

OKANOGAN REGION LOCAL COMMUNITY FOOD SYSTEM ASSESSMENT

Prepared by Blue Sky Minds Nonprofit with support
from WSU and the Okanogan Region Food Council.



Photo: Federico Respini/Unsplash

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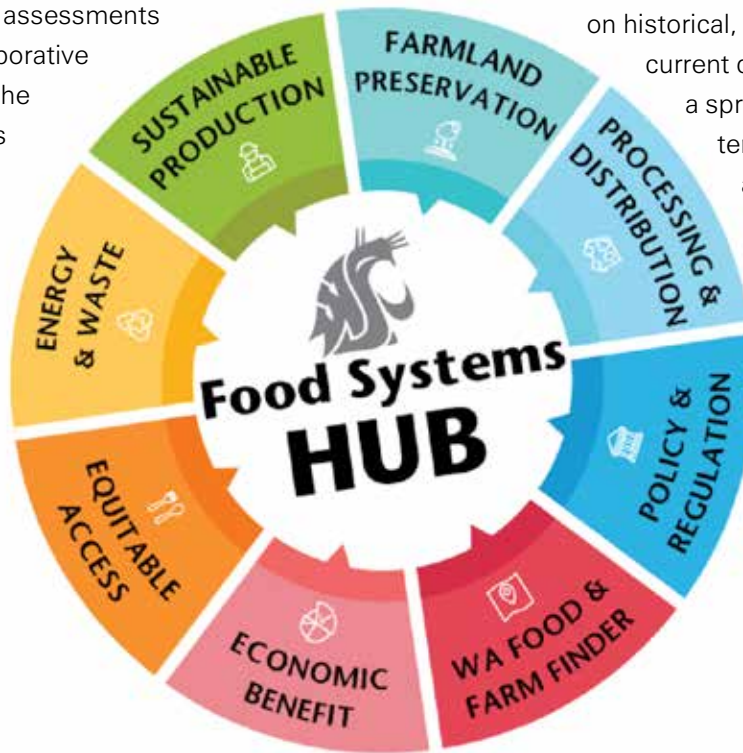
INTRODUCTION

WHAT IS A COMMUNITY FOOD SYSTEM ASSESSMENT?

According to the United States Department of Agriculture (USDA), a community food system is one in which food production, processing, distribution, and consumption are geographically integrated and benefit a particular community's environment, economy, and social and nutritional health. A food system assessment helps communities better understand intersecting and complex elements that impact food economics, the land, access, justice, and equity. They are unique to the specific region and influenced by the collaborations reflected in the document. Food system assessments are a reflective and collaborative process that articulates the strengths and challenges faced by a specific community. Often used for action planning, these documents serve as a springboard for further collaboration to address community-determined needs.

Purpose of this Report

Community stakeholders collaboratively developed the Okanogan Region Food System Assessment. The geographical region of this report includes the Colville Reservation and Okanogan County. It is a living document that Okanogan Region collaborators can use to take actionable steps to build a more equitable, sustainable, and economically viable food system. This report synthesizes existing data from the Okanogan Region food system. It offers a baseline for long-range planning and forecasting based on historical, and when available, current data and information. As a springboard rather than a terminus, this food system assessment intends to foster and extend collaboration amongst the many constituents committed to the resilience and sustainability of the Okanogan Region's food system.



Above is a diagram from WSU that displays areas of a food system.

How to Use this Report

All elements of a food system are interconnected. The table of contents is an effort to organize food system sectors for clarity. However, such categorization can be fraught. We hope users of this report recognize the interconnectedness of all these elements as a strength. Additionally, subject matter experts in specific areas can offer additional insights into the identified focus areas, such as policy or small food producer livelihood. They may have additional data or information that will complement the publicly accessible information within this document.

When using content from this report for any planning or decision-making, we ask that readers situate the data within the larger context of the report and seek out any current data, as updates are inevitable within the coming years.

Research Scope and Methodology

Data in the first iteration of this food system assessment was drafted in December 2023 and came from three major sources: publicly available data, such as census data, data from the Food Security Project, and textual sources accessed by WSU students. Many additions were made on the food system assessment in March 2024 using similar sources. These additions were made by food system professionals and community members with place-based lived experience and areas of local expertise such as food pantries, farmers, ranchers, food retail business owners, food related nonprofits, academia, and local agencies.

The Food Security Project collected data using the online survey tool SurveyMonkey. The team at the L.I.G.H.T Foundation understood that in selecting a data collection methodology, it was crucial to consider factors such as the target population's accessibility,

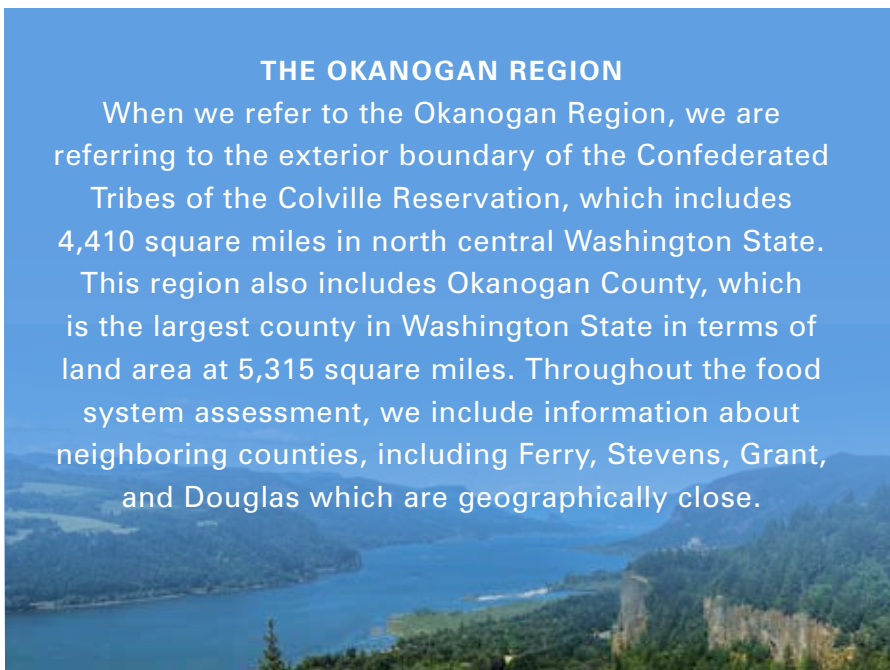
technological access, and cultural sensitivities. More about this primary data can be found in Appendix A.

Additionally, primary and secondary research—primarily text-based—was conducted via WSU's library system by upper-division students in a technical writing course. Therefore, some resources in the References section may be behind paywall, as they were accessible to students via the library's database. However, students worked to find publicly accessible materials and focused much of their research on census data, data and information from the USDA, and sought out community journalism from the Okanogan Region to complete sections of the assessment. It is also noteworthy that census data is limited in many ways and does not fully represent the lived experiences of individuals in the Okanogan Region. Therefore, surveys like those completed by the L.I.G.H.T. Foundation are critical for assessing the food system and its impact on the community.

All research is limited by time, capacity, and existing identified and unidentified biases. With this in mind, we hope this community food system assessment is not considered a static document, but rather a living one subject to critique, revision, and updating by community members and stakeholders in the Okanogan Region.

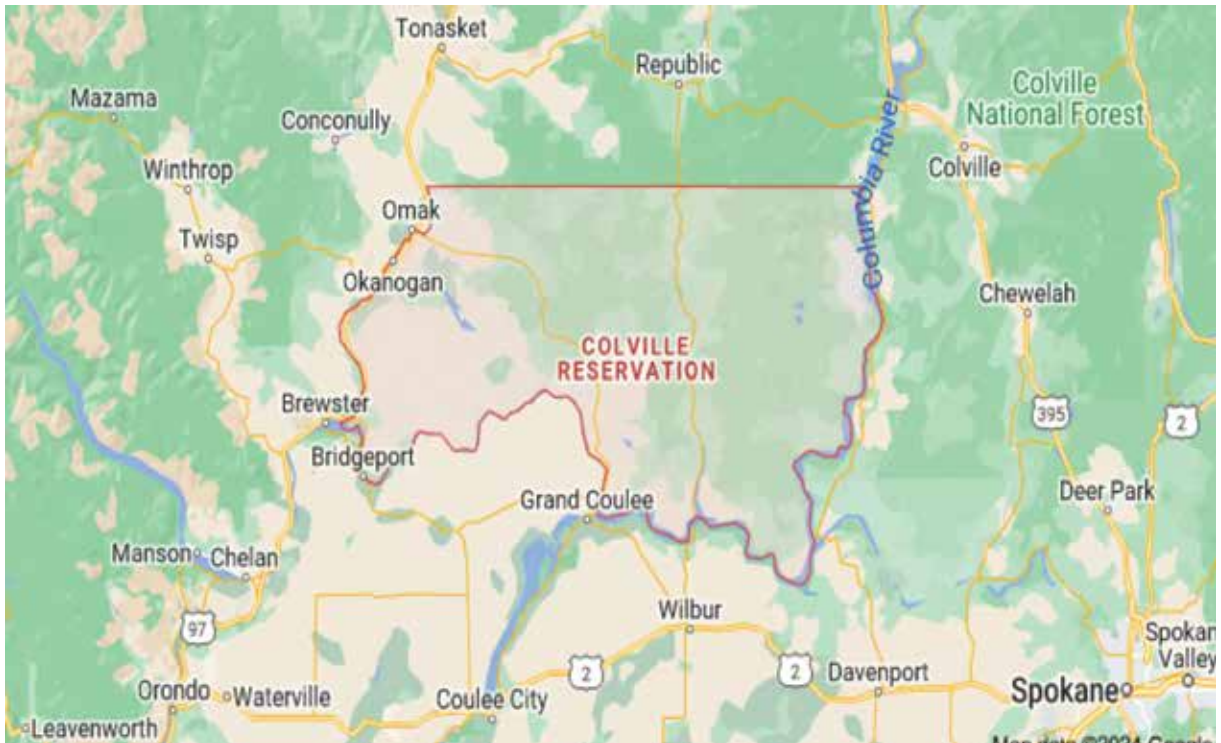
THE OKANOGAN REGION

When we refer to the Okanogan Region, we are referring to the exterior boundary of the Confederated Tribes of the Colville Reservation, which includes 4,410 square miles in north central Washington State. This region also includes Okanogan County, which is the largest county in Washington State in terms of land area at 5,315 square miles. Throughout the food system assessment, we include information about neighboring counties, including Ferry, Stevens, Grant, and Douglas which are geographically close.



MAPS OF THE OKANOGAN REGION

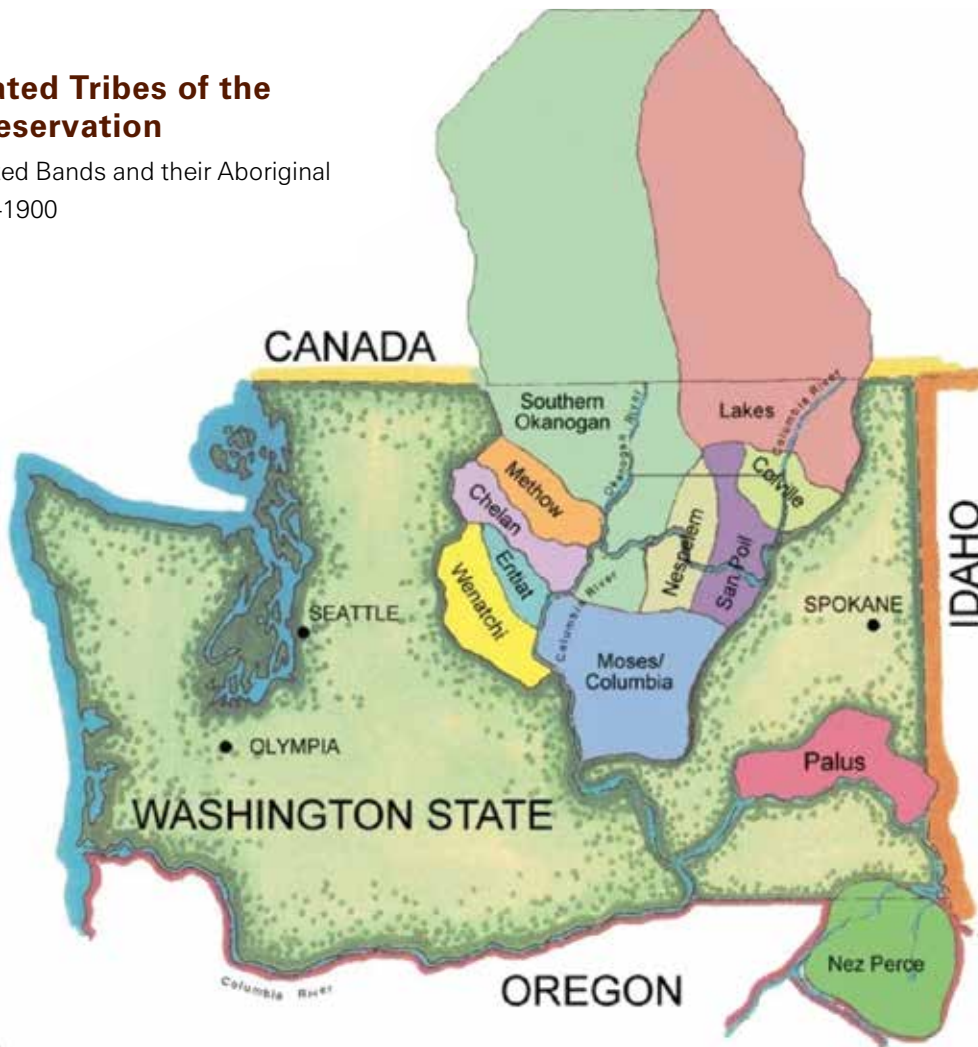
Colville Reservation Map





Confederated Tribes of the Colville Reservation

12 Confederated Bands and their Aboriginal Territories Pre-1900



GEOGRAPHY

Okanogan County borders Canada to the north. The Columbia River Basin and Lake Roosevelt form its southern and eastern borders, and the North Cascade Mountains form its western border. It is one of the largest counties, but has the fifth-fewest residents per square mile, making it a very rural area. It is an agricultural county with many outdoor recreation activities that draw tourists.

CTCR includes southeastern Okanogan County and the southern half of Ferry County. Its total size is 1.4 million acres. (Employment Security Department, Washington State, 2022).

CTCR's website states that the reservation in north central Washington lies in a physiographic province

called the Okanogan Highlands. The reservation is in the southeastern section of Okanogan County and the southern half of Ferry County, but there are pieces of trust land in Chelan County. A period of compression and uplifting formed the present mountains; however, glacial erosion shaped much of the land to its present form.



Elevation of the reservation lands generally increases from south to north and west to east. Elevations range from 790 feet at the mouth of the Okanogan River to 6,774 feet at the Summit of Moses Mountain. The average elevation of the reservation is above 3,000 feet.

Summers on the plains are sunny, warm, and dry, with some hot days. During four or five months, in the lower elevations, extreme highs may be 100°F, while in the higher elevations, one or two months may reach above 90°F. In winter, minimum temperatures of -10° to -20°F are common, although a few stations report -25° to -30°F. Normally, precipitation is light in the summer and heaviest in the winter. Valleys and lowlands receive an average of 10 to 14 inches of precipitation; in the mountains, precipitation increases with elevation, where 25 to 30 inches per year can be expected on the higher ridges, with the majority occurring as snow. Growing seasons vary from over 180 days in the Southwest to less than 80 days in the forested highlands.

The most abundant soil parent materials found on the reservation are produced by glaciation, water-laid glacial outwash, or alluvium. Lacustrine sediments are the only materials of major agricultural importance. Most of the suitable soils for cultivation occur on the level to undulating alluvial and outwash terraces and in isolated upland areas.

The major vegetative cover is divided into two groups: forest and steppe. Forest areas range from open forested grasslands to dense coniferous forests. Dominant species in forested areas are Ponderosa Pine, Douglas Fir, Lodge Pole Pine, and Western Larch. A number of subshrubs and roots remain important to tribal gatherings today.

Demographics

Population

CTCR has 9,290 enrolled tribal members, according to the Colville Tribes website.

Okanogan County's total population is 43,712, according to the US Census.
(US Census, 2023).

Income

Colville Reservation's median household income is \$52,199. 24.3% of the population is below the poverty line (Census Reporter, 2022).

Okanogan County's median household income is \$58,218. 16.9% of the population is in poverty
(US Census, 2023)

Race/Ethnicity

According to the US Census, in 2023, Okanogan County's total population was 43,712. 89% is White, 1% Black, 12.3% Native American, 1.2% Asian, 0.3% Pacific Islander, 22.5% Hispanic or Latino. Colville Reservation's race and ethnicity is 51% Native, 28% White, 2% Black, 1% Asian, 13% Hispanic (Census Reporter, 2022).

SUSTAINABLE FOOD PRODUCTION & AGRICULTURAL LAND PRESERVATION

This section explores the challenges and opportunities for sustainable food production and agricultural land preservation in the Okanogan region. Okanogan County contains thousands of acres of diverse agricultural land. Increasing sustainable production and farmland preservation will increase food access, economic vitality, and create a more resilient local food system.

Agricultural Production

As of 2017, there were 1,231,899 total acres of farmland in Okanogan County. (USDA, 2007/2012, 2017). There are 1,011 total farms in Okanogan County. The median average farm acres is 930. The median size of farm acres is 58. Farm size by acres is as follows: 187 farms are 1 to 9 acres. 292 farms are 10 to 49 acres, 266 farms are 50-179 acres, 95 farms are 180-499 acres, 70 farms are 500-999 acres and 101 farms are 1,000 acres or more. (USDA, 2022). We have an impressive 940,124 acres of total farmland in Okanogan County, however there has been a total loss of 291,775 acres of farmland from 2017-2022.



Photo: Stijn te Strake/Unsplash

There are 342 cattle and calf operations in Okanogan County. There are 314 beef cow farms, 12 milk cow farms, 11 hogs and pigs farms, 38 sheeps and lamb farms, 7 broilers and other meat-type chicken farms.

As of 2017, the Colville Reservation has 168 farms consisting of 1,537,921 total acres. Forty farms are operated by Indigenous people (McLean, 2022).

The farms on the Colville Reservation do not sell food directly to retail markets, consumers, or institutions, but there is the potential to increase food access and revenue by utilizing farmland to sell produce to consumers and schools (McLean, 2022).

Decline of Agricultural Producer Population

From 2012 to 2017, the total number of agricultural producers in Okanogan County declined from 2,320 to 2,159. Along with this decline, there has also been an increase in producers under the age of 65 from 984 to 1,302, which now make up about 60.3% of the farming population.

Although the proportion of producers under 65 years old has increased, the average age of producers increased from 2007 from 57.1 to 58.1, to 59 years of age for 2007, 2012, and 2017 respectively (USDA, 2012) (USDA, 2017). The figure above illustrates the age ranges of agricultural producers. 39% of agricultural producers are 65 years old or older. Often, when these producers retire family members do not want to take over the farm. If the farm isn't kept in agricultural production the county will most likely lose that farmland forever.

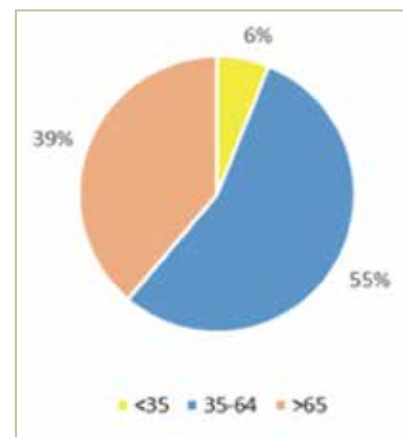


Figure 5. Data from USDA
Age ranges of agricultural
producers in Okanogan County.

Why Some Agricultural Producers Plan to Stop or Slow Down Production

Rising Costs

Many economic hardships drive agricultural producers to stop farming and ranching each year. Major concerns for agricultural producers include rising costs in distribution, processing, fuel, housing, healthcare, and land. These rising costs make profit lines thin and producing a living wage becomes very challenging.

As profit margins decrease, or when production costs increase and profits fall, many family businesses are stretched to their limits. The struggle to make ends meet in traditional ways greatly increases stress within the family, decreases the ability to pay for healthcare, and decreases overall quality of life. Some also cite feelings that the community seems to no longer value farmers, ranchers and orchardists as important food producers, which is illustrative of changing priorities in the community (Billn & Craig, 2010).

Housing Crisis in the Region

The housing crisis is a burden to the local food system as it becomes more difficult to buy or lease land and homes for agricultural workers.

The Okanogan region is experiencing a severe housing crisis that affects people of all incomes, but especially low-income individuals and families. There is also a lack of capacity within service agencies to meet these needs (Okanogan County Five Year Housing Plan, 2023). Farmers rely on labor to manage land, and without adequate housing, childcare, and living wages, farm employees may not remain in the region.

While the Methow Valley has a higher assessed value overall than the rest of the county, “there are million-dollar properties all over Okanogan County now, more on Lake Osoyoos than in the upper Methow,” Larry Gilman, Okanogan County Assessor, said. In the past two years, values increased by 60% in Brewster and Okanogan and by 70% in Pateros, Okanogan County. Stamper, M. (2022) – Methow Valley News

Colville Tribes continue to remedy the housing crisis on tribal land with its newest residential development now open to tenants. On January 4, tribal leaders in Nespelem cut the ribbon on the third phase of the White Buffalo Meadows housing park with tenants moving in on January 8th. The newest portion of the residential development is part of a multi-phase project that began in 2003 with the first phase of homes opening to tribal members in 2006

(ONE News staff, 2024).

Small Scale Farms & Ranches vs. Large Scale Farms & Ranches

It can be difficult for small and mid-size farms and ranches to compete with large-scale farms and ranches. The Census of Agriculture, which is released by the USDA every five years, found that the US total number of farms fell from 2 million in 2017 to 1.9 million in 2022. Many of the farms that failed between 2017 and 2022 were farms with farm sales between \$100,000 and \$500,000, or farms with farm sales less than \$10,000. The number of farms with farm sales greater than \$1 million increased from 79,386 in 2017 to 107,742 in 2022. The number of farms with farm sales greater than \$5 million nearly doubled from 8,972 in 2017 to 16,226. Increasing farm subsidies, as some members of Congress are proposing, would widen the divide between small and large farmers. Smaller farms tend to be less profitable and can be less efficient due to hand harvesting vs. mechanized harvesting than larger farms. This can contribute an inequity for small farms to compete.

CROPS IN OKANOGAN COUNTY

Okanogan County has rich agricultural land which is an incredible resource to grow a diverse amount of crops.

In a very promising report, “Can The Methow Feed Itself? An Inquiry Into Local Sustainable Agriculture,” it was concluded that the Methow Valley has the land necessary to feed themselves. The nutritionally dense crops included in the report are grains, beans, honey, oil, nuts, seeds, fruits, vegetables, dairy and meat. (Visalli, Mines & Smith, 2009). Embracing this model could support the resiliency of the local food system in Okanogan and support the health of community members.

The Okanogan Region is home to growers of many types of crops. Fruit trees are the predominant crop due to its successful growth in the area. Twenty-eight thousand acres in Okanogan County produce apples, pears, cherries, and stone fruit. In particular, apple production is extremely successful in the climate. Agricultural producers in the area produce the same amount of apples as Oregon, Virginia, North Carolina, and West Virginia combined (Horticultural Pest & Disease, n.d.).

Though not as big as the fruit tree market, barley, canola, corn, oats, various vegetables, and wheat have also proven to grow well in the region. Livestock, poultry, and products make up 12% of sales in Okanogan County (USDA, 2017). The following table shows the proportion of crops and food grown and their contribution to total revenue.

CROPS & FOOD PRODUCED IN THE OKANOGAN REGION	SALES (\$1,000)
Fruits, Tree Nuts, Berries	287,833
Other Crops and Hay	4,773
Grains, Oilseeds, Dry Beans, Dry Peas	2,946
Vegetables, Melons, Potatoes, Sweet Potatoes	1,247
Nursery, Greenhouse, Floriculture, Sod	865
Cultivated Christmas Trees, Short Rotation Woody Crops	9
Cattle and calves	24,162
Total	321,835

Table 1. Data from 2017 USDA crops produced and total annual revenue

NATURAL DISASTERS ON AGRICULTURAL PRODUCTION

Natural disasters impact not only land, but also the production and distribution of food in Washington State. This section will outline natural disasters' impact on the region including their effect on the region's food system. While existing crops could offer further opportunities for revenue, the farms and land in the region are increasingly challenged by the impact of natural disasters and the effects of climate change. Winter storms, floods, drought, wildfires, and plant diseases create expenses to replace crops and make repairs.

Drought Emergency & Water Access

Climate change has caused challenges with a vital resource in agricultural production, water. Water shortages are a major concern for increasing agriculture on the Colville Reservation as well (Marchand, 2016). Okanogan County is one of 12 counties affected by a drought emergency declared by the Washington Department of Ecology. The

department said the declaration comes after early snowmelt, a lack of spring rain, and low stream flows in the county. A drought is declared in Washington State when there is 75% of normal water supply and risk of undue hardship. The emergency declaration allows Washington State's Department of Ecology to process emergency water rights and transfers. "This drought is already harming Washington communities, businesses, and farms, and it's another sign of the damage that climate change is causing to our state," said Ecology director Laura Watson (Department of Ecology State of Washington, 2024).

The health of water is an important factor in the food system in Okanogan County. The local agricultural industry has adopted strategies to improve water health, like the Manure Application project, which has helped landowners determine better timing of manure for their water quality protection (Whatcom Community Food Assessment, 2021).





Water rights are a growing concern with the region as well. When property owners sell their water rights to private companies instead of farmers, it decreases agricultural production in the area resulting in less access to locally sourced food. A recent example of this is Crown Columbia Water Resources, LLC (Crown Columbia). A so-called “water banking operation” that holds a portfolio of water rights to use for mitigation for future uses. Crown Columbia is affiliated with a larger corporation, Petrus Partners Ltd., which is based in New York City and invests in real estate and farmland. Through its affiliate, Crown West Farm Group, Petrus owns 8,000 acres of farmland. In 2015,

Petrus formed Crown Columbia Water Resources LLC, a water banking company with an address in Spokane. Crown Columbia controls 50,000 acre-feet of water in the Columbia-Snake River Basin. About half of Petrus’ investment capital has come from retired partners of Goldman, Sachs & Co. Crown Columbia’s most recent application for an “area-wide water permit,” is unprecedented. It proposes instituting a novel concept that would create a new water bank that would allow the company to acquire water rights anywhere within the vast Columbia River basin. It would then “make water available for long-term loans and leases” (The Center for Environmental Law and Policy, 2021).

CLIMATE CHANGE AFFECTS AGRICULTURE WORKERS

Air quality is a major concern for agricultural workers. Poor air quality from high temperatures and wildfire smoke coincides with worker illnesses. These health effects are especially bad for those who have asthma, bronchitis, emphysema, and chronic heart conditions (Department of Ecology State of Washington, n.d.). Air quality can worsen these diseases and lead to early death or hospitalization. A 2018 student-led PNASH research study found that nearly 75% of surveyed farmworkers near Mattawa, Washington, reported being exposed to an unhealthy amount of wildfire smoke on the job, and 100% of respondents reported that they had little or no information about how to protect themselves from smoke (University of Washington, 2018). Air quality does not just negatively impact agricultural workers, but also others who have these diseases, including children and the elderly. Wildfires cause particle pollution that also negatively impacts the ecosystems, causing deficiencies in soil nutrients, damage to crops, and acidification of streams.

According to the American Lung Association 2020 “State of the Air” report that compares regional air quality across the United States, Yakima County and Okanogan County ranked 9th and 14th respectively for worst 24-hour PM_{2.5} pollution. The Okanogan Region’s average total suspended particulates, pollutants in the air smaller than 100 micrometers in size, have increased while the country’s average is decreasing.

In 2009, the average particulate matter in the county was 53.9 micrograms per cubic meter, while the USA average was 39.2 (Okanogan County Air Quality, 2009). The significant amount of wildfires and smoke in the area is causing the increase in particulate matter.

Climate change affects all agriculture sectors because it negatively impacts food production, human health, ecosystems, worker productivity, and the availability of food and culturally significant foods. Increases in the number of days with extreme heat and smoke has negatively impacted the health of farmworkers and the ability to preserve crops. It has also accelerated the rate of development harvest which decreases the crop yields and the ability to preserve crops.

The rise of carbon dioxide is also contributing to the severity of pests, weeds, and diseases (Climate Impacts group, n.d.).

Farm and Stress Suicide Prevention

Visit Washington State University online resources and information about farm stress and mental health:

<https://extension.wsu.edu/lincoln-adams/agriculture-2-farm-stress-suicide-prevention/farm-stress-suicide-prevention/>

CLIMATE CHANGE IN AGRICULTURAL & RURAL COMMUNITIES

Climate change negatively affects shrub-steppe, rivers, floodplains, and dryland forest ecosystems. It increases agricultural production risk by negatively impacting precipitation, air temperature, and soil moisture which disrupts growing zones and days. Growing evidence of the effectiveness of agroecological practices on environmental and economic outcomes has led some farmers and ranchers to adopt these practices to help limit greenhouse gas emissions and improve agricultural resilience to climate change (The Fifth National Climate Assessment (NCA5), 2023).

Climate change affects species, nutrition, and sustainability values and practices within Indigenous food systems as well. It also reduces the availability and affordability of nutritious foods, with uneven economic impacts across society.

Impacts of climate change on other measures of human well-being are also distributed unevenly, such as worsening heat stress among farmworkers and disruptions to the ability of subsistence-based peoples to access food through hunting, fishing, and foraging (NCA5, 2023).

Indigenous and rural communities steward much of the United State's land and natural resources, which provide food, bioproducts, and ecosystem services for all. These nations also accrue much of the cost for these efforts that benefit all. These crucial roles are at risk as climate change compounds existing stressors such as poverty, unemployment, and depopulation. Opportunities exist for rural communities to increase

their resilience to climate change and protect rural livelihoods. (NCA5, 2023)

Resilient Methow created a Methow Valley Climate Action Plan in 2021 to address different facets of climate change effects. One of which is to support a vibrant future for agriculture. The strategy is to support a resilient agricultural community. They are creating a Resiliency Fund to help farmers adapt to climate change; explore the feasibility of a local carbon offset market as a source of funding. Long-term goals include working with farmland owners to permanently protect agricultural lands from development through conservation easements. Increase markets for local agricultural products. Highlight the ongoing work of local farmers and ranchers to care for the land and the climate. (Methow Valley Climate Action Plan, 2021)



Photo: Elizabeth George/Unsplash

Indigenous Food Production

Indigenous food production is a multifaceted and integral aspect of Indigenous Nations across Washington State, encompassing a rich array of traditional agricultural practices and native crops. The Okanogan region's various native plants, such as blackberries, chokecherry, elderberry, serviceberry, bitterroot, camas, and huckleberries are prominent

native foods harvested for subsistence and ceremonial purposes by the CTRC. Many tribes have established farmland dedicated to cultivating these native plants, including CTRC, which allocate land for the cultivation of native produce and culturally significant plants. These efforts not only preserve traditional foodways but also contribute to the conservation of biodiversity and Indigenous Knowledge systems (Colville Tribes, n.d.). Other important native foods in the area include deer, moose, salmon, elk, moose, grouse, trout, and crayfish.

Traditional food preservation techniques, including smoking, drying, and fermenting, ensure the year-round availability of traditional foods and sustain the community through seasonal variations. Additionally, Indigenous food production initiatives play a crucial role in promoting access to healthy and organic foods and address food insecurity and dietary health disparities prevalent in many Indigenous Nations (Moses, 2021).

Shane Moses highlights in his 2021 article the collaborative efforts between agricultural producers and the Colville Confederated Tribes to enhance the availability of nutritious organic foods. This concerted approach improves food accessibility and stimulates economic growth by creating employment opportunities. Through these endeavors, Indigenous Nations in Washington State are revitalizing ancestral food systems, fostering economic resilience, and promoting cultural sustainability.



Wildlife Habitat & Fish Habitat Impacts

Well-managed farms conserve fertile soil and clean water in our communities. The farm environment is a patchwork of fields, meadows, woods, ponds, and buildings that provide habitat for wildlife. Yet, farming with fertilizer and pesticide runoff can pollute the numerous rivers and creeks in Okanogan County. River animal habitats have also been affected by several dams built across the Columbia River. These dams alter the river, which affects young fish's migration to the sea and prevents adult fish from returning to spawn. Floods also occur in tribal fishing areas and sacred sites, destroying their food sources. Farmers, the government, and environmental activists have pushed to implement sustainable wildlife habitats in Washington State by conserving and restoring these habitats. This is accomplished through conservation, restoration, education, incentives, and management and research strategies that monitor wildlife and its impacts on agricultural producers and industrial expansion (Conservation NW, 2021). Attempts to improve wildlife habitats are made by businesses whose services assist with planning, implementation, and funding. These businesses, which focus on habitat and plant preservation, assist with shoreline plantings, native plant selection, erosion control, flooding management, restoration of wetlands, and creation of pollinator habitats (Habitat Improvement Projects, n.d.).

Methods to Extend the Growing Season

Farmers have explored various methods to grow crops beyond their typical seasons. The Okanogan region is considered part of the north central region, which experiences hotter summers and colder winters than the rest of the state. These weather patterns make for a shorter growing season than other areas in Washington State. The Okanogan Region has opportunities to bolster food production by increasing infrastructure to extend the growing season.

Greenhouses

Greenhouses help extend the growing season by being wind resistant, holding the weight of large amounts of snow, and protecting against UV from the sun (Washington - Planta Greenhouses, n.d.). Many areas of the state can only plant for three to four months a year, but with a greenhouse, growers in the Okanogan Region can plant for a minimum of eight to nine months, possibly longer, due to the sunshine and minimal rain that the area experiences. One greenhouse is operating on the Colville Reservation (Marchand, 2016). Increasing greenhouse infrastructure can increase the production of local food for the area.

Row Covers

Row covers, made of a gauze-like fabric, extend growing seasons and cut down on costs. The material allows for water, air, and sun to come through (Washington State University, 2012). Many small communities utilize row covers to fight food insecurity because of their ability to extend the growing season year-round. It's the easiest and cheapest strategy to implement and can be installed for as little as \$20 in materials (Higgins, 2021).

High Tunnels

High tunnels offer an extended growing season at a lower cost than greenhouses. When using high tunnels, farmers completely cover plants allowing sun to permeate through. This allows farmers to better



Figure 3. Image from inside a high tunnel; photo from the USDA

monitor the growing area's conditions and ensure farmers can use sustainable water methods, such as drip irrigation. Currently, high tunnels are perhaps the most effective and cheapest method for farmers, as the USDA is offering to help pay for them to facilitate sustainable growing methods. Farmers who have received assistance have high praise for high tunnels:

"We got high tunnel assistance from NRCS and it's completely changed the way we farm tomatoes. We are able to get 103 tomato plants there. Before we would do maybe 40. We're also able to grow things during the winter, which we've never been able to do before."

~ Stacey Givens, Urban Farmer, Side Yard Farm and Kitchen (*"Growing All Seasons"*, n.d.).

Drought-Resistant and Drought-Tolerant Crops

Another method to address the hotter summers and water shortages is to grow drought-resistant and drought-tolerant crops. Lima beans, jet barley, kamut, Lebanese light green squash, and more are naturally resistant to dry, hot weather. Some widely used grain crops, like triticale and rye, also offer natural drought resistance. BlueBird Grain Farms in Winthrop, Washington is growing drought resistant crops like farrow and einkorn. The Colville Reservation is growing crops like Egyptian Purple Barley in the town of Keller.

PROCESSING, MARKETING, & DISTRIBUTION

The shrinking number of farms and agricultural processing facilities negatively impacts food security, the local economy, and crop diversity (Mueksch, 2023). Consequently, the gap between food production and consumer accessibility widens. The processing, marketing, and distribution of local food has the potential to help diminish this gap and address food insecurity in the region.

The lack of processing facilities in the Okanogan region increases fuel costs and time for producers as they have to travel long distances to get food processed. This burning of fossil fuels leads to emissions of greenhouse gasses that contribute to climate change (Hill, n.d.).

The lack of processing facilities makes food more costly to the consumer as well. When food is grown locally, shipped to another state for processing, and then returned to the region, the cost of shipping is passed on to the consumer.

Local Food Processing

The Okanogan Region has hundreds of food producers, but limited amounts of food processing facilities. Without food processing facilities, agricultural producers may struggle to locally distribute their produce, meats, grains, etc. It can also disrupt the overall agricultural food chain by limiting food producers' ability to preserve and store produce for an extended period of time leading to increased waste and spoilage. Generally, processed foods are priced higher in the market compared to raw products. A lack of processing facilities in the county can result in a lack of access to higher value markets. A list of food processing facilities for Okanogan County can be found on the Washington State Department of Agriculture website.



VOICES FROM THE COMMUNITY
“We need local food hubs for
processing and shared infrastructure.”
~ Farmer, Okanogan, Okanogan County

Photo: Chad Stenbridge/Unsplash

Infrastructure

In March 2024, a listening session was held in Okanogan County with a group of 36 growers and food retail businesses. Multiple voices shared the desire to increase processing facilities in the region in order to cut down on the burden of fuel costs and the length of time it takes to get their products to market. There were also multiple food producers who would like to see shared infrastructure in the region to help lower production costs, therefore making their businesses more viable. The infrastructure needs that were repeated by the group is a shared commercial kitchen space with flexible hours, a wholesale food hub, a USDA meat processing facility, an additional fruit packing plant, shared cold and freezer storage, solar power, and the need for more farming equipment mechanics in the area. Food producers expressed the need for value-added facilities to decrease waste and have another outlet for the sale of their products.

Financial Resources Needed for Infrastructure

Local food producers and retail food businesses mentioned the need for other financial resources as well. They included financial support for infrastructure needs, grant writing support, and grant funding to support infrastructure projects to help make their businesses more sustainable.

Marketing Channels for Local Food

The region has a few marketing channels to support local producers, but there is room for more marketing channels to increase the sale of food grown in the region. A few marketing opportunities for growers are listed below as well as additional opportunities in the economic benefit section in this assessment.

The Methow Conservancy created an online directory of farms and ranches. The online directory showcases diverse products offered at local farmers' markets, retail outlets, and directly from farms. Further details can be found at <https://www.methowgrown.org/directory>.

Washington's Eat Local First is an important resource for agricultural producers in any region. It can be found at: <https://eatlocalfirst.org/wa-food-farm-finder/>. The website is a valuable resource for those interested in supporting small businesses and reducing their

carbon footprint by buying local. By entering a city or zip code, users are given a list of farms and markets nearby. Farmers in Okanogan County can add their business to the list in order to gain potential new customers, increase their revenue, and reduce their carbon footprint by increasing their local sales. This resource will benefit producers that are selling directly to consumers, but not producers that sell on the commodity market.

BCS Livestock's Methow Valley FoodShed is a direct-to-consumer food hub with an online market and two self-serve farm stands located in North-Central Washington on the eastern slopes of the North Cascades. Their self-serve farm stands offer 24/7 access to locally grown foods from a variety of regional farms and food producers. Additionally, food can be ordered online and picked up weekly in Winthrop and Twisp.

Okanogan Producers Marketing Association (OPMA) consists of small to midsize local farms.

These farmers collaborate closely, sharing expertise, resources, and equipment. OPMA also provides support for marketing and sales efforts. It has enhanced local food distribution by driving business to partner farms. Though it is a relatively new venture, it is growing, and the associated marketing costs remain unspecified.

Distribution

Washington State strategically builds production facilities near diverse transportation hubs in order to ensure the efficient delivery of goods. With 75 public ports, 139 airports, and 3,666 miles of railways, the state can transport products nationally and to Asian markets (Washington State Department of Commerce, n.d.). Washington heavily relies on their ports for global exports. Identifying the proximity of these ports to processing facilities would pinpoint areas for potential improvements. Washington has over 35,000 farms across 15 million acres, generating approximately \$10.6 billion in agricultural production within the state (Tri-City Development Council, n.d.).

The Okanogan Region is very far from Washington State's public ports, food transport airports, and major highways. The railway in the area doesn't have cold storage so distributing by rail is also not an option. The region has at least one to three mountain passes that separate many of the larger towns in the county and reservation. The region struggles to find viable transportation to distribute food within the community as well as outside the community. Fuel costs, harsh winters, and wildfires contribute to the barriers semi-truck drivers face when transporting food through the mountain passes. During the winter, the passes tend to shut down making it difficult to transport food in and out of the region.

The great distance between the stockyard and farm increases production costs and decreases the opportunity for farmers to connect with local customers and markets that may be willing to pay more for local products (Bill & Craig, 2010).



VOICES FROM THE COMMUNITY

"We want to spend more time on the farm, instead of spending a lot of time and money transporting our food."

~ Farmer, Winthrop, Okanogan County

FOOD PRODUCER & FOOD BUSINESS WORKER LIVELIHOOD

Food producers and business workers play a critical role in community food systems. This section provides information about how these producers and workers operate within the Okanogan Region, with a focus on the standard of living and livable wage.

Standard of Living

Housing

Housing is crucial for food producers and food industry workers. It provides a stable, secure living environment enabling them to focus on their roles instead of trying to find shelter. Adequate housing is essential for maintaining health and well-being, reducing commuting stress, and promoting community support among workers. Furthermore, affordable housing contributes to economic stability, talent attraction, and overall resilience in the face of industry challenges, ensuring the well-being and productivity of individuals in the food sector.

Within the region, Okanogan County is facing a housing crisis. A critical housing shortage is occurring due to a lack of affordable and available housing. This shortage impacts the community's long-term livelihood and its food system. Affordable housing is considered, at most, 30% of the household's income, but Okanogan housing costs exceed what low-income households can afford. Okanogan County's Housing Affordability Index has diminished steadily over the last decade, from 182.6 in 2012 to 77.8 in 2022. The lower number on the index indicates that housing is less affordable (WCRER, 2022). Another factor is the availability of housing. With extremely low vacancy rates and a high demand for one-bedroom homes, finding available housing is a challenge for people in the region. The lack of housing caused by the housing crisis can impact farm labor availability, resulting in less food produced by agricultural producers.

Okanogan County has a median gross rent of \$776, while Washington's median gross rent is \$1,630 (Bureau, 2021). The median household income in Okanogan County is \$51,992 while the median household income in Washington State is \$91,306 (Bureau, 2021). This data shows that while housing in Okanogan County costs less than the average rent in Washington State, Okanogan County's median household income is less than Washington State.

Transportation

In many communities, the availability and affordability of transportation can be a decisive factor in the accessibility of healthy food options. Without adequate transportation, individuals may find it significantly more challenging to access food outlets, including supermarkets, farmer's markets, grocery stores, and restaurants that offer healthy choices. Inadequate public transportation can further exacerbate inequalities in the community when farmworkers who do not own, or opt not to use personal vehicles, cannot reach their workplace or access healthy and fresh foods.

Public transportation accounts for only 0.4% of work transportation in Okanogan County (Bureau, 2021). The figure below illustrates the variety of ways Okanogan community members reach their workplaces.

Adding more bus routes in popular locations would

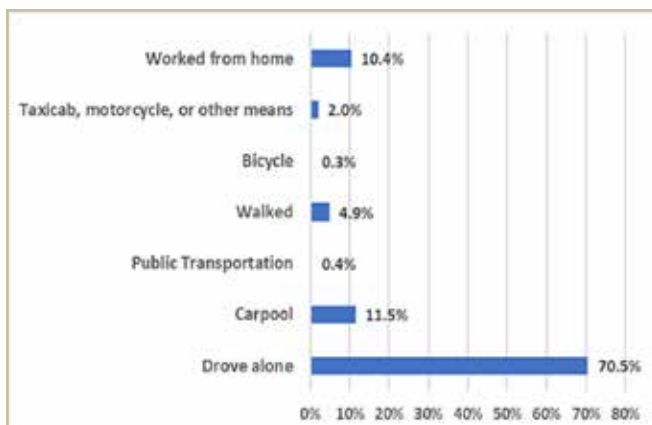


Figure 6. Means of transportation to work with data provided by the US Census for Okanogan.

help increase the use of public transportation. Increasing public bus routes increases access to affordable transportation to everyone in the community, especially those who do not have personal transportation to get to work. Okanogan County residents take an average of 19.3 minutes to commute to work, whereas in Washington State it takes an average of 26.3 minutes (Census, 2021). Public buses work well with shorter routes because there are fewer stops, and they can get many people to their destinations at a cheaper and more efficient cost.

Childcare

Childcare impacts children and parents who rely on it to work. It is challenging to find affordable childcare, especially for those families living below the median salary range. Of Washington’s 39 counties, Whitman, Okanogan, and Whatcom counties have the most expensive child care for an infant and a preschooler in a child care center, relative to median household incomes. This means that in these three counties, the cost of child care for an infant and a preschooler in a child care center consumes between 39.5 – 51.9 percent of residents’ median incomes. The average cost of childcare statewide for an infant and a preschooler in a center consumes 34 percent of the state median income (M. Jacobs, 2024). There has been a general loss of family child care programs across the state overall. This has reduced capacity for

child care outside of normal weekday hours – care that is critical to several career fields including healthcare, public safety, travel, retail, and hospitality. The percentage of overall capacity for evening, weekend, and overnight care decreased from 13 percent in 2012 to only 10 percent in 2018 (Child Care Aware of Washington, n.d.). Childcare rates have also been steadily increasing. The following figure shows the number of Washington childcare providers in the last few years and the total capacity for offering childcare.

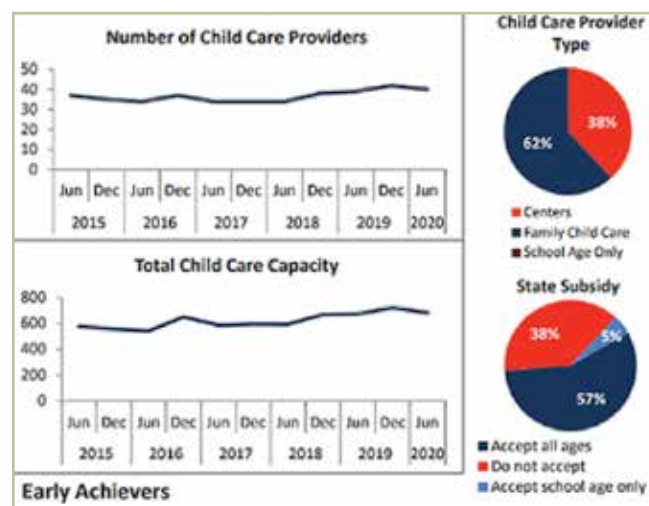


Figure 7. Child care and capacity data from Child Care Aware of Washington

For parents, ensuring their children have access to proper care and healthy food is a fundamental concern because it is necessary for their child’s growth and development. For many families, their children access healthy foods through their childcare program. Studies show that food insecurity in the US increased rapidly during and after the pandemic, increasing from 14% to 30% in months (Bonney, et al, 2021). From the perspective of food justice and access, childcare is critical for developing a robust and sustainable food system.

Healthcare Affordability & Availability

Accessing healthcare in Okanogan County is more difficult compared to Washington State. According to Methow Valley News, 74.1% of all residents of Okanogan County up to the age 65 had health insurance in 2019 (Stamper, 2020). They also stated that 89.4% of residents under 19 had health insurance coverage, while only 56.2% of residents between 18 and 40 had health insurance coverage (Stamper 2020). Accessing healthcare and preventative care is an essential factor in reducing the rate of illness across a lifespan. Illness can also negatively impact their ability to work, care for their families, and care for themselves.

Impacts on Immigrant Workers

Immigrant workers play a tremendous role in Washington State's food system. In 2019, 6,200 immigrant residents represented approximately 12% of the total state population. Labor shortages in the county's farm industry also increase the amount of H2A guest workers that are needed and costs associated with that increase can be challenging on small businesses (Hsu, A. and Bustillo, X. 2023). According to a report from the University of Washington Center of Human Rights, immigrant workers paid an estimated \$8.4 million in state and local taxes in 2017. Immigrant workers also bring a rich diversity and cultural cohesion to society.

Workers' Rights

Successes

Workers' rights directly influence the livelihoods of small food producers and workers in the food industry. Ensuring workers' rights, which includes fair wages, safe working conditions, and protection from exploitation, is not only a matter of ethical importance but also a cornerstone of social equity and economic stability within the food production sector. The recognition of food worker's rights benefits them and promotes overall food quality and safety. Workers' rights are an important social justice issue impacting the entire food industry.

Challenges

Small businesses, especially in rural environments, face many challenges including offering limited healthcare and benefits, a struggle to make a living wage, and overall economic vulnerability. Limited housing also impacts businesses' ability to find labor. If workers cannot find housing nearby, they drive longer distances, creating additional costs that exasperate financial burdens.

Okanogan County's economy relies heavily on tourism, so the off-season can negatively impact the economy, especially for small businesses. During this time, many workers might struggle to maintain their livelihoods.



Local food producers are concerned about losing agricultural producers and providing a livable wage to workers. Multiple factors of modern agriculture, including rising costs, market fluctuations, and other factors, have contributed to extremely tight profit margins. This issue impacts individual livelihoods and has broader implications for the agricultural landscape and the local economy in the Okanogan Region. This highlights the need for policies and solutions to address the financial struggles faced by agricultural producers in the region.

FOOD ACCESS, EQUITY & SECURITY

The Okanogan Region is rural and agriculturally rich, with many opportunities to produce fresh local foods. This section defines key terms and provides an overview of existing programs in the region that address food insecurity. Throughout the region, 8,330 of the 41,345 total population experience poverty (Financial Welfare for Americans, 2021).

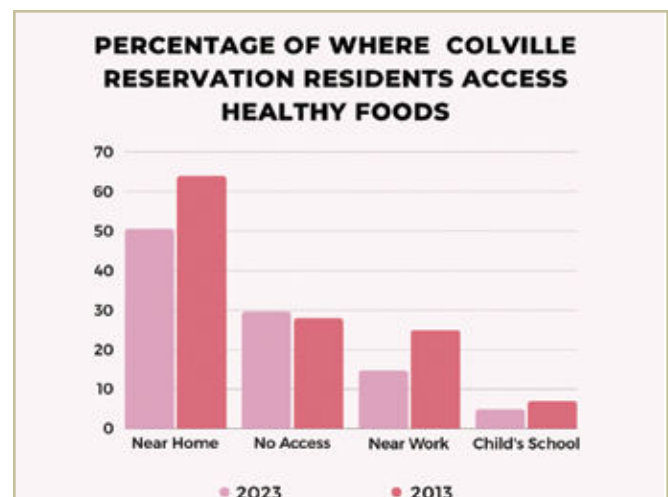
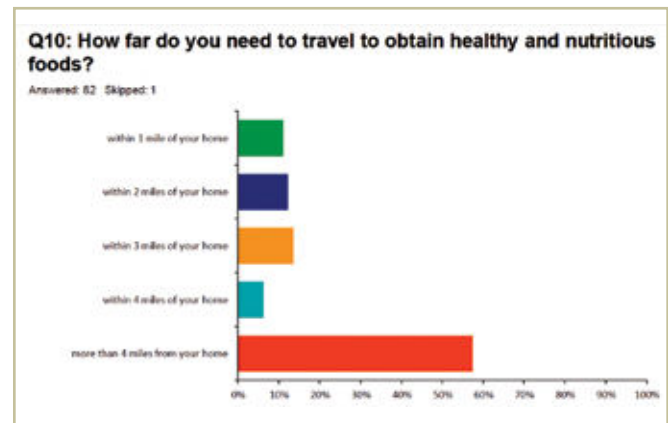
Food insecurity increases the risk of adverse health outcomes, complicates the ability to manage illness, and is linked to higher health care costs. On average, after controlling for a range of socioeconomic and demographic characteristics expected to affect food security and health care costs, people in food-insecure households, those lacking consistent access to adequate food at some point during the year due to limited resources, spend roughly 45 percent more on medical care in a year (\$6,100) than people in food-secure households (\$4,200). And extensive research has shown a strong correlation between food insecurity and chronic health conditions among various age groups including children, young and working-age adults, and older adults (Carlson & Llobrera, 2022).

Food Deserts

In Okanogan County, 14.57% of the population lives in areas without fresh food availability. In comparison, only 1.65% of all Washington State residents live in areas without fresh food availability (Caporuscio, 2020). A food desert is an area where residents face limited access to affordable and nutritious food. These areas tend to lack access to other services such as banks, healthcare, transportation, parks, or recreational areas. They also frequently face inflated prices on food and other necessities, limited healthcare services, and under-resourced schools. All these factors may negatively impact residents' diets and other health outcomes like an increased risk of obesity, diabetes, and other weight-related conditions, as well as a range

of nutritional deficiencies (Medical News Today, 2024). Access to affordable and nutritious food may also negatively impact the effectiveness of government benefit programs, reflected in an analysis of electronic benefits transfer utilization (USDA, 2012).

Out of the 83 respondents of the L.I.G.H.T. Foundation's Food Security Survey, 57.32% needed to travel more than four miles from home to access healthy, nutritious food. This data categorizes the Colville Reservation as a food desert (L.I.G.H.T. Foundation, 2023). The Colville Reservation covers 1,392,265 acres and has four grocery stores that offer fresh fruit and produce. Four gas stations offer food, but lack fresh fruit and produce (Marchand, 2016).





Accessibility to healthy foods is often near their homes (50.62%) vs no access near home, work, or school (29.63%), their work (14.81%), or their child's school (4.94%) (L.I.G.H.T. Foundation, 2023). In a 2013 health assessment, respondents stated they had healthy food options near their home (64%), near work (25%), near school (7%), didn't have healthy food options near their home workplace or school (28%) (Lindebald-Fry and Pecak, 2013). These two data sets reflect that food accessibility is an issue, but it has improved over time for those living on the Colville Reservation.

In an effort to address food deserts in the area, the Federally Recognized Tribes Extension Program (FRTEP) provided several workshops to develop tribal member's gardening skills. These workshops included information on food insecurity, understanding the technical components of gardening, and learning prevention techniques (Colville Reservation FRTEP, 2022).

There are many opportunities to help increase access to healthy local foods and reduce food deserts in the area. These opportunities include increasing access to local farmer's markets and affordable grocery stores, supporting food industry entrepreneurs, encouraging residents to participate in food system planning and food assistance programs, and providing education on nutrition and cooking healthy foods.

Costs to Support Local Food Economy

A 2015 study reflected a notable surge in purchasing from local food producers, suggesting an increased demand for local produce and that a portion of the population possesses the financial means to afford and sustain the local food economy in Okanogan County (Okanogan County, n.d.).

Buying local food from small farms can be more expensive.

Small agricultural producers experience increased costs compared to larger farms because they lack scale and have higher local food pricing caused by place-based factors, including property taxes, labor costs, and land values.

Production costs for organic foods are typically higher because of greater labor inputs per unit of output and greater diversity of enterprises which means economies of scale isn't achievable. Post-harvest handling of relatively small quantities of organic foods results in higher costs because of the mandatory segregation of organic and conventional produce, especially for processing and transportation. Marketing and the distribution chain for organic products could be more efficient and costs are higher because of relatively small volumes. (Food and Agriculture Organization of the United Nations, n.d.)

Why Support Local Food?

Eating local food can be better for your health and potentially reduce the cost spent on healthcare. Locally sourced produce has a shorter food supply chain and are usually picked within 24 hours of being sold. Less steps from farm to plate means less handling, resulting in less potential for bacterial or viral contamination during distribution. When food doesn't have to travel as far, produce can ripen naturally, resulting in higher nutrients and better flavor. Fresh foods are whole, minimally processed foods that are more nutrient-dense. When farmers harvest produce

at its peak ripeness, there are higher concentrations of key nutrients like potassium, magnesium, phosphorus, and vitamins C and A. Antioxidants and polyphenols found in fruits and vegetables are particularly beneficial for health. Replacing processed foods with whole foods leads to less consumption of “empty calorie foods” which are high in sodium, saturated fat, and sugar and can improve heart, blood, brain, gastrointestinal/digestion, and vision health (University of New Hampshire, 2022).

Buying local foods doesn’t just positively impact physical health, but benefits the local economy as well. Money spent with local farmers and growers stays close to home and is reinvested into businesses and services in the community. Purchasing locally grown foods helps maintain farmland and green or open space in the community. Buying from a local producer creates the opportunity to ask the producer directly about the practices used to raise and harvest the crop, thus allowing the individual to be a more informed consumer.

Challenges to Supporting Local Food

There are many challenges to supporting local producers in a region with high socio-economic disparities. Local food often costs more than food coming from other sources. Limited infrastructure for local farming and distribution can result in inadequate availability of fresh, locally sourced produce. Transportation, or other logistical difficulties, creates barriers to reaching local markets or farms. Consumers may not know about the health benefits of local food and the impacts on health.

All of these factors can impact the high rate of food insecurity and negatively impact the local food economy.

Addressing these challenges requires comprehensive strategies that prioritize affordability, accessibility, education, and infrastructure development.

Food Insecurity

The table below summarizes data gathered from Feeding America on Washington State counties’ food insecurity rates, child food insecurity rates, and the average cost per meal.

FOOD INSECURITY RATES

COUNTY	FOOD INSECURITY RATE	CHILD FOOD INSECURITY RATE	COST PER MEAL
Ferry County	19.2%	28.4%	\$3.18
Okanogan County	15.4%	22.6%	\$3.08
Pacific County	15.2%	22.9%	\$4.70
Snohomish County	8.4%	11.0%	\$3.43
King County	8.7%	10.2%	\$3.90
San Juan County	9.8%	13.9%	\$3.50

Table 3. Food insecurity rates, child food insecurity rates, and average cost per meal

Okanogan County has the second highest rate of food insecurity in Washington State at 15.4% compared to the national average of 10.4%. The county’s child food insecurity rate of 22.6% is close to double that of the national average of 12.8% (Feeding America, 2022). The neighboring, Ferry County, has the highest food insecurity rate within Washington State at 19.2%.

In the Okanogan Region, the L.I.G.H.T. Foundation collected data in the region regarding those who have experienced a lack of food due to financial constraints. 60% of those who were surveyed experienced lack of access and funds for meals (L.I.G.H.T. Foundation, 2022). Of the 83 respondents from the L.I.G.H.T. Foundation’s Food Security Survey, conducted on the Colville Reservation stated they were sometimes



84% of students in Okanogan County are eligible for free and reduced lunch, highlighting a substantial reliance on school lunch assistance programs.

(30.12%), usually (7.23%), and always worried (4.82%) about having enough food to eat. 59.76% had experienced a lack of food due to financial constraints and 46.99% had skipped a meal due to a lack of food. Respondents sometimes (29.27%) usually (7.32%), and always (2.44%) worried about having enough food to eat (L.I.G.H.T Foundation, 2023). In a 2013 Colville Reservation health survey, 57.1% of respondents agreed with the statement that a “lack of money prevents me from eating healthier food.” 41.4% of respondents agreed with the statement “I rely on processed, fast food, or commodity foods for the majority of my meals.” 37% agreed with the statement “I skipped a meal in the last six months because I don’t have enough money for food” (Lindebal-Fry and Marko, 2013). This data shows that food insecurity was a notable issue among respondents and that financial constraints were a considerable factor in accessing food.

In 2020, Feeding America introduced an enhanced approach in the Map the Meal Gap report, accompanied by a supplementary analysis examining the potential effects of COVID-19 on local food insecurity. The updated methodology aimed to provide a comprehensive understanding of the current and anticipated state of food insecurity at the community level. For the Okanogan Region to effectively address the present challenges, it is essential to first comprehend the prevalence of food insecurity before the pandemic while assessing changes and impacts of the pandemic.

School Lunch Programs & Nutrition

Nine school districts reside in remote towns throughout Okanogan County. These school districts, like many others in Washington State, provide free and reduced lunch and programs to cover food costs. Approximately 6,391 students in the county receive free and reduced services. 49.5% of the students’ families in Okanogan County are living below the poverty level, so many students rely on these meals each day (U.S. News, 2023). Okanogan County scores .452 on the GINI index, indicating a substantial economic inequity among these communities. Only one of the nine school districts in Okanogan is considered above the poverty line and is able to provide their students scratch cooked meals. The remaining eight school districts wish to provide more wholesome meals for their students, but cannot adequately afford to do so due to funding.

In Okanogan County, 9409 individuals received Supplemental Nutrition Assistance Program (SNAP) benefits in 2020. This translates to approximately one in four residents, as reported by Fred Economic Data in 2020. Additionally, according to the Washington Office of Superintendent Public Instruction, 84% of students in Okanogan County are eligible for free and reduced lunch, highlighting a substantial reliance on school lunch assistance programs.

These figures underscore the significance of programs like the Chelan-Douglas-Okanogan Counties Snap-ed program in addressing the nutritional needs of the community.

The National Nutrition Standards for School Meals is the meal pattern which includes low fat or fat free milk, vegetables, fruit, whole grains, and lean protein. All schools are required to follow these nutrition standards to receive federal reimbursements (School Nutrition Association, n.d.). These guidelines shape the nutritional value in Washington State's school lunches and provide fresh fruit and vegetables to enrolled elementary students. Benefits.gov discusses the National School Breakfast and Lunch Program for Washington. "The Washington School Lunch Program (NSLP) and the School Breakfast Program (SBP) are designed to promote the health and well-being of children by providing nutritious meals to children in public and private schools and residential childcare institutions (RCCIs). Schools receive federal funds for each breakfast and lunch served, provided that the meal meets established nutrition standards" (Washington Office of Superintendent of Public Instruction, n.d.). The NSLP has also recently strongly encouraged local food purchasing or Farm to School (F2S), which could support the delivery of culturally relevant foods to Indigenous communities (USDA Food and Nutrition Service, 2023).

These standards, personnel, cost overruns, and food sourcing all hinder the flexibility needed to offer and afford scratch cooking in schools. The current NSLP and SBP guidelines do not reflect the nutritional and cultural needs of Indigenous nations. 75% of Indigenous people are lactose intolerant, but a milk substitute is not affordable. Many students are pre diabetic, yet for those struggling with financial constraints, sugary cereals and cheap pastries are more affordable than lower sugary options.

VOICES FROM THE COMMUNITY

"(We would like to see more) curriculum for middle school and high school CTE programs in culinary arts and farm to table programs in school districts."

~ Educator, Nespelem, Colville Reservation

Capability of Scratch Cooking in School Cafeterias

Scratch cooking is a method of preparing food from raw, whole ingredients filled with healthy nutrients. Having more programs that involve scratch cooking in the Okanogan school region would provide education and awareness of healthy nutrition to many students. Methow Valley School District has a scratch kitchen. The capacity of scratch cooking in Washington State school cafeterias is supported by the School & Scratch Cooking Institute. This is a free program within Washington State for school districts or early childhood education programs that gathers student input regarding culturally relevant, local, and fresh food. A small team, consisting of at least the nutrition director, one administrator, a teacher, and a community member, represent students and staff (WSDA, 2014). Many other states are incorporating scratch cooking as a means to bring healthier food into institutional settings.

Paschal Sherman Indian School has a semi scratch kitchen offering some dishes from scratch. It currently has a vegetable garden, a berry patch, and plans on planting a food forest with potential for expansion into other food products like eggs, honey, and more. Pascal Sherman offers free breakfast and lunch to all of their students.



Photo: Annie Spratt on Unsplash

The Oroville School District in Okanogan County has begun a new chapter of supporting food and water security for schools, community, and students' futures. Students, staff, and contractors have transformed the grassy lot across from the Oroville School District Office into an outdoor garden, greenhouse, and native plant nursery. Students are cultivating a diverse array of plants to provide healthy foods for students and community members. The native plants grown there will help make the local watersheds healthier as well. The program engages students in STEM experiences that build career-based skills and produce food and native plants to raise funds for the greenhouse program and paid student internships (Vanderwal, 2021).

"We want to teach kids in school how to grow, harvest and cook their own food."

~ Educator, Oroville, Okanogan County



Photo: Zoe Schaeffer/Unsplash

VOICES FROM THE COMMUNITY

"We need incentives for schools to buy from local farms and more scratch kitchens for our schools."

~ Farmer, Okanogan, Okanogan County

VOICES FROM THE COMMUNITY

"THE BIGGEST CHALLENGE IS BREAKING AWAY from the large food distributor style contracts. There is little, if any, room once you are contracted to buy local, fresh produce and meats. There is language in contracts stating that a school cannot go outside of them to buy things for lunch and/or breakfast in some cases. The costs are actually pretty high to purchase from these companies, but they're a "one stop shop" and make things easier. It would be helpful if the schools in the region had a regional Farm to School coordinator that finds the local healthy food, makes the deals for the school and supports a website for ordering, since that happens every week."

~ Educator, Omak, Okanogan County

Percentage of Food Bought Locally Through Schools

According to WSDA's Farm to School Surveys, USDA's Farm to School Census, and Washington State's Farm to School Network, between 2013-2018, 49% of school districts, or 91 school districts, participated in Farm to School and bought ingredients directly from Washington agricultural producers. The total amount purchased from local agricultural producers in the 2013-2014 school year was \$17,440,300 (WSDA, 2014).

The Washington State Farm to School District network consists of agricultural producers, food producers, teachers, and students. It was created to support over 200 school districts buy locally sourced foods to support the community's health, provide nutrition education, promote healthier diets, and support local agricultural producers. Some organizations that participated in the 2018 launch summit include WSU's Food Systems Team, Yaksum Canyon's Truck Farm, Viva Farms, OSPI - Child Nutrition Services, and Coupeville Farm to School. This would be a great opportunity for Okanogan County to connect with organizations in the area. Below is a table that reflects organizations specifically in Okanogan County:

- » **13 Fox Farm** — School meal programs, School gardens and outdoor learning, Agriculture education, Community outreach
Website: www.tatleyoutpost.com
- » **Classroom in Bloom** — School gardens and outdoor learning, Food, nutrition, & culinary education, Student support, Community outreach, Family & parent outreach
Website: www.classroominbloom.org
- » **Okanogan Conservation District** — There are eight community gardens in Okanogan supported Okanogan Conservation District
Website: okanogancd.org
- » **Whitestone Mountain Orchards** — School gardens and outdoor learning, Preschool or ECE
Website: <https://whitestonemountainorchard.com/>

Consumption of Whole Foods and Scratch Cooking at Home

Colville Reservation Respondents stated their level of awareness of good nutrition and the positive impacts it can have on physical and mental health was very aware (39.02%), somewhat aware (31.71%), extremely aware (23.17), not so aware, (6.10%), or not at all aware (0%) (L.I.G.H.T. Foundation, 2023). Their frequency of consuming the recommended daily serving of fruits and/or vegetables was 1-3 days a week (58%), 4+ days (36%), 0 days a week (6%). (Lindebald-Fry and Pecak, 2013). This data reflects that there is a strong awareness of the impacts of good nutrition, but there is an opportunity to increase frequency of consumption.

Understanding the frequency and barriers to scratch cooking at home is another essential factor in understanding food systems within the county. Survey respondents living on the Colville Reservation stated they cooked whole foods at home from scratch, a few times a week (43.90%), every day (24.39%), about once a week (14.63%), a few times a month (9.76%), less than once a month (4.88%), and once a month (2.44%). 93.90% felt they had the basic cooking equipment necessary at home to cook whole unprocessed foods from scratch. The greatest limiting factors to cooking at home was access to whole foods (53.01%), time (27.71%), cooking equipment (7.23%), cooking knowledge (7.23%) and other (4.82%). Respondents were very interested (39.02%), extremely interested (29.27%), somewhat interested (21.95%), not so interested (7.32%), or not interested at all (2.44%) to learn more about healthy cooking. Respondents were also somewhat aware (40.96%), not so aware (32.53%), not at all aware (15.66%), very aware (7.32%) or extremely aware (3.61%) of any educational programs or services that provide education on nutritious foods preparation in their community (L.I.G.H.T Foundation, 2023). This data shows that many are eating healthy foods a few times a week, are interested in expanding their knowledge around healthy cooking, and have the necessary equipment to do so at home. Increasing access to whole foods and more marketing of local food educational programs could help increase frequency of healthy food consumption and scratch cooking at home.

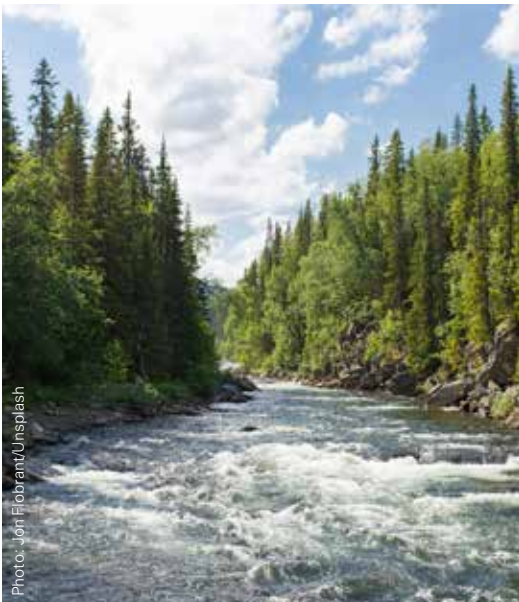
CULTURALLY RELEVANT FOOD ACCESSIBILITY

“Understanding food accessibility, affordability, diet, and cultural practices is important for supporting the health of communities” (Washington School of Public Health, 2023). In Washington State, integrating culturally relevant foods into school lunches is still a work in progress. While progress has been made in other school districts within Washington State, there is little public information available on the work or progress of integrating culturally relevant foods into school lunches in the Okanogan Region.

The infiltration of settlers within the region created barriers to accessing culturally relevant foods for the Indigenous peoples of the area. With the influx of fur trappers, missionaries, explorers, miners, homesteaders, and military into the region.

According to the L.I.G.H.T Foundation Food Security survey respondents had a moderate amount (37.80%), little (36.59%), or no access to cultural foods (4.88%). Respondents had either noticed a great deal of changes in the availability of traditional foods over the year (14.81%), a lot of changes (29.63%), moderate

amount of change (24.69%), a little (25.93%), or none at all (4.94%) (L.I.G.H.T Foundation, 2023). Of the 371 respondents, 33% ate traditional foods once/twice per week. 22% choose a category that includes seasonally, when available, twice per month, and once a year. 10% said they ate traditional foods three plus times per week (Lindeblad-Fry and Pecak, 2013). Respondents living on the Colville Reservation stated it was extremely important (51.22%), very important (35.37%) somewhat important (13.41%), and not so important or not at all important (0%) to increase awareness about food security and traditional foods in order to positively impact food security and cultural preservation (L.I.G.H.T Foundation, 2023). This data reflects that half had seen a moderate or little change in availability of traditional foods and consumed traditional foods a moderate or little amount, but only 10% said they ate them three plus times a week. Almost all said it was extremely or very important to increase awareness of food security and traditional foods in order to impact food security and cultural preservation.



The United States’ government forcibly stole waterways as well as access to land and waterways for Indigenous people that supported their cultural lifeways. They also enacted regulations that prohibited, restricted, and eliminated forms of commerce and trade. In the 1900’s the availability of culturally relevant foods was further reduced by intensive land use which included logging, ranching, dam construction, orchard development, and aquaculture production. Today, access to culturally relevant food is further endangered by environmental toxins, invasive species, and climate change (Marchand, 2016).

Health Related Diseases in Indigenous Communities

The infiltration of settlers within the region, along with other systematic efforts like boarding schools and the US commodity program, created barriers to accessing culturally appropriate foods for Indigenous people resulting in significant health disparities in rates of obesity, diabetes and heart disease. A 2013 health assessment of the Colville Reservation noted the community was disproportionately affected by obesity ("Obesity," n.d.). According to the Office of Minority Health, "American Indian and Alaska Native adults are 60% more likely to be obese than non-Hispanic whites" ("Obesity," n.d.). From 2008-2010, 71.1% of Indigenous people were overweight or obese, compared to 59.9% of non-Hispanic Whites ("Obesity," n.d.) In 2011, 40.8% of Indigenous people were obese, compared to 26.2% of non-Hispanic whites ("Obesity," n.d.). Indigenous people are over 1.5 times likely to be obese as non-Hispanic whites ("Obesity," n.d.). According to the Office of Minority Health, "American Indian or Alaska Native adults are 50% less likely than white adults to engage in regular leisure-time physical activity" ("Obesity," n.d.). According to the Office of Minority Health, Indigenous people are "over twice as likely as white adults to be told by a doctor that they have diabetes," and Indigenous women are over twice as likely to die from diabetes as compared to whites ("Diabetes," n.d.). 17.5% of Indigenous people over 18 had diabetes from 2004-2008, compared to 6.6% of Whites in the same time period ("Diabetes," n.d.).



From a 2013 health assessment of Colville Reservation residents, the types of culturally relevant foods respondents ate in order of frequency were salmon, deer, berries, elk, roots, trout, moose, grouse, crayfish, other, bear, and fish (Lindeblad-Fry and Pecak, 2013). In a 2023 survey, the types of culturally significant foods respondents ate in order of frequency included berries, salmon, deer, elk, none of the above, roots, trout, grouse, and bear (L.I.G.H.T Foundation, 2023). 98.80% thought that traditional foods, or culturally significant foods, were healthier than modern processed foods (L.I.G.H.T Foundation, 2023). Salmon, deer and berries were the top three most frequently consumed traditional food in both surveys across a ten year span.

Food Sovereignty

The concept of food sovereignty has emerged from grassroots social movements in recent decades as a framework for understanding both access to food and access to the means of producing food. It seeks to build more widespread participation into decision-making about food production and distribution. An intergovernmental panel defined "food sovereignty" as the right of peoples and sovereign states to democratically determine their own agricultural and food policies" (UN Environment Program).

Food Sovereignty From an Indigenous Perspective

The definition of “food sovereignty” from an Indigenous perspective will vary widely from tribe to tribe and person to person. At its core, food sovereignty encompasses the inherent right of an Indigenous or tribal community to determine its own food system, free from external interference or control. Food sovereignty in tribal communities goes beyond access to food and is deeply rooted in cultural traditions, spiritual beliefs, and sustainable land stewardship practices. It emphasizes the interconnectedness of all living beings and the responsibility to care for the earth as a provider of nourishment. This perspective also recognizes the importance of traditional foods in maintaining cultural identity and preserving tribal sovereignty. It advocates for revitalizing Indigenous food systems, including traditional farming methods, wild harvesting, and protecting ancestral lands from exploitation. Ultimately, food sovereignty for tribal communities is a holistic approach to food that honors ancestral knowledge, fosters community resilience, and promotes self-determination in reclaiming control over their food.

Food access, food sovereignty, and economic challenges are major issues on the Colville Reservation. In 2020, Linda McLean, a member of the Colville Tribe and the Washington State University Extension Director for Colville Reservation, developed a food sovereignty garden workshop focusing on Inchelium Red Garlic. This project reintroduced Inchelium Red Garlic to the Colville Reservation and tribal members. It is the oldest strain of garlic grown in North America. It was discovered growing on the Colville Reservation in the community of Inchelium. This garlic is not grown on a large scale in the local area yet. It is a popular variety of garlic and it possesses potential for economic development for reservation residents.

The L.I.G.H.T. Foundation collaborated with the Confederate Tribes of the Colville Reservation to establish a First Food Pollinators resource to help protect pollinators in important regions to Indigenous Peoples, by increasing awareness of forest and agricultural practices. The L.I.G.H.T. Foundation collects and distributes information on how individuals can help protect pollinator species and educate people on how to become direct stewards through pollinator identification and beekeeping basics.

“We would like education and/or opportunities for youth to learn about gardening, food preparation, and resourcing education to their future of food sovereignty.” ~ Community member, Coulee Dam, Colville Reservation



VOICES FROM THE COMMUNITY

“We would like to see more community gardens in our community.”

~Community member, Nespelem, Colville Reservation

Nutrition & Health Statistics

A developing movement in cooking and food growing education has occurred in the Okanogan region, encouraging a sustainable and thoughtful approach to agriculture and culinary techniques. The Okanogan County Master Gardeners has helped increase access to educational resources and practical experiences. Residents are learning more about the region's rich agricultural history and honing vital skills in growing and cooking fresh, locally produced food through workshops, community gardens, and farm-to-table events. These programs give people the power to make educated food decisions in addition to strengthening the resilience of the regional food system. The joint initiatives of these educational initiatives and community-driven projects highlight potential growth opportunities to incorporate stakeholders across the region in community education.

The US News & World Report provides ratings on diabetes prevalence, obesity prevalence, at-home food expenditures on fruit/vegetables at home, and food expenditures on soda /sugar-sweetened beverages out of a score of 100. The higher number means more prevalence, and the higher percentage means more obesity or diabetes prevalence. The overall nutrition score for Okanogan County is 49/100. The table below summarizes this data (U.S. News, 2023).

	COUNTY	U.S.	PEER GROUP	STATE
At-Home Food Expenditures on Fruit/Veg	55.69%	63.74%	56.15%	77.90%
At-Home Food Expenditures on Soda/SSB	46.33%	39.13%	46.62%	24.65%
Diabetes Prevalence	11.0%	10.4%	12.6%	8.9%
Obesity Prevalence	30.6%	36.2%	38.8%	29.2%
Table 4. Data from US News on food expenditures and diabetes and obesity prevalence				

VOICES FROM THE COMMUNITY

"Access to organic, local (as much as possible), whole foods in enough quantity that I could make broader, whole family diet changes and feed all of the family a healthier diet."

~ Community member, Twisp, Okanogan County

The CCT Diabetes Prevention Program has helped foster a proactive attitude towards health and well-being within the Colville Reservation. This effort offers vital culinary and nutrition education to the community, recognizing the critical role of diet in preventing and managing diabetes. In this program, diabetes educators organize workshops and programs that underscore the significance of nutritious food choices and balanced diets, in partnership with regional specialists and community leaders.

These programs improve community health and address the unique difficulties diabetes brings. Residents of the Colville Reservation are supported in making knowledgeable decisions about their dietary habits through interactive cooking courses, nutritional seminars, and community gardening initiatives. Colville Reservation's dedication to diabetes education and cooking classes fosters long-term benefits for both people and the reservation's overall health of the community.

Food Banks, Food Pantries and Other Access

Colville Reservation has one food distribution location in Nespelem. There are multiple resources for people in Okanogan County to secure low or no-cost food. However, these entities are understaffed and often there is high demand for limited food. Below is a chart from the Okanogan County Community Action Council that dictates the locations, days, and times available to access these resources.

Organizations That Provide Food to Our Food Banks and How It Works

WSDA, Feeding America, Northwest Harvest, and many others jointly support the Okanogan Food Bank. Northwest Harvest welcomes donations of non-perishable items for food access to the Okanogan Food Bank (Northwest Harvest, 2023). Sometimes, the county misses deliveries from major food distribution services because of the harsh winter season. Alongside the poor weather conditions, a lack of volunteers can limit hours of operation, negatively impacting those who rely on these resources to obtain their food. Strategies for this sector include organizing sustainable and reliable food drives, encouraging local fresh food donations directly to these organizations, and staying informed about the specific needs of each organization.

VOICES FROM THE COMMUNITY

"We'd like mobile food pantries and cold food storage lockers for our community members that live too far away from food pantries

~ Educator, Nespelem, Colville Reservation

Cost of Local Food Purchased by Food Banks

The Washington State Department of Agriculture (WSDA) submitted a funding request for the Local Food Purchase Assistance (LFPA) pilot program to take advantage of public purchasing opportunities in

Okanogan County Food Pantries			
Town	Location	Day(s)	Time
Brewster	301 S. 4th St (by the Catholic church) PO box 826	Thursdays	9am - 10:30am
Conconully	219 N. Main St., PO Box 202	1st and 3rd Wednesday	8am until delivered
Okanogan	OCCAC office, 424 2nd Ave S	Tuesdays	9am - 12pm
Omak	101 W. 4th Ave PO Box 4337	Tuesdays	9am - 12pm
Oroville	922 Main St. PO Box 471	Thursdays	9:30am - 11:30am
Tonasket	101 Highway 97 N	Thursdays	9am - 11am
Twisp/Methow	The Cove, 205 Glover St., PO Box 895	Thursdays	1pm - 4pm
Wauconda/Chesaw	Community Hall, 129 Toroda Creek Rd. PO Box 27	2nd and 4th Thursdays	1pm until delivered
Nespelem (Colville Confederated Tribes)	37 Lakes Street, PO Box 150	Monday - Friday	7:30am - 4pm (closed 11:30-12:30 for lunch)



Table 5. Okanogan County Food Pantries, as of August 2024
<https://occac.com/get-help/food-programs/>

order to bolster supply chains and promote a just and resilient local food systems throughout the state. 93% of the \$4.32 million requested will go to hunger relief organizations and other sub-recipients and 73% of the total going toward purchasing local food.

This helps strengthen the local economy through local agricultural production.

Food Assistance Programs

The Women, Infants, and Children Program (WIC) represents women, infants, and children who are looking to receive healthy foods. In 2023, the total number of participants was 2,096 (Washington Department of Health, 2023). WIC provides monthly benefits of up to \$100 worth of healthy foods

when two people in a family enroll in the program (Benefits.gov, 2023). Of the 83 respondents of the L.I.G.H.T. Foundation Food Security Survey all living on the Colville Reservation stated they were not aware (19.28%) were not so aware (31.33%), were somewhat aware (33.73%), and were extremely aware (7.23%) of government or communities initiatives that promoted the availability of healthy and nutritious foods (L.I.G.H.T. Foundation, 2023). Helping community members become more aware of government or community initiatives could help increase healthy food consumption.

In Okanogan County, 9409 individuals received Supplemental Nutrition Assistance Program (SNAP) benefits in 2020. This translates to approximately one in four residents, as reported by Fred Economic Data in 2020. These figures underscore the significance of programs like the Chelan-Douglas-Okanogan Counties Snap-ed program in addressing the nutritional needs of the community. On the Colville Reservation, people who are on food stamps can not utilize the tribe's food bank or receive food boxes. Some tribal members chose to not receive SNAP benefits in order to maintain their access to tribal food support. This means SNAP enrollment numbers for the area don't accurately reflect the number of people accessing food support.

SNAP improves food security, offers benefits that enable families to purchase healthier foods, and frees up resources that can be used for health-promoting activities and needed medical care. An examination of nutrition and cooking education-focused programs revealed the Chelan-Douglas-Okanogan Counties Snap-ed program as a noteworthy initiative with a successful 30-year history. Operated through Washington State University (WSU) in Chelan-Douglas Counties and Okanogan County, the program has effectively contributed to the improvement of individuals and families' lives by emphasizing education, particularly targeting youth and their families within the local school systems.

VOICES FROM THE COMMUNITY

"I would like to have enough on my Electronic Benefits Transfer (EBT) card, later in the month, I run out of fresh meat and produce."

~ Community member, Twisp, Okanogan County

"We need higher state food benefits to meet family's needs and account for the high cost of food."

~ Community member, South Valley,
Okanogan County

Other Organizations That Provide Food Access

Outside of food banks and food pantry resources, The Salvation Army provides emergency assistance for those needing lodging, food, gas, and rental assistance in emergencies and disasters (Room One 2023). Alongside the Salvation Army, the Department of Social and Health Services Cash and Food Assistance provides food benefits, cash assistance, and medical assistance to income-eligible families. They also provide services like child care assistance, aging-related services, medical coverage, and aid with child support (Room One, 2023).

Rural Resources Community Action's food systems program is partnering with local farmers, growers, and ranchers to provide fresh produce and other farm products to the local communities. This program's goal is to help develop capacity across the region for Tri-County agriculture to feed more local residents, with a focus on low-income and at-risk populations. Sourcing locally produced food is a win-win scenario with purchase dollars going to local farms which keeps that money in the local economy. Clients also get to enjoy fresh wholesome food comparable to what's available at a farmer's market (Rural Resources Community Action, n.d.).

ENERGY & WASTE

This section describes the different types of energy in the Okanogan Region and how they are consumed. Energy and waste programs are also explored that could benefit the region.

Renewable Energies

Much like the rest of Washington State, the Okanogan Region gathers a majority of its power from hydroelectric dams. Aided by wind power, on average about 86% of all power used in the Okanogan Region comes from renewable power (Okanogan PUD, Fuel Mix Disclosure, 2020). These energies are excellent for their efficient power collection and utilization and control over natural land. Hydroelectric power controls river flow and allows for easy redirection of river water for farming. However, hydroelectric power is complex and not completely beneficial or equitable for the region. The dams and rivers are largely regulated by Washington State and state-funded utility districts, which control the flow of water through Indigenous nations found in the region. This leads to inequalities when regulating water. It is also very disruptive to the culturally significant salmon traveling the rivers that are blocked by dams.

VOICES FROM THE COMMUNITY

"We need solar power as a renewable energy source for agricultural production."
~ Community member, Omak, Okanogan County

Non-Renewable Energies

While the Okanogan Region gets most of its power from renewable energies, it is less useful during harsh winters, leading to the use of non-renewable energies. This is in part due to the suboptimal power infrastructure that runs throughout the Okanogan Region. A substantial portion of the Okanogan Region is located far from urban centers. These remote areas experience reoccurring power outages following winter storms and during other natural and climate-related disasters such as wildfires and extreme heat. Since the population is spread across the region,

there is no cost-effective solution to the problem. The Okanogan and Ferry County Public Utility Departments suggest that residents instead independently prepare for power outages during winter storms (Okanogan PUD, 2022). So residents risk losing power during the winter, with no proper infrastructure to support them.

Only about 9% of all energy generated in the Okanogan Region is non-renewable. These non-renewable sources include Natural Gas and Coal. However, about 7.6% of the region's total energy used throughout the year comes from Non-Specified Energy Imbalance Market Purchases or Imported Power (Okanogan PUD, 2020). This is a means of supplying and dispatching electricity to balance fluctuations in generation and load. It aggregates the variability of generation and load over multiple BAAs.

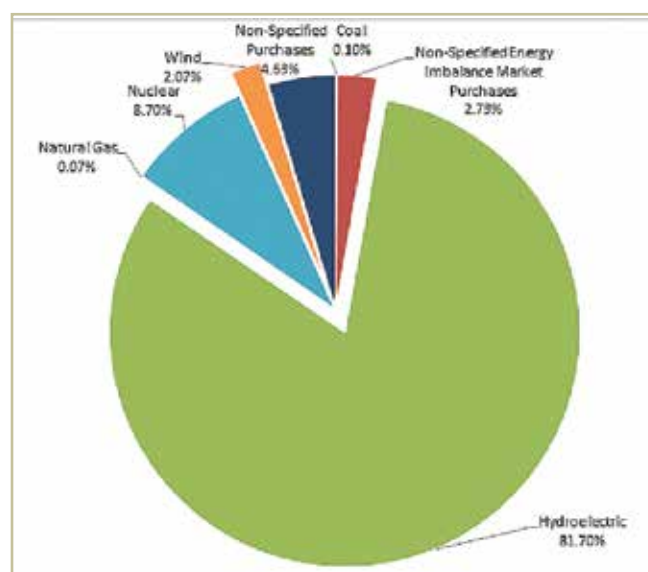


Figure 10. Power distribution by fuel type in the Okanogan Region

Household Consumer Waste

Yu and Jaenicke's Estimating Food Waste as Household Production Inefficiency study reveals the percentage of food waste by U.S. consumers and some of the factors directly tied to this statistic.

An estimated 28.4%-31.9% of household consumer food goes to waste, which is an estimated \$240 billion in food wasted a year.

Of this percentage of food waste, fruits and vegetables comprise a large portion (Yu & Jaenicke, 2020). U.S. consumers who consumed healthier food options and had higher incomes contributed more to household food waste than lower-income U.S. consumers with larger families who relied on food assistance programs. Regarding the environmental impacts, food waste contributes to 3.3 gigatons of greenhouse gas annually in the US (Yu & Jaenicke, 2020).

Farm Food Waste

In the United States in 2010, 31%, or 133 billion pounds of the 430 billion pounds of available food supply at the retail and consumer levels, went uneaten. The estimated value of this food loss was \$161.6 billion dollars using retail prices.

In 2020, researchers in the U.S. Department of Agriculture's Economic Research Service identified a variety of economic factors that influence growers and distributors in their decisions regarding food loss. These examples can be applied to the Okanogan Region. They include price volatility, labor cost and availability, lack of refrigeration infrastructure, aesthetic standards and consumer preferences, quality-based contracts, and various policies related to the harvest and marketing of fresh produce. This poses an incredible opportunity for value-added products to capture some of the farm waste. There is also an opportunity for gleaning programs to help reduce the waste of uneaten farm products.

Gleaning

Gleaning is collecting excess fresh foods from farms, gardens, farmers markets, grocers, restaurants, state/county fairs, or any other sources to provide it to those in need. Gleaning programs rely heavily on volunteers. Gleaning helps address food waste and also gives low-income individuals access to fresh and locally

grown foods that are not always available in their communities. In Okanogan County, Hanks' Grocery in Twisp has a grocery rescue partnership with The Cove food pantry in Twisp. The IGA in the town of Okanogan also has a grocery rescue partnership with the Okanogan Food Bank.

VOICES FROM THE COMMUNITY

"We'd like a gleaning program for our region."

~ Food manager, Okanogan, Okanogan County

Green Bin Programs & Composting

Composting is taking organic waste and turning it into mulch and fertilizer. This can be done either by an individual, a commercial composting facility, or on a farm to help reduce waste and the farm's annual fertilizer cost if the compost is applied on-farm. There is a difference between green and brown waste. Green waste includes food items, grass clippings, old flowers, and any other green colored waste. Brown waste includes straws, paper, wood, leaves, and cardboard. It does not include treated wood (Norton, E., 2023).

Composting using green bin programs helps conserve water, reduce personal food waste, improve soil health, and cut methane emissions from landfills (Hu, 2020). The green bin program collects kitchen and related organic waste using a green curbside container.

In recent years, green bins have become a popular way for households to take part in reducing energy waste through composting. These bins allow cities to collect food waste separate from the garbage bags that the waste usually ends up in. Households that take part in this program are given an extra waste bin designated for compostable food waste such as produce, meats, pasta, baked goods, nuts, diapers, animal waste, house plants and soil, soiled paper, etc. (Live Green Toronto, n.d.). Such initiatives could be considered to help minimize food waste in the Okanogan Region.

ECONOMIC BENEFIT

While exporting large amounts of agricultural products benefits the Okanogan Region's economy, very little food is left behind for residents to eat. This means that much of Okanogan County's food must be imported. Instead of consuming locally grown produce, Okanogan County residents rely on produce transported from different locations, increasing food costs to consumers. In the past, farmer's markets helped provide fresh produce to Okanogan community members. However, the number of farms have recently decreased, leaving farmers markets with fewer products to sell. With such a large population of Okanogan County residents depending on food banks, creating a food system that uses local food for food access programs is essential for economic growth in this region.

Agricultural Product Sales

Washington State, including Okanogan County, is a major apple exporter. Fruit production and sales, particularly in Okanogan County and surrounding areas, were valued at \$110,490,000. Cattle were the second highest at \$12,894,000 (Pilarski, 2006). The county exports significant quantities of apples, pears, sweet cherries, and other minor fruits, which grow well in the region. Washington State leads the U.S. in apple production, with sales reaching \$2.068 billion (Washington State Department of Agriculture, 2017). In 2017, Okanogan County was ranked 4th in the state and 23rd in the country for producing and selling fruits, tree nuts, and berries (United States Department of Agriculture, 2017).

It is worth noting that approximately,

"90% of the county's food supply is imported" despite its substantial agricultural output (Pilarski 2006). While the county is a significant producer of crops and livestock, it primarily relies on imported foods. Increasing the use of locally produced food could help meet local needs and reduce dependence on imported goods, creating a more sustainable flow of food.

For the past ten years, farms in the largest agricultural industries in the Okanogan Region have declined in number. The declining number of agricultural establishments has a ripple effect, impacting the Okanogan Region and the entire state's agricultural market. According to the 2017 Census of Agriculture, farm production expenses increased by 29% from 2012 to 2017, possibly contributing to decreased establishments.

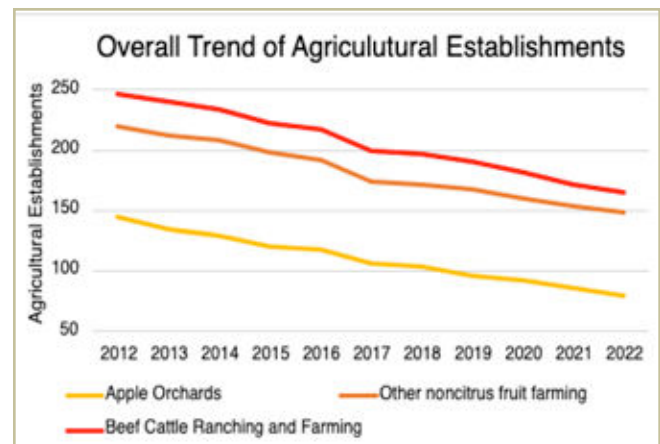


Figure 9. The decline of agriculture establishments 2012-2022, produced from census data



Photo: Anne Preble/Unsplash

VOICES FROM THE COMMUNITY

"Tribal farmers have to travel so far to sell their food. We'd like a farmers market on the Reservation."

~ Community Member, Inchelium, Colville Reservation

Farmers Markets

Farmers markets are vital for the local economy, offering economic opportunities to farmers and producers, supporting local businesses, promoting community health, and fostering social connections. There are no farmer's markets on the Colville Reservation, but there are two located within five miles of the boundary (Marchand, 2016). Okanogan County has a few farmers markets throughout the area. Some of the towns in the county that have farmers' markets include Okanogan, Omak, Tonasket, Twisp, and Oroville.

Community Supported Agriculture

Community Supported Agriculture (CSA) is a system where customers purchase a subscription to a local farm before the season, providing agricultural producers with funds for the growing process. In return, customers receive a weekly "share" of the harvest (Eat Local First, 2023). Washington hosts approximately 290 CSA groups statewide. Several farms in the area have CSA programs.

Restaurants

The restaurant sector significantly contributes to Washington State's economy. The food service industry generates numerous employment opportunities and holds a crucial position in every community throughout the state. Approximately 1,412 eating and drinking establishments are located in Okanogan County (National Restaurant Association, n.d.).

Schools and Hospitals

While there was no specific public data available on school and hospital food sales, there are about 30 schools and six hospitals in the Okanogan Region (Niche, n.d.). The schools serve close to 1,402 students, and the hospitals serve around 40,000 people, including almost the entire Okanogan County population (Healthgrades, n.d.). Selling local food to schools and hospitals would be a great opportunity for agricultural producers.

Grocers

There are 35 grocery stores in Okanogan County and could be an opportunity for local food sales (Yelp, n.d.). The challenge can be that larger chain grocers demand the most competitive pricing from their producers. It is cheaper for food buyers in large grocery store chains to buy from large food producers who sell their products at a much lower rate, creating inequality for smaller producers to sell their food locally.

VOICES FROM THE COMMUNITY

"Like many of the businesses in the valley, it depends on tourism for a large portion of our sales. When the pass over highway 20 closes due to fires or prescribed burns, or even if we have really poor air quality because of fires somewhere else, produce sales drop."

~ Food buyer, Methow Valley, Okanogan County

Okanogan County Farm Revenue

As of 2017, Okanogan County, known for its rural farmland, had 1,231,899 acres of farmland across 1,192 farms, according to the United States Department of Agriculture census data. Okanogan County's farmland makes up 8% of the total farmland in Washington State, putting it in the top 10 out of 39 counties in the state for the amount of farmland.

The net cash income for these Okanogan farms in 2017 was \$50,565,000, averaging \$42,421 per farm. The total sales of county-produced products and crops reached \$338,088,000. Fruits, tree nuts, and berries generated the highest revenue at \$287,833,000, followed by cattle and calves at \$24,162,000, and other crops, including hay, at \$4,773,000 (United States Department of Agriculture, 2017). Washington State had 14,679,857 acres of farmland across 35,793 farms in 2017. The net cash income for these farms was \$1,705,211,000, averaging \$47,641 per farm. The total sales of state-produced products and crops reached \$9,634,461. Fruits, tree nuts, and berries generated the highest revenue at \$3,614,885, followed by vegetables, melons, potatoes, and sweet potatoes at \$1,094,944 and milk from cows at \$1,082,594 (United States Department of Agriculture, 2017).



Photo: Patrick Hendry/Unsplash

Consumer Spending & Consumption

In 2022, rising inflation, reduced crop yields, and increased demand forced the largest food bank distributor in the inland Northwest to cease deliveries to over 80 regional food banks (Hanlon, 2022). Okanogan County, where a quarter of the population relies on food banks, is struggling with food scarcity (Hanlon, 2022). Nonprofits working on the local food systems are vital in addressing this issue, given many residents depend on donations. Although food production continues, distribution systems are limited, leaving vulnerable areas struggling to access food.

In terms of consumer consumption, the U.S. discards 60 million tons of food annually, the highest of any nation (Food Waste in America, n.d.). Food waste contributes to food insecurity, impacting around 35 million Americans, including 10 million children. Misunderstandings about expiration labels lead to over 80% of Americans discarding perfectly good food, resulting in the waste equivalent of 37 million cars' greenhouse emissions, harming both people and the environment (Food Waste in America, n.d.). No data exists in the region for these statistics, but it does give a general indication of potential opportunities to reduce waste.

Local Food Supply & Demand

Okanogan County is dominated by apple orchards. However, the lack of crop diversity can limit the availability of different fruits and vegetables. Rising food prices negatively impact rural food pantries. Smaller, rural towns lack the resources of bigger cities. A meat supply shortage increases food access issues. Declining agricultural establishments since 2012 and limited crop diversity due to a short growing season are fueling increased demand and food price inflation (Hanlon, 2022).

POLICY, REGULATION & FOOD SAFETY

The Policy and Regulation section will cover some policies and governing bodies that are in place within Washington State that impact the Okanogan Region's food system sustainability and equitable access to food.

Governing Bodies

Besides the Federal regulators such as the Food and Drug Administration and the U.S. Department of Agriculture, Washington State has its own Department of Agriculture and Department of Health. Subsequently, each county has its own Departments of Agriculture and Health.

Okanogan County has one Department of Health (Okanogan County Government, 2023). The region also does not have an independent Department of Agriculture, so the Washington State Department of Agriculture oversees the agricultural needs of the Okanogan Region, referred to as District 7 (Washington State Department of Agriculture, 2022).

"Okanogan County acknowledges the jurisdiction and governing authority of the Colville Confederated Tribes, which are a federally recognized Native American tribe in northcentral Washington State. As a tribal government they exert jurisdiction within reservation boundaries over waters of the reservations, trust lands, and other reservation resources."

As policy and regulation is further explored, the need for independent county departments, such as a Department of Agriculture or Department of Health, and overall reliance on state legislation to handle policy and regulation adjustments, leads to challenges in the region.

Policy & Regulation

Policies and regulatory gaps present challenges to building an equitable food system, with consequences

ranging from disrupted supply chains to food insecurity in vulnerable communities.

Winter and wildfire conditions in Okanogan County can disrupt local food supply chains, impeding the delivery of goods due to mountain pass closures from producers to consumers. This disruption affects the availability of locally sourced products and poses challenges to agricultural producers, impacting their livelihoods. Additionally, road closures and transportation disruptions during harsh winters make it difficult for residents to access fresh food from local grocery stores, potentially leading to food shortages and concerns about food security. The increased cost of transporting food due to harsh winter conditions results in higher food prices, straining household budgets and making it harder for residents to afford nutritious food. Furthermore, inadequate resources for food preservation, such as canning supplies and proper storage facilities, limit the community's ability to store and use food efficiently during the winter months.

The lack of policies addressing these vulnerabilities underscores the need for a more resilient and locally-focused food system that can better withstand the harsh weather conditions in Okanogan County (Pilarski, M. S., 2006). Historical regulatory gaps in food programs in the region have contributed to food security struggles. According to the report by the USDA, there is a need to improve communication and collaboration between agencies like the EPA and CDC, which have critical roles in food safety and health (Food Safety and Inspection Service, U.S Department of Agriculture, n.d.). This fragmented approach can hinder the development of a resilient and equitable food system.

Food Safety

The multifaceted realm of food safety grapples with a complex web of regulations and regulatory authorities, affecting stakeholders at every stage of food production and distribution.

In Okanogan County, ensuring food safety is a collaborative effort involving various stakeholders, including producers, processors, retailers, regulators, and consumers. Additionally, trade and consumer organizations, professional institutions, and academic bodies play pivotal roles in shaping policies through extensive research and educational initiatives (Food Program Policy, 2018). The state of Washington has proactively taken steps to minimize the use of toxic chemicals in consumer products by implementing several measures. These measures include potential bans or restrictions on harmful chemicals that could meet food, emphasizing substances known to be carcinogenic or endocrine disruptors. Continuous monitoring and testing of consumer products

is conducted to maintain safety standards, with corrective actions taken upon identifying violations.

The state also mandates clear labeling to inform consumers about specific product chemicals, enabling them to make informed choices. Collaborative efforts involve engaging with manufacturers to promote the adoption of safer alternatives, raising public awareness about potential risks associated with certain chemicals, and encouraging consumers to opt for safer options. The environmental regulations have been implemented to reduce the use of toxic chemicals, indirectly enhancing food safety by minimizing environmental contamination. To encourage innovation in product safety, incentives such as grants and tax incentives are provided for research and development of safer ingredients and materials. Furthermore, programs have been established to safely dispose of consumer products at the end of their life cycle to prevent the release of toxic chemicals into the environment.

CONCLUSION

This local community food system assessment for the Okanogan region addresses various challenges and opportunities. It will help the community better understand intersecting and complex elements that impact food economics, the land, access, justice, and equity.

The collaborative process in bringing this report together articulates the strengths and challenges faced by the community. One existing challenge is the need for comprehensive and current food system data for the Colville Reservation and Okanogan County. With that in mind, this food system assessment will be a living document that can be updated as new data comes to light. Although the region has its share of challenges, there is an opportunity to transform them into areas of strength and innovation.

This assessment is a springboard for the community to develop strategies to support the growth of an equitable, sustainable, and economically thriving food system in the region. The broader vision is to eliminate hunger by ensuring that every person has close access to culturally relevant, locally grown, and nutritious food. The aim is to create a sustainable food system that supports farmers, the community, and the land in Okanogan region. The next step is to conduct a ten year food action plan in service to this multi-generational long term vision.

Below is a Summary of Opportunities and Challenges to Turn Into Strengths.

Summary of Existing Opportunities

- » Utilize the thousands of acres of rich agricultural diversity to increase local food production and access to healthy fresh foods which would benefit the local economy.
- » Implement innovative solutions like increasing the number of wholesale food hubs and co-ops to give producers an opportunity to become part of a scalable system. With infrastructure built into the model, it will support marketing, storage, distribution, and increase sales for all participating growers and food producers.
- » Increase farm to school and farm to food pantry programs in the region which will keep more local food in the community and help create equitable access to all.
- » Revive a gleaning program in the area to reduce farm waste and decrease food insecurity rates.
- » There is plenty of room for collaborating, sharing resources, and strengthening infrastructure.
- » Create equitable food access for both financial accessibility and proximity access for community members.

Summary of Existing Challenges to Turn Into Strengths

- » Increase the amount of agricultural producer co-ops and coalitions. This would alleviate some of the challenges of a small labor pool in the region. It would also share start up costs for new food production businesses, infrastructure, and liability.
- » Extend the growing season to increase local food production.
- » Create policies to address the financial struggles faced by agricultural producers.
- » Increase educational programs for community members to learn about nutrition and cooking with fresh whole foods to increase health and well-being.
- » Develop more community and backyard gardens to decrease rates of food insecurity.

Next Steps: Food Action Plan

The Okanogan Regional Food Council will develop a ten year food action plan based off of the food system assessment findings. The food council will determine the community food system goals and develop (SMARTIE) specific, measurable, achievable, relevant, time-bound, inclusive and equitable goals. The food council will present ideas to the larger community for feedback and ideas on additional action items. The council will then evaluate and prioritize the goals. The process will conclude by writing the food action plan. Then implementation will begin. Once implementation has begun, there will be a yearly review of the food action plan every year for the next 10 years to evaluate the progress using a grading rubric.

APPENDIX

Data Sources & Methods

The Food Security Survey Project: the final number of surveys collected was 83 participants, with 60.24% from Okanogan County, 15.66% from Ferry County, 4.82% from Stevens County, 7.23% from Grant County, 3.61% from Douglas County, 2.41% from Spokane County, 1.20% from King County, 4.82% participants did not identify. Overall, there were 68.67% respondents being American Indian or Alaskan Native, 1.20% Asian/Pacific Islander, 1.20% Hispanic, 18.07% White Caucasian, 10.84% multiple ethnicity/other.

Our data collection method options included: face-to-face interviews, telephone surveys, online surveys, intercept surveys (approaching individuals in specific locations), postal or mail surveys, and mixed-mode surveys (combination of the survey methods). We understood that in selecting a data collection methodology it was crucial to consider factors such as the target population's accessibility, technological access, and cultural sensitivities.

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Okanogan Region Local Community Food Assessment

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