalition			https://www.facebook.com/SouthDakotaLocalFoods/	
South Dakota State University Extension			sdsu.extension@sdstate.edu 605-688-4792	Tanka Fund
Native American Food Sovereignty Alliance			Julie Garreau, Committee President, Executive Director of Cheyenne River Youth Project on the Cheyenne River Reservation info@nativefoodalliance.org julie.cryp@gmail.com 651-905-5582	
*Intertribal Agriculture Council			406-259-3525	
Sacred Seed			402-960-5689 sacredseed.org TaylorKeen7@gmail.com	
Indian Land Tenure Foundation		Little Canada, MN	651-766-8999	Tanka Fund

Organization	Potential Collaboration	Location	Point of Contact	Recommended by/ Affiliation
*Native Farm Bill Coalition			Abi Fein, Intertribal Agriculture Council Director of Policy and Government Relations Abi@indianag.org Erin Parker, Executive Director Indigenous Food and Agriculture Initiative esparker@uark.edu	
*Indigenous Food and Agriculture Initiative		Fayetteville, AR	Erin Parker, Executive Director esparker@uark.edu	Makoce Ag
*American Indian Community Housing Organization		Duluth, MN	218-722-7225	Makoce Ag
*Homegrown Pork and Poultry		Batesland, SD	AJ Granelli, Owner/Operator	
Meeks Ranch		Pine Ridge Reservation, SD	Elsie Meeks elsie.meeks@gmail.com	
Bamm Brewer (private buffalo herd)	Buffalo	Pine Ridge, SD	Bamm Brewer	
Oyate Teca	Produce; 16-week gardening course and grant of materials	Kyle, SD	Rose Fraser, Executive Director, 605-441-9892 rfraser166@gwtc.net	Pine Ridge Elderly Nutrition Program, Dave Kelley
Dakota Territory Buffalo Association	Partnering with Tanka Fund on mobile harvesting unit	Rapid City, SD	770-500-9896 info@dakotabuffalo.com	Tanka Fund
*White Plume Hemp		Pine Ridge Reservation, SD	Alex White Plume	
Charging Buffalo Meat House	Meat processing	Pine Ridge, SD	Bamm Brewer, Meat House Manager	Tanka Fund, One Spirit, OSPRA
Valentine Locker	Buffalo processing	Valentine, NE	Martin Otte, Owner	OSPRA
West Side Meats	Cheyenne River Sioux Tribe's meat processing plant for cattle and buffalo	Mobridge, SD	Jayme Murray, CEO	Dave Kelley

Organization	Potential Collaboration	Location	Point of Contact	Recommended by/ Affiliation
Farmers' Coop Elevator	Bulk grain orders for local producers; buyers' club	Swette, SD (20709 US Highway 18, Martin, SD 57551)	Swette: 605-685-1600 Head office:: 308-487-3317	
Dakota Butcher	Custom retail butcher shop	Rapid City, SD	605-791-1520 dbrc1@dakotabutcher.com,	Dave Kelley
Charging Buffalo Meat House	Retail store; sells Makoce Ag chicken	Pine Ridge, SD	Bamm Brewer, MeatHouse Manager	
Buche Foods	Poultry	Pine Ridge, SD & Mission, SD	605-384-4300	Tanka Fund, One Spirit
Wanblee Mart		Wanblee, SD	605-462-6622 wanbleemart@hotmail.com	Pine Ridge Elderly Nutrition Program
Kyle Grocery		Kyle, SD	605-455-2824 emay4district27@hotmail.com	Pine Ridge Elderly Nutrition Program
Akiptan Commmunity Development Corporation		Eagle Butte, SD	Skya Ducheaneaux, Executive Director 605-850-1721 skya@akiptan.org	
*NDN Collective		Rapid City, SD	605-791-3999	
*Wallace Center at Winrock International		North Little Rock, AR & Arlington, VA	501-280-3000 703-302-6500	
*Lakota Funds		Kyle, SD	605-455-2500	
*Tanka Fund	Grants to small-scale buffalo producers ($5,000 - $20,000 for cash flow); developing a mobile buffalo harvesting unit	Kyle, SD	Dr. Trudy Ecoffey, Executive Director trudy.ecoffey@tankafund.org	Bamm Brewer
OST FDPIR (Food Distribution Program on Indian Reservations)			Jake Little, Director 605-867-5511 jake@oglala.org ostfoods@yahoo.com (Jake did not consent to be interviewed for this study)	

Organization	Potential Collaboration	Location	Point of Contact	Recommended by/ Affiliation
OSPRA		17 Tatanka St. Kyle, SD	Tom Fast Wolf, Buffalo Herd Manager 605-455-1233 605-441-1966	Tanka Fund
OST Transportation	Trucking and transportation; there are limited truck drivers in the area, could manage a 15-person crew of trucks with refrigeration for dry goods to reduce overall food transportation costs		Dave Kelley, OST Transportation Director	Dave Kelley (OST Transportation Director, gardener, and small-scale livestock producer—chickens and cattle)
OST Credit & Finance Program	Financial and technical assistance, liaison for tribal members with outside investors; small business services, changes in laws to support local food systems; goal is economic sovereignty		Courtney Two Lance, OST Credit & Finance Director	Courtney Two Lance, OST Credit & Finance Director
National Park Service (Badlands National Park)		Interior, SD	605-433-5361	Tanka Fund, OSPRA
USDA Council for Native American Farming and Ranching (CNAFR)	Established in 2012 to expand opportunities for Native farmers and ranchers to participate in USDA programs as part of the Keepseagle v Vilsack settlement		USDA Office of Tribal Relations	
NRCS Climate Smart			Darrel DuVall, State NRCS Tribal Liaison Coordinator, Huron, SD 605-352-1209	Tanka Fund
USDA Office of Tribal Relations			Heather Dawn Thompson, Director, USDA Office of Tribal Relations, 202-205-2249, HeatherDawn.Thompson@usda.gov	
FSA	Beginning farmer-rancher class (marketing, animal husbandry, etc.)			Dave Kelley
*Regenerative Agriculture Alliance	Conducting research on dorper sheep to determine if they'll fit well in South Dakota ecosystems	Northfield, MN	Dianne Christofore, Executive Director diane@regenagalliance.org	
Dahline Poultry	Bulk chick hatchery	Willmar, MN	320-979-6910	AJ Granelli, Makoce Ag Farm Director

Organization	Potential Collaboration	Location	Point of Contact	Recommended by/ Affiliation
*Tree Range Farms		Northfield, MN	507-200-0699 info@treerangefarms.com	Makoce Ag
*Hemp Quest Ventures, LLC		Harrisburg, NC	980-272-8483 info@hempquestfarms.com	Makoce Ag
4Rosebud		Rosebud Reservation, SD	https://www.facebook.com/4Rosebud/ 4RosebudOA@gmail.com,	Makoce Ag
Sicangu CDC: Food Sovereignty Initiative	Farmers' markets, convenience store sales, mobile market, TSA, youth internships, beginner farmer apprenticeship	Mission, SD	Matte Wilson, Food Sovereignty Director matte@sicangu.co	Makoce Ag
Racing Magpie		Rapid City, SD	605 646 3334	Makoce Ag
Mayan Council of Omaha (comunidad Mayan Pixan Ixim)		Omaha, NE	402-625-3031 info@pixanixim.org	Regenerative Agriculture Alliance
Rocky Boy Reservation/Tribe		Rocky Boy Reservation, MT		Tom Fast Wolf, OSPRA Buffalo Herd Manager
Crazy Horse Scenic Byway	Marketing and promotion of a local food hub/local foods at the Crazy Horse Scenic Byway facilities accommodations	Pine Ridge, SD	Dave Kelley, Director of OST Transportation	Dave Kelley, Director of OST Transportation
Thunder Valley Community Development Corporation	Supports small scale producers; materials grants	Porcupine, SD	605-455-2700	Dave Kelley, Director of OST Transportation
Oglala Lakota Living History Village	The Pine Ridge Area Chamber of Commerce is adding a food truck to the museum, as well as a potential farmers' market and dinner theater experience.	Cactus Flats, SD	605-455-2685 lakotalivinghistoryvillage@gmail.com,	Ivan Sorbel, Executive Director of Pine Ridge Area Chamber of Commerce
*Sweet Grass Consulting, LLC		Loveland, CO	Michael Brydge, Principal Director michael@sweetgrassconsulting.net	

Organization	Potential Collaboration	Location	Point of Contact	Recommended by/ Affiliation
*Emergence, LLC		Kyle, SD	Liz Welch, Founder & Principal 774-437-1471 liz@emergencellc.co	
Village Earth		Fort Collins, CO	970-237-3002 info@villageearth.com	Tanka Fund, Sweet Grass Consulting

*Current partner

Meat Processors Within 200 Miles of Kyle, SD

Organization	Location	Species	Inspection	Point of Contact	Distance from Kyle, SD
Wild Idea Buffalo Co.	Rapid City, SD	Buffalo	SDMI	Colton Jones, Procurement Manager 605-791-4272 605-787-3373 colton@wildideabuffalo.com	84
Charging Buffalo Meat House	Pine Ridge, SD	Buffalo, wild game (deer, elk), cattle, hogs	Custom exempt, in the process of becoming USDA-inspected	Bamm Brewer, Meat House Manager 504-441-0885 bammbrewer@gmail.com	58
Sturgis Meats	Sturgis, SD	Beef, bison, yak, pigs	SDMI	Cindy Tolle 605-347-2626	117
Wall Meat Processing	Wall, SD & Rapid City, SD	Beef, pork, wild game	SDMI & custom exempt	Kevin Larson, Business Development Manager 605-279-2348	66 (Wall) & 85 (Rapid City)
Black Hills Meat Company	Hot Springs, SD	Beef, buffalo	SDMI	Cody Pekron 605-745-4173 codypekron@gmail.com	84
Brock's Butcher Block	Onida, SD	Beef, pork, wild game	SDMI & custom exempt	605-258-2211	190
DeHaai's Processing	Chamberlain, SD	Beef, pork, wild game	SDMI	Tina DeHaii 605-234-4237	175
Fuch's Locker	Martin, SD	Pork, beef	SDMI	605-685-6541	35

Organization	Location	Species	Inspection	Point of Contact	Distance from Kyle, SD
Mitchell Locker	Mitchell, SD	Pork, beef, wild game	SDMI	605-996-0521	144
Platte Locker	Platte, SD	Beef	SDMI	605-337-3801	190
US Beef Producers	Fort Pierre, SD	Beef	SDMI	Kim Ulmer: 605-845-8700 A Jay Heiss: 605-280-1870	156
Western Buffalo/ Pure Meats/Dakota Pure Bison	Rapid City, SD	Buffalo	SDMI	605-309-1500 info@dakotapurebison.com	85
CR Packing	Clinton, NE	Beef	Custom & inspected	308-282-0090 c.r.packing@outlook.com	58
Chuck Wagon Meats	Arthur, NE	Beef, pork	Custom	308-764-2248	154

Appendix B

Funding Opportunities

Private/Foundation Funding

Organization	Type	Program/Opportunity	Amount of Funding Available	Deadline
Akiptan	Loans and investment options		$250,000 max.	Ongoing
Doris Duke Charitable Foundation	Grant funding	Environment Grant Program		No open competitions currently
		Environment Grant Program—Landscape Conservation Catalyst Fund	15 grantees in 2023	Annual grant cycle; check in early 2024
Lakota Funds	Loan		$300,000 max. (for agriculture loans)	Ongoing
Larson Family Foundation	Grant funding		$800–500,000; average is $40,000	Two grant cycles per year; submit letters of inquiry between January 2–February 15; July 2– August 15 before being invited to apply.
MacArthur Foundation	Grant funding	100&Change and other grant opportunities; does not fund scholarships or tuition assistance, grants to individuals, annual fundraising, advertising, or political activities. Does not usually accept unsolicited requests, but does review them; supports people and groups addressing complex social challenges	100&Change: $100 million; varies by grant	100&Change every three years; otherwise varies
Mitsubishi Corporation Foundation for the Americas	Grant funding, donations	Does not support individuals, political, lobbying, or religious activities, must be a 501(c)3 non-profit organization or overseas equivalent		Ideally, apply first quarter of the calendar year; grants approved at annual board meeting held each autumn.

Organization	Type	Program/Opportunity	Amount of Funding Available	Deadline
NDN Collective & NDN Fund	Grant funding, loans, TA, and support	Community Self Determination Grants, Community Action Fund, Collective Abundance Fund, the NDN Changemaker Fellowship, NDN Fund	Eligibility varies from individuals and families to organizations; Community Self Determination provides $100,000/year for up to two years; two loan pools: one to support large-scale infrastructure and the other small businesses	
Patagonia Corporate Grants Program	Grant funding		Previously $5,000–20,000	Invitation only
SDSU Extension	Incentive payment	Every Acre Counts	$150/acre over five years; $50/acre for seeding costs	Ongoing
USDA	Grant	Partnerships for Climate Smart Commodities	$3.1 billion for 141 projects	Closed
USDA	Grant	NIFA—various		Ongoing
USDA	Grant	Increasing Land, Capital, and Market Access Program	In 2023, $300 million for 50 projects	Closed
Native American Agriculture Fund	Grant	Various; individuals are not eligible, but re-granting institutions can apply	Various	Annual
South Dakota Community Foundation	Grant funding	The South Dakota Fund	$2,000–20,000/award; application should not request more than half of the total project cost; will generally not support transportation vehicles or equipment purchases over $10,000	Ongoing
Toyota	Grant funding	Toyota 4Good		Various
World Land Trust	Grant funding			Ongoing
Four Bands Community Fund	Loans	Agriculture business loan and Ag line of credit	$250,000	Ongoing
Tatanka Funds	Loans, grant	Recovery Ag Producer Grant in partnership with NAAF, for producers impacted by the COVID-19 pandemic and December 2022 blizzards		Ongoing
Black Hills Community Loan Fund	Loans	Business loans	$100,000	Ongoing

Appendix C

Certified Organic Meat Producers in Three-State Region

Operation	Name(s)	Contact Information	Website	Certification
Assman Land & Cattle	Mike Assman	605-856-2456 605-208-1357	https://www.facebook.com/assmanlandcattle	Other: alfalfa, brome grass, corn, fallow, hay, millet, oats, pasture, sorghum Sudan grass; spring wheat, sunflowers, winter wheat
Bear Butte Gardens	Michelle & Rick Grosek	605-490-2919 Michelle@BearButteGardens.com Rick@BearButteGardens.com	https://bearbuttegardens.com/	Other: alfalfa, assorted vegetables, buckwheat, fallow, hay, melons, pasture, peas, potatoes, squash, vetch
Bevans Enterprises	Bill & John Bevans			
Boettcher Organics	Bruce Boettcher	402-244-5348 boettcherann@abbnebraska.com	https://madeintheneb.com/participant/boettcher-organics	Other: native range/pasture/hay
Common Good Farm	Evrett Ruth Lunquist Chantry	402-783-9005 farmers@commongoodfarm.com	https://www.commongoodfarm.com/	Other: alfalfa, aloe vera, apples, arugula, astragalus, basil, beans, beets, bok choy, broccoli, cabbage, carrots, cauliflower, celeriac, celery, chard, chervil, Chinese cabbage, salad mix, beet greens, cook greens, pluots, garlic scapes, turnip greens
Ekberg Ranch	Lance & Doris Ekberg	605-842-3108 ekberg@gwtc.net		Field/forageable: hay (hay and grass), pasture
England Ranch	George A.England	605-344-2560 englandfamilyranch@yahoo.com		Other: pasture/hay
Fonder Brothers Organic Dairy	Steve Fonder			Other: alfalfa, corn, oats, pasture, soybeans
Henderson Organic Hay & Cattle Co.	James Henderson	402-229-3258 jlhenderson@hotmail.com		Other: alfalfa hay, alfalfa orchard grass hay, alfalfa, hay, ryegrass, pasture, Sudan grass

Operation	Name(s)	Contact Information	Website	Certification
Lariat Cattle Company	Todd Arends	308-282-1125 jillnoetzelman@orbpacking.com todd@orbpacking.com		Other: pasture
Meristem Farm & Nursery	Shami Morse Tom Lundahl	402-306-4500 Tom@MeristemFarmAndNursery.com	http://www.meristemfarmandnursery.com/	Other: fruit: apples, apricots, Aronia berries, cherries, peaches, pears, persimmons, plums, raspberries, serviceberries, greenhouse production of transplants for on-farm use and sale, In-ground greenhouse production of bedding plants, herbs, and vegetables
Merlyn Bender	Merlyn Bender	402-274-4563		
Mulder Farm	Roy Mulder			
Orv's Acres	Orville (Curt) Morrow	402-340-7558	https://www.orvsacres.com/	Other: grass hay; vegetables: carrots, garlic, potatoes, strawberries
Prairie Monarch Bison Ranch	Dylan Hendrich	307-742-4429 dylan@pmbison.com		Field/forgeable: hay, pasture
Rasmussen-Lehman 33 Ranch	Daniel Rasmussen	605-685-3315 the33ranch@gmail.com		Other: native range/ pasture/hay
Richard & Helaine Fonder	Richard & Helaine Fonder	402-783-9005		Other: corn, hay, oats, barley, peas, and pasture
Staab Ranch	Rollie, Gloria, Bradley & Dusty Staab	308-728-3703 rgstaab@cornhusker.net		Other: corn, hay, oats, pasture, peas
Taylor Ranches	Marissa Taylor	303-549-6755 marissa@lonetree-ranch.com		Other: mixed garden produce, alfalfa, blue corn, soybeans
Tecumseh Poultry (Tecumseh Plant)	Eric Barth	402-786-1007		Other: alfalfa

Operation	Name(s)	Contact Information	Website	Certification
Ward Farm	Alan B. Ward			Other: corn (field), native prairie grass, oats, pasture, soybeans, rhubarb
Wiese Farms	Gary & Annette Wiese			Other: native range/ pasture/hay

Appendix D

List of Farmers' Markets, Food Hubs, and On-Farm Markets

Market Name	Website	Location
Black Hills Farmers' Market Inc.	http://www.BlackHillsFarmersMarket.org	Rapid City, SD
Bruner's Gardens Farmers' Market II		Rapid City, SD
Chadron Farmers' Market	http://www.chadron.com	Chadron, NE
Custer Farmers' Market	https://www.custersd.com/Custer-Farmers'-Market	Custer City, SD
Deadwood Street Market	https://www.facebook.com/deadwoodstreetmarket/	Deadwood, SD
Gage's Gardens	http://www.dakotaflavor.com/category.asp?catid=12	Spearfish, SD
Gordon Farmers' Market		Gordon, SD
Prairie Berry Farmers' Market	https://blackhillsfarmersmarket.org/prairie-berry-market	Hill City, SD
Hot Springs Farmers' Market		Hot Springs, SD
Main Street Square Farmers' Market	https://mainstreetsquare.org/	Rapid City, SD
Medicine Root/Oyate Teca Farmers' Market	http://www.oyatetecaproject.org	Kyle, SD
Mellette County Farmers' Market		White River, SD
New Hope Farm		Rapid City, SD
Red Cloud Farmers' Market		Pine Ridge, SD
Rushville Farmers' Market		Rushville, NE
Sicangu Harvest Market		SD (various locations)
Spearfish Farmers' Market	https://visitspearfish.com/events/spearfish-farmers-market2018	Spearfish, SD
Sturgis Farmers' Market	https://www.facebook.com/sturgismifarmersmarket/	Sturgis, SD
Z's Touch Farmers' Market		Black Hawk, SD

Appendix E

Certified Organic Vegetable Growers in Three-State Region

Operation	Name(s)	Contact Information	Website	Certification
Bear Butte Gardens	Michelle & Rick Grosek	605-490-2919 Michelle@BearButteGardens.com Rick@BearButteGardens.com	https://bearbuttegardens.com/	Other: alfalfa, assorted vegetables, buckwheat, fallow, hay, melons, pasture, peas, potatoes, squash, vetch
Common Good Farm	Evrett Ruth Lunquist Chantry	402-783-9005 farmers@commongoodfarm.com	https://www.commongoodfarm.com/	Other: alfalfa, aloe vera, apples, arugula, astragalus, basil, beans, beets, bok choy, broccoli, cabbage, carrots, cauliflower, celeriac, celery, chard, chervil, Chinese cabbage, salad mix, beet greens, cook greens, pluots, garlic scapes, turnip greens
Ebmeier Investment Properties	James Ebmeier	712-527-9202 (This phone number is connected to Ebmeier Engineering, LLC, 501 Railroad Avenue, Suite 100, Glenwood, IA 51534.) ryan@ebmeier-engineering.com		Other: Aronia berries
Elk Mountain Herbs	Karin Guernsey	307-742-0404 emh1@wyo2u.com	https://elkmountainherbs.com/	Herbs/spices: herbs, wild harvest
Fehringer Feeds	John, Sara & Bernie Fehringer	308-254-3330 308-249-3526 sara@fehringerfarms.com	https://www.fehringerfarms.com/	Flower vegetables: sunflowers; field/ forgeable: alfalfa, barley, grass, millet (hay), oats, straw, triticale
Fox Run Berry Farm	RogerBrockman	402-332-4941 rodbrockman1933@yahoo.com		Other: Aronia berries
Goodlife Growers	Greg Micheels	402-522-6484 gregmicheels@gmail.com	https://www.facebook.com/goodlifegrowers/	Other: Aronia berries, brome grass/hay

Operation	Name(s)	Contact Information	Website	Certification
Greenleaf Farms		402-614-0404 csa@greenleaffarms.biz	https://www.greenleaffarms.biz/	Other: assorted vegetables, fallow, melons, peppers, potatoes, squash, tomatoes
Haroldson Farms	Kyle Haroldson	832-942-2820 kyle@haroldsonfarms.com	https://haroldsonfarms.com/	Other: herbs, vegetables, fruits
Jim Spaulding				Other: berries
Jones Produce	Justin Jones	402-613-2035 justin@jonesproduce.net	https://www.facebook.com/jonesecofarms	Other: asparagus, cantaloupe, cover crops: buckwheat, oats, peas, rye, vetch, greenhouse production of transplants for on-farm use and for sale; in-ground production of transplants, pasture, potatoes
Keith Felthousen	Keith Felthousen	402-235-2850 kfelt@windstream.net		Other: Aronia berries
K&N Organic Farm	Kevin Koester	605-598-6276		Other: alfalfa, assorted vegetables, corn, oats, sorghum, wheat
Lakehouse Farm	Jerry & Renee Cornett	402-557-5881 cornettjr4@mac.com		Other: mixed garden produce, alfalfa/clover, cover crops (various), grass
Let's Just Say	Melissa Poulter-Anderson	402-677-1789 melissapoulter@yahoo.com		Other: Aronia berries

Operation	Name(s)	Contact Information	Website	Certification
Meadowlark Hearth	Beth Everett	308-632-3399 308-631-5877 enquiries@meadowlakehearth.org	https://www.meadowlarkhearth.org/	Offers seed varieties and crops, including alfalfa, apples, arugula, basil, beans, beets, broccoli, cabbage, carrots, cauliflower, celeriac, celery, cilantro, cucumbers, daikon, dill, endive, fennel, garlic, horehound, kale, kohlrabi, leeks, lemon balm, lettuce, melons, mustard, grass-fed and finished beef, winter squash varieties, other
Meristem Farm & Nursery	Shami Morse Tom Lundahl	402-306-4500 Tom@MeristemFarmAndNursery.com	http://www.meristemfarmandnursery.com/	Other: fruit: apples, apricots, Aronia berries, cherries, peaches, pears, persimmons, plums, raspberries, serviceberries, greenhouse production of transplants for on-farm use and sale, In-ground greenhouse production of bedding plants, herbs, and vegetables
Michael & Lisa Lentsch	Michael & Lisa Lentsch	402-235-3553 lisamike@windstream.net lisa.lentsch@wellsfargo.com		Other: Aronia berries
Morning Fog Farms	Stuart Cope			Other: Aronia berries
New Era Organics	Marty Watson	307-245-3706 neweraorganic@yahoo.com		Flower vegetables: sunflowers; field/ forgeable: wheat (hard white winter)
Orv's Acres	Orville (Curt) Morrow	402-340-7558	https://www.orvsacres.com/	Other: grass hay; vegetables: carrots, garlic, potatoes, strawberries
Rhonda Carritt	Rhonda Carritt	402-443-3127 electricfarmer@windstream.net		Other: Aronia berries

Operation	Name(s)	Contact Information	Website	Certification
Robinette Farms	Alex McKiernan	402-794-4025 farmers@robinettefarms.com	www.robinettefarms.com	Other: microgreens: arugula, buckwheat, Bull's Blood, cilantro, Cressida cress, dill, Italian large leaf basil, lemon basil, mild mix, Mizuna, other
Schwarz Family Farm	Tom & Linda Schwarz	308-472-5309 tlschwarz@charter.net lindaschwarz@charter.net		Other: alfalfa, alfalfa/oat/triticale/millet forage, corn, field peas, mixed garden produce, oats/turnip forage
SDSU Southeast Research Farm	Peter Sexton	605-563-2989 Peter.Sexton@sdstate.edu	https://www.sdstate.edu/south-dakota-agricultural-experiment-station-sdsu/sdsu-southeast-research-farm	Other: alfalfa, corn (field), oats, apples, cherries (sweet), honeyberries, peaches, pears, plums, raspberries, strawberries
Stewart's Aronia Acres	Jeff Stewart	605-481-0406 jstewart@hcinet.net	www.aroniaacres.com	Other: Aronia berries, currants (black), haskaps
Tim and Peggy Parys Groves	Peggy Parys	402-707-2920 peggyparys@gmail.com		Other: avocados, oranges
Walnut Hills Farm				Other: berries
Wolff Farms Produce	Jay Wolff	402-992-3055 wolff-farms@hotmail.com dwolff@hotmail.com	www.wolfffarmsproduce.com	Other: Aronia berries, currants (black), haskaps

Appendix F

Policy

Federal and State Food Policies and Programs

Policy/Program	Description
School Nutrition Services	School Nutrition Services (SNS) provides nutritious and appetizing breakfast and lunch to students. Depending on the income level of the district there are options for free and reduced meals. Staff may also purchase meals.
Commodity Supplemental Food Program	This federally funded program works to improve health outcomes for low-income elderly people aged 60 or older by supplementing their diets with foods from the United States Department of Agriculture (USDA).
Child and Adult Care Food Program	Federal program that grants cash reimbursements for meals served in adult and child day care centers and family and group day care homes.
Fresh Fruit and Vegetable Program	Provides free fresh fruit and vegetable snacks to children in participating schools. The program primarily supports elementary schools with high percentages of low-income students.
National School Lunch Program	Cash reimbursement and commodity food provisions for meals served in non-profit food services in residential childcare institutions and elementary and secondary schools.
School Breakfast Program (SBP)	Provides cash reimbursement to states that operate not-for-profit breakfast programs in residential childcare facilities and schools.
The Special Milk Program	Provides free milk to youth in schools and childcare facilities that don't participate in other federal meal service programs by reimbursing schools for purchased milk. For schools that offer pre-kindergarten and kindergarten programs that are half days and students don't receive school lunch, those students are also eligible to participate in the Special Milk Program.[370]
Acid and Low Acid Canned Food Requirements (Federal)	"In addition to complying with general sanitation standards established as Good Manufacturing Practices (GMP), processors of acidified or low-acid foods packaged in hermetically sealed containers that are offered for interstate commerce must also meet Food and Drug Administration (FDA) requirements issued in the US Code of Federal Regulations. These are in Part 114 for acidified foods or in Part 113 for thermally processed low acid foods. For both types of foods, Part 108 - Emergency Permit Control, also applies. These regulations include requirements to register with the US Food and Drug Administration and file a scheduled process through a process authority. The operation must be under the supervision of a qualified individual who has attended one of the many Better Process Control Schools held throughout the country."[371]

Policy/Program	Description
Value-Added Producer Grant (VAPG) program (SD)	The program helps agricultural producers begin producing value-added products and bring them to market to grow their income.
Home Processed Food Law (SD Law)/Guide to Homesteading	"Allows certain home-processed foods—including jams, jellies, fruit syrups, salsa, and flavored vinegar, as well as canned, pickled and fermented foods within a certain pH—to be sold at a farmers' market, roadside stand or similar venue. All products must be properly labeled and have official verification from a third-party processing authority in writing."[372] In 2020 and 2022, reforms to cottage food laws were passed in the state that reduced barriers to starting a cottage food business and widened the variety of approved products for sale.

Appendix G

Micro-Procurement Checklist

"This checklist is an example of micro-procurement requirements and demonstrates how procurements of less than $10,000 can be sourced by non-state entities for a compliancy supplemental review. Entities must comply with federal procurement requirements, policies, and procedures listed at 2 C.F.R. § 200.318 – 200.327. An entity that answers "No" to any of the questions below may have a contract at risk of noncompliance with federal regulations surrounding procurement."[373]

Requirement	Status	Supporting Documentation
Is the price fair and reasonable? When practicable, divide micro-purchases equitably among qualified suppliers.	☐ Yes ☐ No	☐ Evidence of market research ☐ Short narrative on letterhead ☐ Other (ex:: receipt, invoice, etc.)
If using a time and materials contract type, were all the steps below taken? ■ Justified in writing that no other contract type was suitable. ■ Included a contract ceiling (or do not exceed amount) that the contractor exceeds at their own risk. ■ Maintained a high degree of oversight.	☐ Yes ☐ No	☐ T&M contract justification ☐ Contract document with ceiling amount included ☐ Documentation that substantiates a high degree of contractor oversight
Have you ensured that you did not enter into a cost-plus-percentage-of-cost contract? (Cost-plus-percentage-of-cost contracts are prohibited by federal procurement rules.)	☐ Yes ☐ No	☐ Contract ☐ Pricing schedule
Is the contractor able to perform successfully under the terms and conditions of the solicitation or contract or otherwise responsible? (Read about contractor responsibility determination.)	☐ Yes ☐ No	☐ Determination of contractor responsibility

Required Contract Provisions

Requirement	Status	Supporting Documentation
If the contract is for construction work, have you included the required Equal Employment Opportunity clause?	☐ Yes ☐ No ☐ N/A	Indicate the page number where a FEMA representative can locate the clause in contract document. Page:
If the contract is for construction work and more than $2,000, have you included the required Davis-Bacon Act clause? **Note:** This clause only applies to the EMPG, HSGP, NSGP, THSGP, PSGP, TSGP, IPR, and HHPD.	☐ Yes ☐ No ☐ N/A	Indicate the page number where a FEMA representative can locate the clause in contract document. Page:
If the contract is for construction work and more than $2,000, have you included the required Copeland Anti-Kickback Act clause? **Note:** This clause is **only** required in situations where the Davis-Bacon Act also applies.	☐ Yes ☐ No ☐ N/A	Indicate the page number where a FEMA representative can locate the clause in contract document. Page:
If the contract meets the definition of "funding agreement," have you included the required Rights to Inventions Made Under a Contract or Agreement clause? **Note:** This clause is **not** required under the PA, HMGP, FMAG, CCP, DCM, or IHP-ONA programs, as FEMA Awards under these programs do not meet the definition of "funding agreement."	☐ Yes ☐ No ☐ N/A	Indicate the page number where a FEMA representative can locate the clause in contract document. Page:
For contracts, including any purchase orders, have you included the required Prohibition on Contracting for Covered Telecommunications Equipment or Services clause?	☐ Yes ☐ No ☐ N/A	Indicate the page number where a FEMA representative can locate the clause in contract document. Page:
For contracts, including any purchase orders, have you included the required Domestic Preferences for Procurements clause?	☐ Yes ☐ No ☐ N/A	Indicate the page number where a FEMA representative can locate the clause in contract document. Page:
Have you considered including the FEMA recommended provisions outlined in PDAT's Contract Provision's Guide?	☐ Yes ☐ No ☐ N/A	**Note:** This is not a requirement and contracts will not be deemed noncompliant for failure to include these provisions.

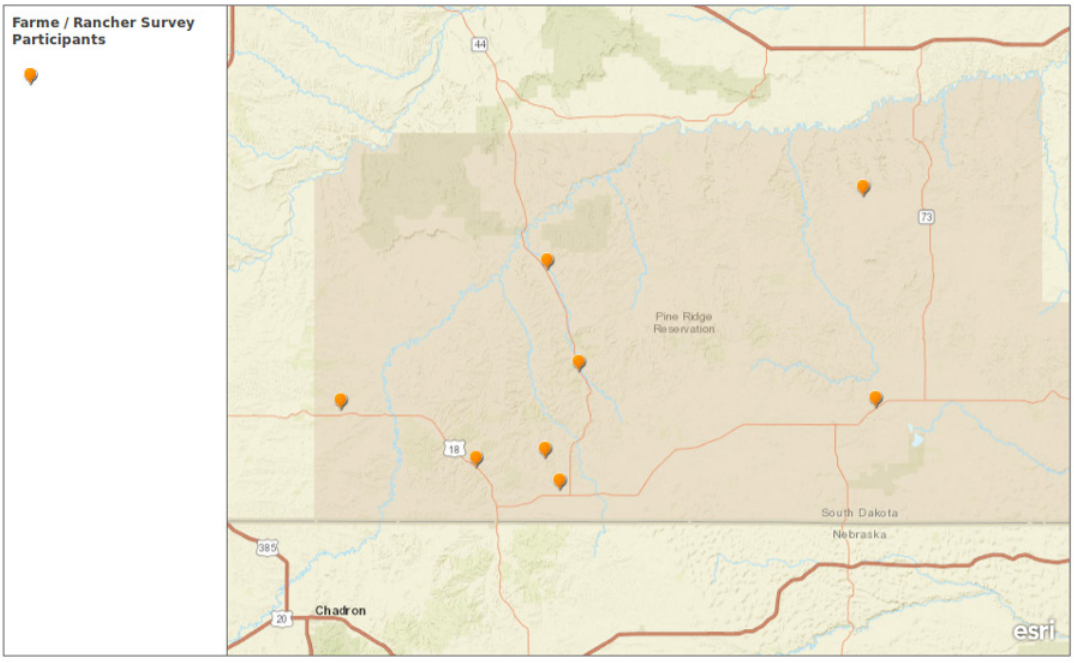
Appendix H[374]

Farmer, Rancher, and Gardener Survey Results

Results From Farmer/Rancher Survey Interviews (N=8)

Question	Summary of Responses
How is this farm incorporated?	7 family/individual; 1 non-profit
Are you Native American?	4 yes; 4 no
If not, is someone in the household Native American?	2 out of the 4 said yes.
When did you start farming in this area?	2002; 1995; family since 1922; 24 years; all my life
How many people are actively involved in this farm or ranch?	Average: 6.7
Do you own all this land, or do you lease it?	100% own; 40% own; 70% own; 100% own; 75% lease; own ranch but leases some from BIA
What type of livestock operation is this?	All were cow-calf operations.
How do you sell your animals?	2 private buyers; 5 auctions; 1 both
Are you interested in participating in the Thunder Valley Food Hub?	100% yes (after it was described to them)

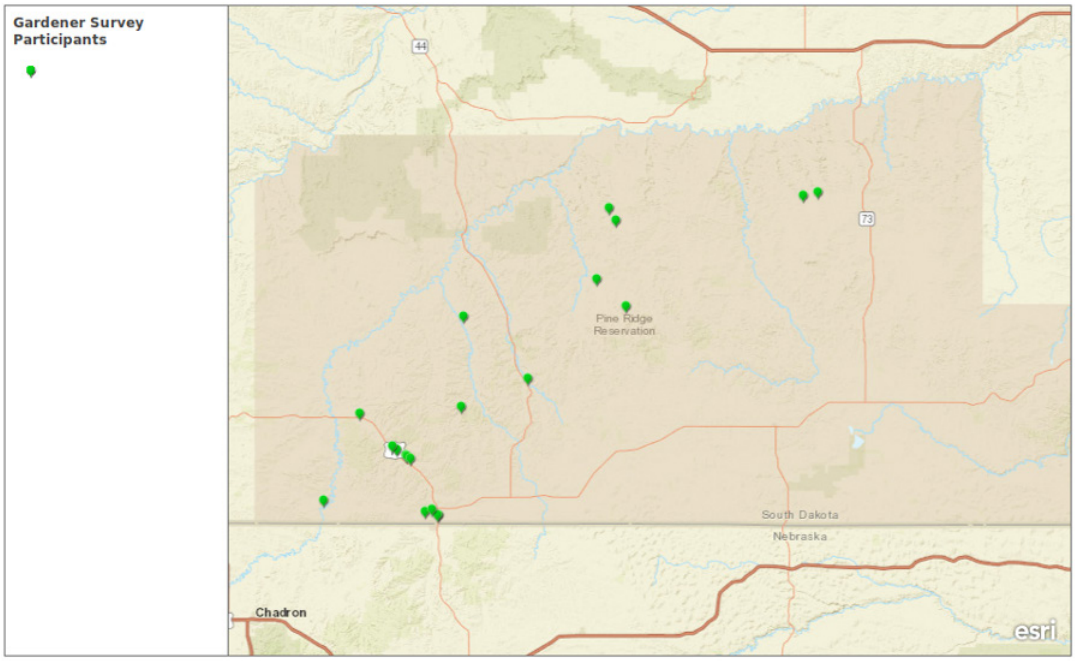
Farmer/Rancher Survey Participants



Results From Gardener Survey Interviews (N=10)

Question	Summary of Responses
Age?	Average: 53.6; median: 52.5
Are you Native American?	17 yes; 2 no; 1 N/A
Does anyone else help with the garden?	15 yes; 4 no; 1 N/A
Is this garden managed by an organization?	18 no;1 yes; 1 N/A
How many years have you been gardening?	Average: 21.8; median: 15
Are you gardening this year?	17 yes; 1 no; 1 N/A
If yes, do you plan to expand your garden from previous years?	7 yes; 10 no; 2 N/A
Largest garden surveyed:	3 acres
Smallest garden surveyed:	5 x 10 feet
Do you raise livestock?	4 yes; 5 no; 1 N/A
How much do you consume yourself? (annually)	Average: 51%
How much do you give away? (annually)	Average: 48%
How much do you sell? (annually)	Average: 1%
How much do you spend on seeds? (annually)	Average: $85.84
How much do you spend on fertilizers? (annually)	Average: $55
How much do you spend on herbicides? (annually)	Average: $10.52
How much do you spend on tools and equipment? (annually)	Average: $367.52
How much do you spend on feed for livestock? (annually)	Average: $291.05
How much do you spend on fuel for tillers/equipment? (annually)	Average: $83.23
Other expenses? (annually)	Average: $18.92
Average total expenses: (annually)	Average: $912.11
Do you receive any outside funding/support for your garden?	16 no; 3 yes; 1 N/A
Do you have any interest in selling your produce/livestock?	6 no; 8 yes; 6 N/A
What is your vision for your garden in the next five years?	45% 'produce more'
If you could do anything to increase production, what would you do?	5 'more help'; 2 'equipment'; 2 'get a greenhouse'
Are you interested in participating in the Thunder Valley Food Hub?	9 yes; 4 no; 7 N/A (after it was explained to them)

Gardener Survey Participants



Esri, HERE, Garmin, NGA, USGS, NPS

Farmers/Ranchers and Gardeners Interviewed (2017)

Operation	Name	Phone	Email
Black Feather Bison Ranch	Judy Black Feather	605-867-2573	winona_az@hotmail.com
Hart Ranch	Bonnie Hart		
Livermont Ranch	Jim Livermont	605-462-6404	
Kaltenbach Ranch	Chad & Connie Kaltenbach	605-867-6945	windmill57551@yahoo.com
B&S Show Pigs	Brian Nelson	308-360-2152	brnelson19@hotmail.com
Henry Farm	Leslie Henry		
Knife Chief Buffalo Nation Organization	Edward Iron Cloud III	605-407-0091	eironcloud@yahoo.com
Merdanian Ranch	Judy Merdanian		
Gardener	Nathan Blindman	605-867-5690	
Gardener	Raymond Big Crow	605-867-5394	
Gardener	Steven Wilson	605-441-7722	
Gardener	Angel Eagle Hawk	605-944-1237	
Gardener	Marvin Wilson	605-867-2557	
Gardener	Marty Brewery	605-407-3424	
Gardener	Bruce and Carol Whalen	605-454-1909	
Gardener	Melinda Clifford		m.olson@yahoo.com
Gardener	Kim Cuny		
Gardener	Geralald Weasel	605-867-5212	
Gardener	Heidi Martin	605-867-2510	heidismartin@yahoo.com
Gardener	Sandra Janis	605-462-5030	stan_y2000@yahoo.com
Gardener	Robert Pille	605-407-7832	Rpille@hotmail.com
Gardener	Norman Wilson	605-899-2608	
Gardener	Rickie Garnett	605-455-2157	
Gardener	Avril Livermont	605-462-6404	

Appendix I

Potential Wholesale Customer Database

Healthcare Facility Name	Address	City	State	Zip
Bennett County Hospital & Nursing Home	Major Allen St	Martin	SD	57551
Black Hills Surgical Hospital	Anamaria Dr	Rapid City	SD	57701
Box Butte General Hospital	Box Butte Ave	Alliance	NE	69301
Chadron Community Hospital and Health Services	Centennial Dr	Chadron	NE	69337
Fall River Hospital	Highway 71 S	Hot Springs	SD	57747
Foothills Home Medical Equipment	Ballpark Rd	Sturgis	SD	57785
Gordon Memorial Hospital	N Ash St	Gordon	NE	69343
Gordon Memorial Hospital	Conrad St	Rushville	NE	69360
Gordon Memorial Hospital	E 8th St	Gordon	NE	69343
Mission Community Health Center	Main St	Mission	SD	57555
Indian Health Services Hospital	Canyon Lake Dr	Rapid City	SD	57702
Missouri Breaks	Main St	Martin	SD	57551
Philip Health Services	W Pine St	Philip	SD	57567
PHS Indian Hospital at Rosebud	Soldier Creek Dr	Rosebud	SD	57570
Pine Ridge Hospital	Indian Health Road	Pine Ridge	SD	57770
Monument Health Custer Hospital	1220 Montgomery St	Custer	SD	57730
Monument Health Rapid City Hospital	Fairmont Blvd	Rapid City	SD	57701
Rapid City Medical Center	2820 Mt Rushmore Rd	Rapid City	SD	57701
Regional Health Custer Hospital		Custer	SD	57730
Sturgis Regional Hospital	Harmon St	Sturgis	SD	57785
US Public Health Services Indian	Soldier Creek Rd	Rosebud	SD	57570
US Veterans Medical Center	Comanche Rd	Fort Meade	SD	57741
VA Medical Center Hot Springs	N 5th St	Hot Springs	SD	57747
Weston County Health Services	Washington Blvd	Newcastle	WY	82701
Anpetu Luta Otipi		Kyle	SD	57752
Anpetu Luta Otipi		Pine Ridge	SD	57752
Anpetu Luta Otipi		Wanblee	SD	57577
Anpetu Luta Otipi		Martin	SD	57551

Healthcare Facility Name	Address	City	State	Zip
Native Healing Program	1205 East Saint James St	Rapid City	SD	57701
Native Women's Health Care	3200 Canyon Lake Dr	Rapid City	SD	57702
OST CHR Program	Wakpamni Old Rd	Pine Ridge	SD	57770
OST Veterans Shelter	1 Veterans Dr	Pine Ridge	SD	57770
Kyle Health Center	1000 Health Ctr Rd	Kyle	SD	57752
Wanblee Public Health Center	210 1st St	Wanblee	SD	57577
Martin Community Health Center	109 Pugh St	Martin	SD	57551
Sioux Funeral Home	370 Oglala Ave BOX 277	Pine Ridge	SD	57770
WIC SD Department of Health	600 E Capitol Ave	Pierre	SD	57501
Medicine Root District CDC		Kyle	SD	57752

School Name	Address	City	State	Zip
Allen Youth Center	Tower Dr	Allen	SD	57714
Alliance Early Childhood Program	E 24th St	Alliance	NE	69301
Alliance Early Head Start	108 E 3rd St	Alliance	NE	69301
Alliance High School	1604 Sweetwater Ave	Alliance	NE	69301
Alliance High School	1450 Box Butte Ave	Alliance	NE	69301
Alliance Middle School	1115 Laramie Ave	Alliance	NE	69301
Alliance Special Education	W 14th St	Alliance	NE	69301
American Horse School	Main St	Allen	SD	57714
Antelope Headstart Program	E Omaha St	Mission	SD	57555
Atall School	Atall Rd	Union Center	SD	57787
Badger Clark Elementary School	Don Williams Dr	Box Elder	SD	57719
Batesland College Center	Highway 18 & College Rd	Batesland	SD	57716
Batesland Elementary School	School St	Batesland	SD	57716
Beadle Elementary School	Van Buren St	Rapid City	SD	57701
Bennett County Jr-Sr High School	E School St	Martin	SD	57551
Bennett County School District	PO Box 580	Martin	SD	57551
Bethesda Lutheran School	Baltimore Ave	Hot Springs	SD	57747
Big White Elementary School	222nd St	Quinn	SD	57775

School Name	Address	City	State	Zip
Billy Mills Headstart Center	1st St	Parmelee	SD	57566
Black Hawk Elementary School	Seeaire St	Black Hawk	SD	57718
Black Hills Works	Range Rd	Rapid City	SD	57702
Black Hills Works	Quincy St	Rapid City	SD	57701
Black Hills Works	Sitka St	Rapid City	SD	57701
Black Hills Works	Wood Ave	Rapid City	SD	57701
Black Hills Works	Hampton Ct	Rapid City	SD	57701
Black Hills Works	Allen Ave	Rapid City	SD	57701
Black Hills Works	Wisconsin Ave	Rapid City	SD	57701
Busy Bunnies Preschool	1104 Cheyenne Ave	Alliance	NE	69301
Calvary Christian School	Mount Rushmore Rd	Rapid City	SD	57701
Candyland Child Dev Center	Constitution Blvd	Box Elder	SD	57719
Canyon Lake Elementary School	Evergreen Dr	Rapid City	SD	57702
SD School of Mines and Technology	E Saint Joseph St	Rapid City	SD	57701
Carrousel Preschool	Don Williams Dr	Box Elder	SD	57719
Central High School	433 Mount Rushmore Rd	Rapid City	SD	57701
Chadron High School	Cedar St	Chadron	NE	69337
Chadron Middle School	551 E 6th St	Chadron	NE	69337
Chadron Middle Schools	E 10th St	Chadron	NE	69337
Chadron Public School Special	Ann St	Chadron	NE	69337
Chadron Public Schools	E 10th St	Chadron	NE	69337
Chadron State College	1000 Main St	Chadron	NE	69337
Cherry Creek Christian School	Takini Rd	Cherry Creek	SD	57622
Cherry Creek Headstart	Hillside Ave	Cherry Creek	SD	57622
Children's House Montessori	W Main St	Rapid City	SD	57702
Christol Limited	Clark St	Rapid City	SD	57701
Cinnamon Hill Pre-School	Clark St	Rapid City	SD	57701
Elm Springs Elementary School	Elm Springs Rd	Elm Springs	SD	57791
Emerson Elementary School	Black Hills Ave	Alliance	NE	69301
Enning Elementary	Highway 34	Enning	SD	57737
Every Child Is Special	Canyon Rd	Rapid City	SD	57702

School Name	Address	City	State	Zip
Fit-n-Fun School Age Program	Sturgis Rd	Rapid City	SD	57702
Francis Case Elementary School	Don Williams Dr	Box Elder	SD	57719
Friend-Ship Pre School	44th St	Rapid City	SD	57702
General Beadle Elementary School	Van Buren St	Rapid City	SD	57701
Gordon Elementary School	W 2nd St	Gordon	NE	69343
Gordon-Rushville High School	N Oak St	Gordon	NE	69343
Gordon-Rushville Middle School	E 2nd St	Rushville	NE	69360
Grace Lutheran School	W 3rd St	Valentine	NE	69201
Grandview Elementary School	Grandview Dr	Rapid City	SD	57701
Grandview Elementary School	615 Grand Ave	Alliance	NE	69301
Great Plains Art Institute	381 E 3rd St	Mission	SD	57555
Harrison Elementary	Kate St	Harrison	NE	69346
Harmony Childcare & Preschool	E Indiana St	Rapid City	SD	57701
John Witherspoon College	Sheridan Lake Rd	Rapid City	SD	57702
Jones County Elementary School	Jefferson Ave	Murdo	SD	57559
Jones County High School	Jackson Ave	Murdo	SD	57559
Kadoka Area High School	Bayberry St	Kadoka	SD	57543
Kadoka Elementary School	Bayberry St	Kadoka	SD	57543
Kadoka High & Elementary School	Bayberry St	Kadoka	SD	57543
Kaplan Higher Education	Glendale Ln	Rapid City	SD	57702
Kenwood Elementary School	Norfolk Ave	Chadron	NE	69337
Kibben Kuster Elementary School	W Saint Cloud St	Rapid City	SD	57702
King-Milesville School	200th St	Milesville	SD	57553
Knollwood Elementary School	Downing St	Rapid City	SD	57701
Kyle Elementary School		Kyle	SD	57752
Kyle Headstart II	PO Box 490	Kyle	SD	57752
Kyle High School	Main St	Kyle	SD	57752
Lakota Montessori	Moccasin Park Rd	Pine Ridge	SD	57770
Lakota Tech High School	New Wolf Cr School Rd	Pine Ridge	SD	57770
Lakota Waldorf School	3 Mile Creek Rd	Kyle	SD	57752
Lakeview School	299th St	Crookston	NE	69212

School Name	Address	City	State	Zip
Lead Deadwood Elementary School	Main St	Deadwood	SD	57732
Lead Deadwood Middle School	S Main St	Lead	SD	57754
Lead-Deadwood High School	S Main St	Lead	SD	57754
Lead-Deadwood Schools Superintendent's Office	S Main St	Lead	SD	57754
Learning Solutions	S Canyon Rd	Rapid City	SD	57702
Liberty Baptist Academy	Space Ave	Rapid City	SD	57701
Lil Friends Learning Center	Concourse Ct	Rapid City	SD	57703
Little Wound School	Main St	Kyle	SD	57752
Littleburg Elementary School	301st St	Valentine	NE	69201
Little Garden Childcare	420 Cheyenne Ave	Hemingford	NE	69348
Little Nest Preschool	Jet Dr	Rapid City	SD	57703
Little Owl's Daycare & Preschool	Cambell St	Rapid City	SD	57701
Loneman School	S BIA Rd #41	Oglala	SD	57764
Long Valley Elementary School	SD Highway 73	Long Valley	SD	57547
Martin Grade School	5th St	Martin	SD	57551
Meadowbrook Elementary School	W Flormann St	Rapid City	SD	57702
National American University Holdings	Mount Rushmore Rd	Rapid City	SD	57701
National American University	Mount Rushmore Rd	Rapid City	SD	57701
New Underwood Elementary School	E Ash St	New Underwood	SD	57761
Newcastle Christian Academy	Delaware Ave	Newcastle	WY	82701
Newcastle Community Education	Birch St	Newcastle	WY	82701
Newcastle Elementary School	Casper Ave	Newcastle	WY	82701
Newcastle High School	Casper Ave	Newcastle	WY	82701
Newcastle Middle School	Casper Ave	Newcastle	WY	82701
Norris Elementary School	School Loop	Norris	SD	57560
North Middle School	N Maple Ave	Rapid City	SD	57701
North School	W 3rd St	Mission	SD	57555
Oelrichs Public School	Walnut St	Oelrichs	SD	57763
Oelrichs Superintendent's Office	W 7th St	Oelrichs	SD	57763
Oglala Lakota CLG Tech Support	Pine Ridge Reservation	Kyle	SD	57752
Oglala Lakota College	PO Box 220	Porcupine	SD	57772

School Name	Address	City	State	Zip
Oglala Lakota College	PO Box 1052	Pine Ridge	SD	57770
Oglala Lakota College	Highway 18 Service Rd	Oglala	SD	57764
Oglala Lakota College		Batesland	SD	57716
Oglala Lakota College	Lincoln St	Eagle Butte	SD	57625
Oglala Lakota College	PO Box 629	Martin	SD	57551
Oglala Lakota College	Knollwood Dr	Rapid City	SD	57701
Oglala Lakota College	S Campus Dr	Manderson	SD	57756
Oglala Lakota College	PO Box 350	Wanblee	SD	57577
Oglala Lakota College	105 Foote Rd	Allen	SD	57714
Oglala Lakota College	Piya Wiconi Rd	Kyle	SD	57752
Oglala Sioux Special Education	Thorpe Dr	Pine Ridge	SD	57770
Oglala Sioux Tribe Childcare		Allen	SD	57714
O'kreek School	School St	Okreek	SD	57563
Our Lady of Lourdes School	Lourdes Ln	Porcupine	SD	57772
Our Little Treasures Daycare & Preschool	Kansas City St	Rapid City	SD	57701
Oyate Concern Christian School	BIA Hwy 35	Oglala	SD	57764
Pahin Sinte Owayawa	Pahin Sinte St	Porcupine	SD	57772
Payyabya Adventist Mission School		Pine Ridge	SD	57770
Pennington County Interagency	E Watertown St	Rapid City	SD	57701
Philip School	Scottie Ave	Philip	SD	57567
Philip Superintendent's Office	Scottie Ave	Philip	SD	57567
Pledmont Valley Elementary	2nd St	Piedmont	SD	57769
Pine Ridge Junior High School	Thorpe Cir	Pine Ridge	SD	57770
Pine Ridge School	Thorpe Cir	Pine Ridge	SD	57770
Pine Ridge Girls School		Porcupine	SD	57770
Pinedale Preschools	W Chicago St	Rapid City	SD	57702
Pinedale Elementary School	W Chicago St	Rapid City	SD	57702
Porcupine Day School	School Dr	Porcupine	SD	57772
Porcupine Year-Round School	Main St	Porcupine	SD	57772
Prairie View Adventist School	Highway 20	Chadron	NE	69337
Pyramid Daycare/Preschool	Ash St	Black Hawk	SD	57718

School Name	Address	City	State	Zip
Rapid City Area School District 51-4	Soo San Dr	Rapid City	SD	57702
Rapid City Area School District 51-4	Flormann St	Rapid City	SD	57701
Rapid City Area School District 51-4	Anamosa St	Rapid City	SD	57701
Rapid City Area School District 51-4	Sycamore St	Rapid City	SD	57701
Rapid City Area School District 51-4	Downing St	Rapid City	SD	57701
Rapid City Area Schools	Cambell St	Rapid City	SD	57701
Rapid City Christian High School	Arena Dr	Rapid City	SD	57702
Rapid City Christian School	E Fairmont Blvd	Rapid City	SD	57701
Rapid City School Helpdesk	West St	Rapid City	SD	57701
Rapid City Public School Foundation	Van Buren St	Rapid City	SD	57701
Rapid Valley Elementary School	Covington St	Rapid City	SD	57703
RCAS Summer School	Raider Rd	Rapid City	SD	57702
Red Cloud Indian School	Mission Dr	Pine Ridge	SD	57770
Red Cloud Indian School	PO Box 275	Whiteclay	NE	69365
Red Cloud Indian School	Mission Dr	Pine Ridge	SD	57770
Red Scaffold Headstart School	Red Scaffold Rd	Howes	SD	57748
Red Shirt Table School	Tatanka Numpa Rd	Hermosa	SD	57744
Robbinsdale Elementary School	E Indiana St	Rapid City	SD	57701
Rockyford Elementary School	BIA 33	Porcupine	SD	57772
Rosebud Elementary School	Spotted Tail Ln	Rosebud	SD	57570
Rosebud North Headstart Center	Highway BIA 1	Rosebud	SD	57570
Rosebud Sioux Day Care Center	Fairgrounds Rd	Rosebud	SD	57570
Rosebud Sioux Tribe Head Start	725 Hospital Drive	Rosebud	SD	57570
Rural America Initiatives	Canyon Lake Dr	Rapid City	SD	57702
Rural America Initiatives	Haines Ave	Rapid City	SD	57701
Rural America Initiatives	Crazy Horse St	Rapid City	SD	57701
Rushmore Chinese School	Stoney Creek Dr	Rapid City	SD	57702
Rushville Elementary School	Sprague St	Rushville	NE	69360
Rushville Middle School	Sprague St	Rushville	NE	69360
Saint Patricks School	Siever St	Lead	SD	57754
School of Nursing Administration Office	Nursing Way Rd	Pine Ridge	SD	57770

School Name	Address	City	State	Zip
South Dakota School for the Blind and Visually Impaired	Canyon Lake Dr	Rapid City	SD	57702
South Dakota School for the Deaf	N Chicago St	Hot Springs	SD	57747
SDSU West River Nursing Department	11th St	Rapid City	SD	57701
Seventh-Day Adventist School	N 39th St	Rapid City	SD	57702
Shannon County Schools	E Highway 18	Pine Ridge	SD	57770
Sinte Gleska University Adult Basic Education	Eagle Dog St	White River	SD	57579
Sinte Gleska University	Antelope Lake Cir	Mission	SD	57555
Sioux County High School	Kate St	Harrison	NE	69346
Sioux County School District Pink School	Pink School House Rd	Crawford	NE	69339
South Canyon Elementary	Nordby Ln	Rapid City	SD	57702
South Dakota School for the Deaf	Siever St	Deadwood	SD	57732
South Dakota School of Mines	E Saint Joseph St	Rapid City	SD	57701
South Dakota State University	11th St	Rapid City	SD	57701
South Dakota State University	Plaza Blvd	Rapid City	SD	57702
South Elementary School	Dave	Mission	SD	57555
South Middle School	Indiana St	Rapid City	SD	57701
South Park Elementary School	Flormann St	Rapid City	SD	57701
Southern Hills Adult Education – Literacy	Montgomery St	Custer	SD	57730
Southwest Middle School	Park Dr	Rapid City	SD	57702
Spring Creek Elementary School	Yellow Cloud Dr	St Francis	SD	57572
St. Agnes Catholic Academy	1104 Cheyenne Ave	Alliance	NE	69301
St. Boniface School	PO Box 160	Kilgore	NE	69216
St. Elizabeth Seton at Terra	City Springs Rd	Rapid City	SD	57702
St. Elizabeth Seton Central	Fairmont Blvd	Rapid City	SD	57701
St. Frances III Headstart Center	PO Box 269	Mission	SD	57555
St. Francis Elementary School	Oak St	St Francis	SD	57572
St. Francis Indian School Face	PO Box 379	St Francis	SD	57572
St. Francis Middle & High School	E Warrior Dr	St Francis	SD	57572
St. Francis Middle/High School	S Oak St	St Francis	SD	57572
St. Francis Mission Administration Office	S Oak St	St Francis	SD	57572
St. Francis School Superintendent's Office	E Warrior Dr	St Francis	SD	57572

School Name	Address	City	State	Zip
St. John's Preschool	2090 Emerson Ave	Alliance	NE	69301
St. Paul's Lutheran School	E Fairmont Blvd	Rapid City	SD	57701
St. Thomas More High School	Fairmont Blvd	Rapid City	SD	57701
Stevens High School Baseball	Raider Rd	Rapid City	SD	57702
Stevens Language & Art Studio	7th St	Rapid City	SD	57701
Sturgis Brown High School	SD Highway 34	Sturgis	SD	57785
Sturgis Brown High School	E Highway 34	Sturgis	SD	57785
Sturgis Community Preschool	Ballpark Rd	Sturgis	SD	57785
Sturgis Elementary School	Ballpark Rd	Sturgis	SD	57785
Sturgis Williams Middle School	Cedar St	Sturgis	SD	57785
Todd County Achievement School	Omaha St	Mission	SD	57555
Todd County High School	E Denver Dr	Mission	SD	57555
Todd County Middle School	S Hwy 83	Mission	SD	57555
Todd County Elementary School	28351 US-83	Mission	SD	57555
Takini School	TakiniRd	Cherry Creek	SD	57622
Todd County Rosebud Preschool	BIA 1	Rosebud	SD	57570
Treaty Total Immersion		Pine Ridge	SD	57770
Union Center Elementary School	SD Highway 34	Union Center	SD	57787
University Center-Rapid City	Cheyenne Blvd	Rapid City	SD	57701
University of NE Foundation	1010 Lincoln Mall, Ste 300	Lincoln	NE	68508
University of SD School of Medicine	Flormann St	Rapid City	SD	57701
University of South Dakota	5th St	Rapid City	SD	57701
US Army ROTC	E Saint Joseph St	Rapid City	SD	57701
Valentine Elementary School	615 E 5th St	Valentine	NE	69201
Valentine High School	239 N Wood St	Valentine	NE	69201
Valentine Middle School	431 N Green St	Valentine	NE	69201
Valleyview Elementary School	Homestead St	Rapid City	SD	57703
Vandenberg Elementary School	Briggs St	Box Elder	SD	57719
Wakanyeja Tokeyahci Lakota Immersion School	120 S Main St	Mission	SD	57555
Wall High School	S Blvd W	Wall	SD	57790
West Middle School	1003 Sioux San Dr	Rapid City	SD	57702

School Name	Address	City	State	Zip
Western NE Community CLG Foundation	2620 College Park	Scottsbluff	NE	69361
Western NE Community College	1750 Sweetwater Ave	Alliance	NE	69301
Weston County School District Special	Casper Ave	Newcastle	WY	82701
Westside Pre-School & Daycare	Canyon Lake Dr	Rapid City	SD	57702
White Eagle Christian Academy	Industrial Dr	Mission	SD	57555
White River Alternative School	McKinley St	White River	SD	57579
White River Elementary School	S 2nd & Brock St	White River	SD	57579
White River Headstart	Swift Bear	White River	SD	57579
White River High School	E 3rd St	White River	SD	57579
White River Middle School	S 2nd & Brock St	White River	SD	57579
Whitewood Elementary School	Garfield St	Whitewood	SD	57793
Whitney Elementary School	E 10th St	Chadron	NE	69337
Willow Valley School	128 HC 84	Gordon	NE	69343
Wilson Elementary School	Franklin St	Rapid City	SD	57701
Wocina Wowicala	Anamosa St	Rapid clty	SD	57701
Wolakota/Waldorf Society	Mile Creek Rd	Kyle	SD	57752
Wolf Creek Middle School	Wolfcreek Rd	Pine Ridge	SD	57770
Wolf Creek School	E Highway 18	Pine Ridge	SD	57770
Wood Independent School	School St	Wood	SD	57585
Wounded Knee District School	Main St	Manderson	SD	57756
Youth & Family Services	E Adams St	Rapid City	SD	57701
Youth & Family Services Head Start	E Monroe St	Rapid City	SD	57701
Youth & Family Services Head Start	Patriot Dr	Box Elder	SD	57719
Youth & Family Services	Plaza Blvd	Rapid City	SD	57702
Zion Lutheran School & Preschool	Mount Rushmore Rd	Rapid City	SD	57701

Food Business Name	Address	City	State	Zip
Angelina's Burritos		Kyle	SD	57752
Bette's Kitchen	Manderson Housing Rd	Manderson	SD	57756
Big Bats	US-20	Chadron	NE	69337
Big Bats	340767 SD-407	Pine Ridge	SD	57770
Black Hills Works	Doolittle Dr	Ellsworth AFB	SD	57706
Breadroot Natural Foods Co-Op	Main St	Rapid City	SD	57701
Buche Foods	1st St	Pine Ridge	SD	57770
Buche Foods	2nd St	Mission	SD	57555
Common Cents Food Stores	Sharp Cor	Porcupine	SD	57772
Common Cents Food Stores	W Mount Rushmore Rd	Custer	SD	57730
Common Cents Food Stores	Sheridan Lake Rd	Rapid City	SD	57702
Common Cents Food Stores	Mount Rushmore Rd	Rapid City	SD	57701
Common Cents Food Stores	W Main St	Rapid City	SD	57702
Common Cents Food Stores	W Omaha St	Rapid City	SD	57701
Common Cents Food Stores	N Lacrosse St	Rapid City	SD	57701
Common Cents Food Stores	Main St	Chadron	NE	69337
Common Cents Food Stores	Recreation Rd	Hot Springs	SD	57747
Common Cents Food Stores	W Main St	Lead	SD	57754
Common Cents Food Stores	Junction Ave	Sturgis	SD	57785
Common Cents Food Stores	South Blvd	Wall	SD	57790
Common Cents Food Stores	PO Box 2860	Kyle	SD	57752
Community Action Partnership	Colburn Park, N Ray St	Valentine	NE	69201
Community Action Partnership	E 3rd St	Alliance	NE	69301
Community Action Partnership	S Main St	Rushville	NE	69360
Complete Nutrition	Omaha St	Rapid City	SD	57701
Corner Pantry	E North St	Rapid City	SD	57701
Country Cupboard Food Pantry	Glenn St	Wall	SD	57790
Country Cupboard Wall Food Pantry	Wilsey Rd	Creighton	SD	57790
Conscious Alliance Food Sovereignty & Youth Empowerment Center		Oglala	SD	57764
Corner Stone Rescue Mission	Main St	Rapid city	SD	57701
Creative Dining Services	Main St	Chadron	NE	69337

Food Business Name	Address	City	State	Zip
Custer Country Market	Granite Heights Dr	Custer	SD	57730
Dairy Sweet	US-20	Crawford	NE	69339
D&E Food & Fuel	S 1st St	Wood	SD	57585
Decker's Food Center	W Main St	Newcastle	WY	82701
Earth Goods Natural Foods	Jennings Ave	Hot Springs	SD	57747
Feeding South Dakota	N Creek Dr	Rapid City	SD	57703
Family Fare Supermarket	Mountain View Rd	Rapid City	SD	57702
Food Stop	Main St	Kyle	SD	57752
GNC	Stumer Rd	Rapid City	SD	57701
GNC	N Maple Ave	Rapid City	SD	57701
GNC	Lemay Blvd	Ellsworth AFB	SD	57706
Gordon Super Foods	W US Highway 20	Gordon	NE	69343
Harmony Food & Produce	E Dakota Junction Rd	Chadron	NE	69337
Healthy Paws	Stumer Rd	Rapid City	SD	57701
Heart of the West Conoco Food	Main St	Hill City	SD	57745
Higher Grounds Coffee Shop	230 US-18	Pine Ridge	SD	57770
Horace Mann – Food Distribution Center	Anamosa St	Rapid City	SD	57701
Hot Stuff Food on the Go	SD Highway 73	Kadoka	SD	57543
Kyle Grocery	2061 BIA 2	Kyle	SD	57752
Lakota Prairie Ranch	7958 Lakota Prairie Dr	Kyle	SD	57752
Lil Angel's	Highway 2	Kyle	SD	57752
Lord's Cupboard	S Main St	Lead	SD	57754
Lynn's Dakotamart	201 West Bennett Ave	Martin	SD	57551
Main Street Market	Omaha St	Rapid City	SD	57701
Manderson Elderly Meals Program	PO Box 168	Manderson	SD	57756
Midland Food & Fuel	US Highway 14	Midland	SD	57552
Murdo Family Foods	Main St	Murdo	SD	57559
Native American Natural Foods	Watertower Rd	Kyle	SD	57752
Natural Food Co-Op	Main St	Chadron	NE	69337
Nutrition Center	Niobrara Ave	Hemingford	NE	69348
Oglala Mercantile Store		Oglala	SD	57764

Food Business Name	Address	City	State	Zip
Oyateteca		Kyle	SD	57752
PJ's Food Shop	N 6th Ave	Edgemont	SD	57735
Pet Giant	N Cambell St	Rapid City	SD	57701
Pet Pantry	W Omaha St	Rapid City	SD	57701
Petco	Eglin St	Rapid City	SD	57701
Petsmart	Disk Dr	Rapid City	SD	57701
Pinky's	101 Main St	Manderson	SD	57756
Piedmont Valley Food Pantry	Sturgis Rd	Piedmont	SD	57769
Pop's Grocery Shoppe	Ferguson St	Hermosa	SD	57744
Porcupine Store	BIA Hwy 23	Porcupine	SD	57772
Shaklee Distributor	W Main St	Rapid City	SD	57702
Shampooch & Kitty Too	Canyon Lake Dr	Rapid City	SD	57702
Something Healthy	W Main St	Newcastle	WY	82701
Sonny Superfoods	Jenson Hwy	Hot Springs	SD	57747
Staple & Spice Market	Mount Rushmore Rd	Rapid City	SD	57701
Storehouse	Centennial Dr	Custer	SD	57730
Sioux Nation Shipping Center	Sioux Nation Ave SE	Pine Ridge	SD	57770
Prairie Winds Casino	26 Casino Drive	Oglala	SD	57764
Super Food	W US Highway 20	Gordon	NE	69343
Supervalu	E Pine St	Philip	SD	57567
Timmons Market	Timmons Blvd	Rapid City	SD	57703
TSC SD01 (Tropical Smoothie Café?)	Eglin St	Rapid City	SD	57701
Trivita	Ivy Ave	Rapid City	SD	57701
The Little Free Pantry	Brentwood St	Rapid City	SD	57701
US Foods	Kennel Dr	Rapid City	SD	57703
Vitamin World	N Maple Ave	Rapid City	SD	57701
Wall Food Center	W South Blvd	Wall	SD	57790
Wooden Knife Co.	SD Highway 44	Interior	SD	57750
Woody's Food Center	W Main St	Newcastle	WY	82701
Wanblee Mart		Wanblee	SD	57577
Yellow Bird's	US-18	Pine Ridge	SD	57770

Detention Center Name	Address	City	State	Zip
Pine Ridge Detention Center		Pine Ridge	SD	57773
OST Jail		Kyle	SD	57755
Medicine Root Detention Center		Kyle	SD	57752
Adult Offenders Facility	977 Horse Thief Rd	Pine Ridge	SD	57770
Pennington County Jail	St Joseph St	Rapid City	SD	57701
Mellette County Jail	S 2nd and Mickliney	White River	SD	57579
Kiyuksa Otipi – Juvenile Detention Center		Kyle	SD	57755
Oglala Sioux Prison & Civil		Pine Ridge	SD	57773

Nursing Home Name	Address	City	State	Zip
Arrowhead Lodge Senior Living	E Minnesota St	Rapid City	SD	57701
Avantara North	N 7th St	Rapid City	SD	57701
Avantara Saint Cloud	Saint Cloud St	Rapid City	SD	57701
Bella Vista Care and Rehab Center	St Cloud St	Rapid City	SD	57701
Bennett County Nursing Home	Major Allen St	Martin	SD	57551
Clarkson Mt. View Health Care Facility	Mountain View Rd	Rapid City	SD	57702
Crest View Care Center	420 Gordon Ave	Chadron	NE	69337
Custer Regional Senior Care	Montgomery St	Custer	SD	57730
Edgewood Rapid City	Derby Ln	Rapid City	SD	57701
Fairmont Grant Senior Living	E Fairlane Dr	Rapid City	SD	57701
Fountain Springs Health Care	Wesleyan Blvd	Rapid City	SD	57702
Good Samaritan Society – New Underwood	S Madison Ave	New Underwood	SD	57761
Good Samaritan Society – St. Martin Village	St Martins	Rapid City	SD	57702
Good Samaritan Society – Alliance	E 6th St	Alliance	NE	69301
Good Samaritan Society – Echo Ridge	Fox Run Dr	Rapid City	SD	57701
Gordon Countryside Care	E 10th St	Gordon	NE	69343
Hemingford Community Care Center	Donald Ave	Hemingford	NE	69348

Appendix J

Farmers' Market Guidance

Farmers' Market Guidance for Market Managers and Vendors

Farmers' markets provide an important opportunity for producers to provide fresh and wholesome food products directly to consumers located in communities throughout South Dakota. In an effort to encourage and support these markets, South Dakota has passed several "cottage" laws that allow producers to sell food products to the public without the need for a food service license. This handout is intended to help market managers, vendors, and other home food processors understand the laws and requirements pertaining to food items sold from a home, farmers' market, or similar temporary sales venue. It's important to note that all vendors are required to produce safe, wholesome food products in a sanitary manner whether licensed or not.

Please be aware that the law only provides license exemption for specific types of food items. The law does not provide an exemption for all food products and all regulations. In addition, the law only allows for these food products to be sold directly to the consumer from a home, farmers' market, or similar venue.

Food Products: Updated 2022

Please refer to the following list of common food products to help determine applicable licensure and regulation:

Food Product or Home Processed Food	Common Examples	State License Required	Labeling Required
Fresh, whole, uncut, fruits and vegetables	Apples, melons, cucumbers, carrots, beans, corn ears, tomatoes, potatoes, etc.	No	No
Intact salad greens and herbs (dried or fresh)	Mixed greens with leaves, microgreens, and shoots	No	No
Baked goods (includes temperature controlled baked goods that are maintained at 41° F or less)	Cookies, rolls, cakes, pies, kuchen, custard or cream-filled baked goods, cheesecake, confectioneries, muffins, breads, lefsa, hard candies, sauces, pesto, etc.	No	Yes (if packaged)
Home canned foods with pH < 4.6 (high acid foods) or Aw < .85	Jams, jellies, fruit sauces, applesauce, syrups, pickled or acidified products (e.g., salsas, dill pickles), BBQ sauce, etc.	No	Yes
Frozen fruit/produce (maintained <0° F or less)	Freeze dried-sliced fruit/produce, frozen bagged fruit/produce	No	Yes (if packaged)
Nuts, grains, seeds, dry mixes (e.g., spice/season mix, baking mix, powder drink mix)	Almonds, walnuts, cake mix, cocoa mix, home ground flour, coffee beans, sunflower seeds, granola mix, intact grains, etc.	No	Yes (if packaged)
Naturally fermented foods	Kombucha, kimchi, sauerkraut, etc.	No	Yes (if packaged)
Home canned foods with pH > 4.6 (low acid foods) or Aw > .85	Peas, beans, tomatoes, corn, beets, squash, soups, meats, nut butters, etc.	Yes	Yes
Fresh cut fruit/produce (not frozen) and sprouts	Sliced melon, shredded lettuce, diced tomatoes, tossed salad, etc.	Yes	Yes
Juices and ciders	Orange, apple, grape, berry	Yes	Yes
Take-and-bake products	Doughs, unbaked pizzas, or unbaked fruit pies, etc.	Yes	Yes
Other prepared foods/drinks	Sandwiches, casseroles, hot dishes, stews, smoothies, potato or other salads, garlic/flavored oils, meat sauces, etc.	Yes	Yes

Please contact South Dakota Department of Health (SDDOH) at 605-773-4945 for questions or inquiries concerning products which may not be listed above.

Frequently Asked Questions

What are the label requirements for home processed foods?

Each container or package sold must have a label that contains the following:

1) name of product, 2) name of the producer, 3) physical address of production, 4) mailing address of the producer, 5) telephone number of the producer, 6) date product made or processed, 7) ingredients, 8) a directive to keep food refrigerated or frozen (if required), 9) a disclaimer that states "This product was not produced in a commercial kitchen. It has been home processed in a kitchen that may also process common food allergens such as tree nuts, peanuts, eggs, soy, wheat, milk, fish, and crustacean shellfish."

What products are not covered by the "farmers' market" and "cottage food" laws?

Products under the jurisdiction of other state or federal agencies include (but are not limited to) meat, poultry, jerky, fish, dairy products, honey, eggs, and non-food items such as homemade soap or lotions.

What is required to sell canned goods, fermented, frozen, and temperature-controlled baked foods?

A producer selling these foods shall, every five years, complete an approved food safety course. The producer shall retain records verifying the timely completion of such training. A producer selling home processed goods may, in lieu of the requirement for food safety training, maintain verification of each recipe from a third-party processing authority. The processing authority shall provide verification in writing to the producer. Processing authorities and approved food safety course information is provided below. Note: No canned goods may be sold unless the pH level is 4.6 or less or the water activity level is .85 or less.

Can home processed foods be sold from home?

The law allows the sale of home processed foods from a primary residence, farmers' market, or other temporary sale venue. Goods are to be sold in the seller's physical presence (direct). The seller, or a person residing at the seller's primary residence, may personally deliver home processed foods to the buyer at the completion of the sale. There are no monetary limits on the number of sales. The home processed foods must be properly labeled and cannot be sold wholesale (indirect). Examples of indirect sale may include sales from a retail store or via the internet. Indirect sales would require a state license.

What happens if I do not follow these regulations?

Unapproved food products, untrained producers in food safety (or products without a letter of verification) may increase the chance of illness or food safety risk to the consumer. Liability issues for the vendor and/or market organization are also a concern. Ultimately, failure to comply with state law may result in a notice of closure for the vendor, prohibiting the further sale of their food item(s).

Can I provide small food samples at farmers' markets for promotional or educational purposes?

Yes, no license is needed. We ask that you follow food sampling requirements found at the SDDOH website.

Processing Authorities Course Information

South Dakota Codified Laws
http://sdlegislature.gov/statutes/

South Dakota Department of Health
https://doh.sd.gov/topics/food-lodging-safety/

SDSU Cooperative Extension Service
http://extension.sdstate.edu/

Curtis Braun
SDSU Extension Food Safety Specialist
2001 E. 8th St., Sioux Falls, SD 57103
605-782-3290 ext. 265
Curtis.Braun@sdstate.edu

Jayne Stratton, PhD
Research Professor
University of Nebraska – Lincoln
248 Food Innovation Center, Lincoln, NE 68588
402-472-2829
jstratton@unl.edu

SDSU Extension
iGrow.org (Contact: Curtis Braun)

Weights and Measures Guidance

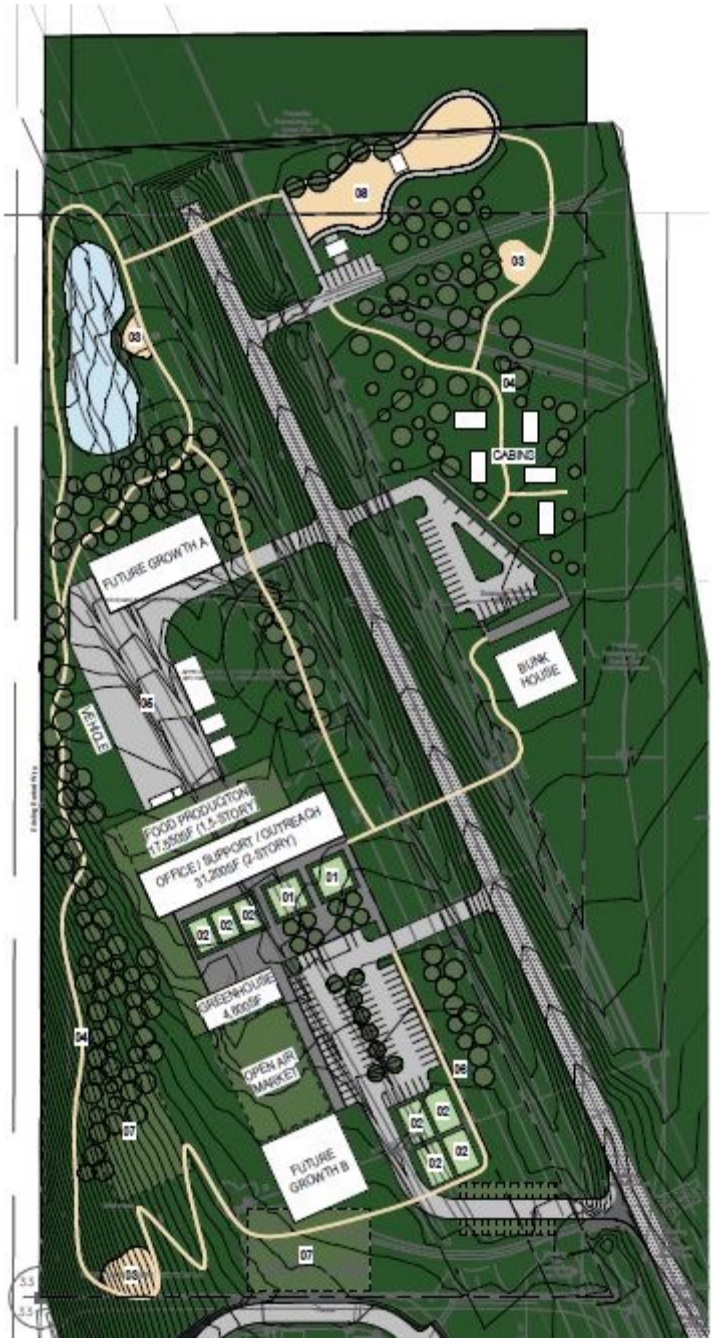
SOUTH DAKOTA DEPARTMENT OF PUBLIC SAFETY

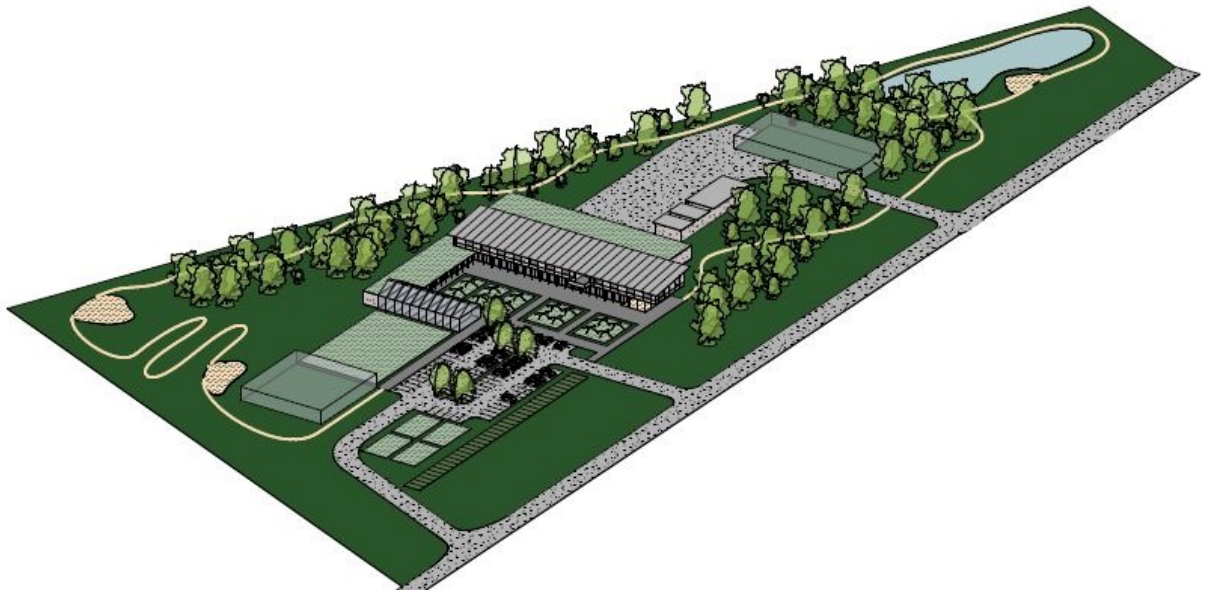
- Any products sold by weight, must be sold from a legal for trade certified NTEP approved scale.
- Once purchased, a scale must be certified every other year by the Office of Weights and Measures.
- There is a $28.00 fee that accompanies certification.
- You can call 605-773-3697 to schedule a time to get your scale certified.
- Registered service agents sell and repair NTEP approved scales.

Appendix K

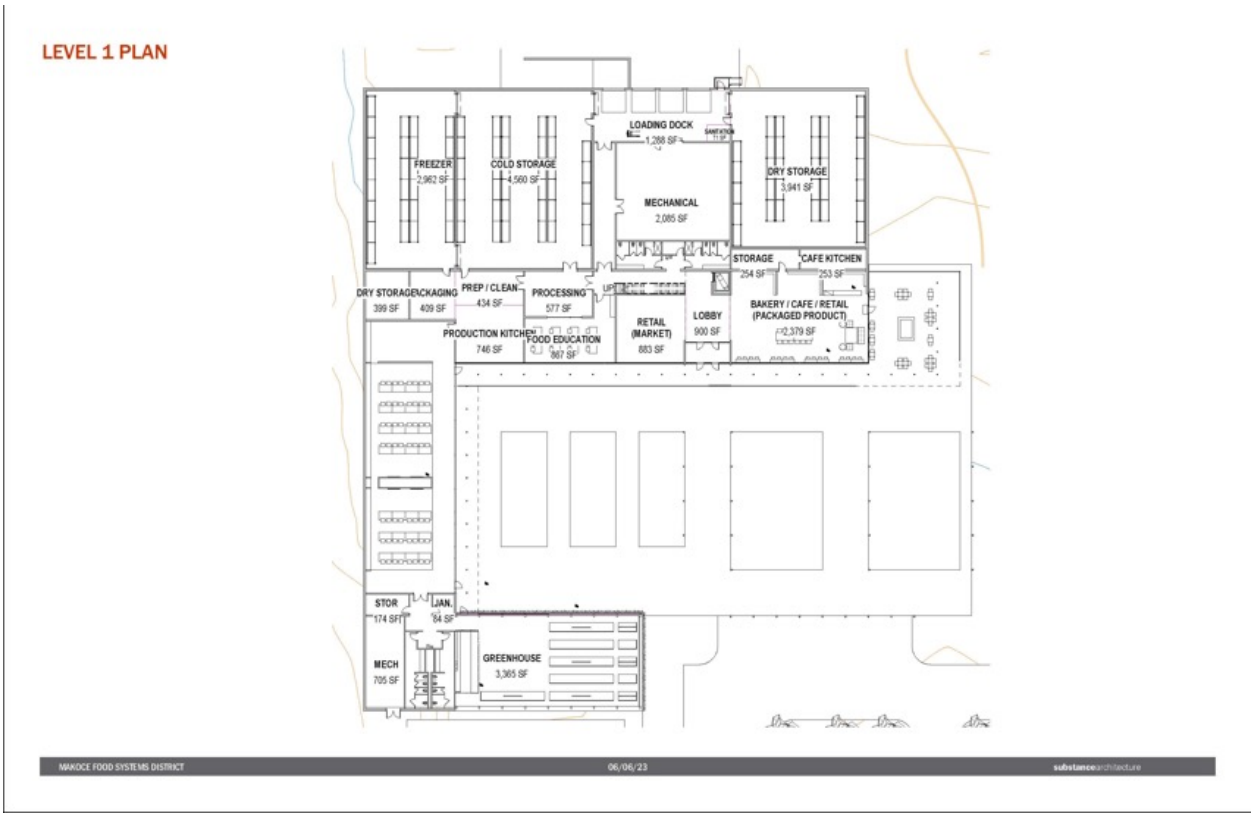
Makoce Community Food Hub: Selected Scenario and Floor Plans

Selected Scenario

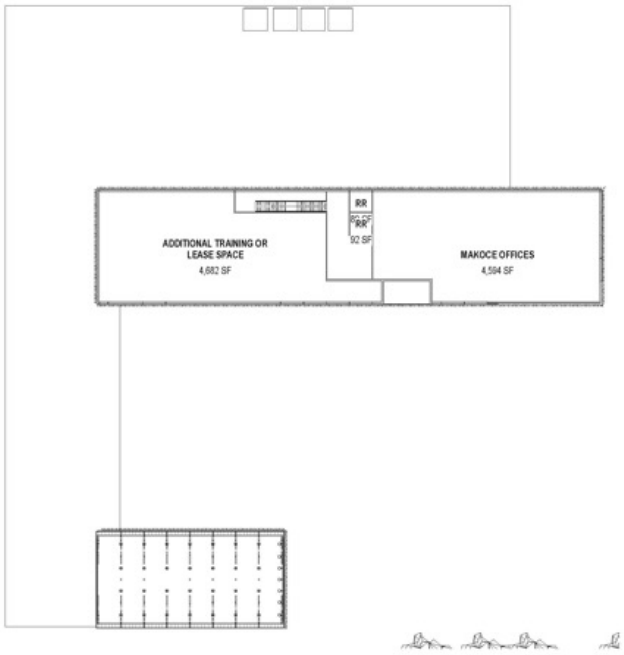




Floor Plans


LEVEL 1 PLAN
LOADING DOCK
1,288 SF
FREEZER
2,962 SF
COLD STORAGE
4,560 SF
MECHANICAL
2,085 SF
DRY STORAGE
3,941 SF
STORAGE
254 SF
CAFE KITCHEN
253 SF
DRY STORAGE
399 SF
PACKAGING
409 SF
PREP / CLEAN
434 SF
PROCESSING
577 SF
PRODUCTION KITCHEN
746 SF
FOOD EDUCATION
867 SF
RETAIL
(MARKET)
883 SF
LOBBY
900 SF
BAKERY / CAFE / RETAIL
(PACKAGED PRODUCT)
2,379 SF
STOR
174 SF
JAN.
64 SF
MECH
705 SF
GREENHOUSE
3,365 SF
MAKOCE FOOD SYSTEMS DISTRICT
06/06/23
substancearchitecture

LEVEL 2 PLAN



MAKOCE FOOD SYSTEMS DISTRICT 06/06/23 substancearchitecture

Endnotes

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Makoce
Agriculture Development

2023

Food Systems Study

Exploring the Local Food Economy of the Oglála Lakȟóta Oyáte