Great Falls Development Authority

# Opportunities in Pulse Processing for the State of Montana

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# Opportunities in Pulse Processing for the State of Montana

## A report for Great Falls Development Authority, Inc.

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## EXECUTIVE SUMMARY

Montana is the nation's top producer of dry peas, lentils, and chickpeas, yet most of this production leaves the state in raw, unprocessed form. Only a small portion of Montana-grown pulses are cleaned, split, milled, or packaged in-state, and even fewer are converted into branded foods or specialty ingredients. This assessment, commissioned by the Great Falls Development Authority (GFDA), explores opportunities to expand pulse processing capacity in Montana across four segments: custom toll processing, ingredient manufacturing, snack food production, and pet food manufacturing. To inform this analysis, Agralytica conducted interviews with 28 stakeholders across the pulse value chain and reviewed infrastructure data, investment records, and market research.

**The assessment finds that Montana's strongest opportunity lies not in consumer-packaged goods (CPG), but in expanding upstream and midstream capacity—particularly food-grade cleaning, sorting, toll processing, and milling**. These functions better align with the state's infrastructure, rural workforce, and production strengths. Branded food and pet food manufacturing remain attractive in principle, but the conditions to compete at scale—such as co-packing infrastructure, market access, and proximity to food industry clusters—are not yet in place. The pulse ingredient market is also currently oversupplied, with major fractionation plants underutilized. In this environment, large-scale investments in concentrate or isolate production would face steep headwinds without guaranteed offtake or public support.

More practical strategies include encouraging the development of handler-based facilities and building outward through modular upgrades. These may start with cleaning and sizing, followed by sorting, decorticating, bagging, and eventually splitting or milling. Stakeholders noted that these facilities are more viable when managed by external operators or perhaps shared among growers, since individual farmers rarely have the time, staff, or appetite for this kind of business venture. Capital needs vary, but basic greenfield infrastructure for cleaning and sorting is estimated at around $5 million, with milling requiring additional investment, though repurposing idle infrastructure would cost considerably less.

Toll processing also represents a high-potential opportunity by allowing growers and small brands to retain ownership of the crop while accessing certified services. Ultimately, toll operations may depend on a small number of specialized operators, supported by strong client relationships or cooperative alignment. Additional strategies include enabling dual-use facilities for pet and human food markets, expanding small-scale packaging for 1–2 lb. bags commonly demanded by government tenders, and improving outbound logistics through containerized shipping and inland transload hubs in locations like Great Falls, Billings, and Havre.

Reducing capital and market entry barriers is also essential. Stakeholders noted the lack of a statewide inventory of underutilized equipment and facilities that could be refurbished or relocated. Creating such a registry—paired with technical assistance, permitting guidance, and vendor support—could lower startup costs and accelerate deployment. Cooperative and grower-aligned business models were also viewed as effective ways to share risk, improve traceability, and ensure grower participation.

Regionally, North Central and Eastern Montana remain the most promising locations for expanded processing due to their pulse density, infrastructure readiness, and alignment with development goals. Southeast Montana offers potential in ingredient processing and packaging, particularly around Billings. South Central and Western Montana, while not major production zones, may serve niche roles in product development, co-packing, and branded applications tied to innovation and tourism.

Collectively, these strategies offer a phased, risk-aware roadmap for growing Montana's pulse processing sector. While the state may not become a CPG hub in the near term, it can play a leading role in supplying high-integrity, semi-finished, food-grade ingredients to regional, national, and export buyers—keeping more value in-state, creating rural jobs, and strengthening market access for Montana growers.



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## ADDRESSING THE RFP OBJECTIVES

- **Summarize existing pulse processing services, facilities, and costs of manufacturing pulse pet food, pulse snack food, custom pulse processing, and pulse ingredient making in Montana and surrounding areas**

  Montana's pulse processing sector is strongest in basic processing—including food-grade cleaning, sorting, sizing, and bagging—offered primarily through elevator-based facilities. A smaller number of operations offer food-grade toll processing, typically focused on splitting or bagging, though capacity remains limited.

  Pulse ingredient manufacturing (e.g., flour or fiber) is beginning to emerge, largely as add-ons to splitting facilities, but the state lacks large-scale protein fractionation infrastructure. Snack food and pet food manufacturing remain very limited in-state, with most downstream processing occurring in regional hubs such as North Dakota and Alberta where labor pools, co-packing infrastructure, and market access are stronger.

  Estimated manufacturing costs vary by segment and scale: basic cleaning typically runs $0.10–$0.25/lb., toll processing $0.15–$0.40/lb., and more advanced ingredient processing $3.00-$6.00/lb. While Montana offers lower land and energy costs, gaps in logistics, labor, and equipment access often increase total operational expenses.

- **Provide a SWOT analysis for each of the four identified key areas pulse pet food, pulse snack food, custom pulse processing, and pulse ingredient making**

  SWOT analyses were developed for each of the four segments, plus basic processing, using stakeholder interviews, market data, and regional context. In summary:

  - **Basic Processing**: Montana has a strong base of cleaning, sorting, bagging, and some splitting infrastructure, especially in North Central and Eastern Montana. Strengths include proximity to production, low-cost land and utilities, and food-grade upgrades in some facilities. Weaknesses include limited food-safe certification and packaging capacity. Opportunities lie in modular expansion of handler sites. Long-term threats include market volatility and processing consolidation out of state.
  - **Toll processing**: Offers growers and brands access to value-added services without ceding ownership or investing in infrastructure. Supports identity-preserved, organic, and small-batch markets. Key challenges include underutilization risk, staffing, and logistics. Most viable when structured through cooperatives or anchor-client models. Demand is growing for flexible, certified services targeting premium and regenerative markets.
  - **Pulse ingredient making**: Montana's high-quality pulses support demand for flours, fibers, and starches. Opportunities exist in clean-label, allergen-friendly, and non-GMO ingredients. However, the state lacks large-scale fractionation, experienced food processing labor, and local buyers. Capital costs are high, and existing North American capacity is underused. Incremental milling add-ons to splitting facilities may offer more viable paths forward.
  - **Pulse snack food**: Strong market trends favor pulse-based snacks, and Montana has organic supply and university R&D assets. However, the state lacks co-packers, consumer market proximity, and CPG infrastructure. Growth is most feasible for mission-driven brands with regional reach or those that co-locate R&D and small-scale production.
  - **Pulse pet food**: Montana pulses meet growing demand for grain-free and plant-forward formulations. Strengths include traceability, clean-label production, and a strong reputation with ingredient buyers. Weaknesses include the absence of in-state manufacturing and risk aversion among major brands. Regulatory uncertainty and market concentration present ongoing threats.

- **Provide a location SWOT analysis for geographic regions of Montana: North Central Montana, Eastern Montana, South Central Montana, and Western Montana**

  Location-based SWOT analyses were developed to assess the relative strengths, weaknesses, opportunities, and threats for pulse processing across four major Montana regions. In summary:

  - **North Central Montana**: Arguably Montana's strongest region for pulse processing expansion, with dense pulse acreage, food-grade facilities, rail access, and active development zones such as AgriTech Park in Great Falls. It also benefits from water availability, economic development support, and existing infrastructure that could be upgraded or expanded. Labor constraints remain a challenge in rural areas, and regional competition from North Dakota and Canada poses a threat. Still, this region offers the clearest path forward for expanded pulse processing.
  - **Eastern Montana**:
    - *Northeast Montana*: A major production zone with increasing infrastructure, including recent investments in cleaning and splitting. The region offers low land and labor costs and has strong potential for modular expansion of basic and intermediate processing. However, remoteness and workforce limitations present hurdles. Further investment could help stabilize grower prices and reduce reliance on out-of-state processing.
    - *Southeast Montana:* Though pulse production is less concentrated, locations like Billings offer strategic advantages—strong rail and highway access, a larger labor pool, and potential for co-packing or ingredient packaging. This region is well-positioned to host dual-use or downstream infrastructure, but lacks proximity to raw pulse supply and has little existing midstream capacity.
  - **South Central Montana**: Anchored by Bozeman's innovation and research ecosystem, this region has limited pulse production but potential for branded or specialty processing tied to local food, startups, or academic partnerships. Challenges include high land prices and distance from pulse supply chains. Opportunities may lie in co-packing, small-scale product development, or regional marketing initiatives.
  - **Western Montana**: Not a major production region, but its proximity to population centers and West Coast logistics offers potential for downstream processing or CPG ventures. Weaknesses include minimal grower base, higher operating costs, and underdeveloped agri-food infrastructure. May be best suited for food manufacturing or innovation using inputs sourced from elsewhere in the state.

- **Identify where pulse processing is currently occurring outside of Montana and assess key similarities and differences to Montana locations**

  Commercial-scale pulse processing is active across several nearby regions that offer useful points of comparison:

  - **North Dakota** (e.g., Minot, Williston, Dickinson): A major hub for cleaning, splitting, and value-added processing, including AGT Foods' new extrusion and pasta facility. Like Montana, North Dakota has strong pulse acreage and a favorable growing environment. However, it benefits from a deeper labor pool, more established food manufacturing infrastructure, and better intermodal rail access—factors that support downstream development at greater scale.
  - **Washington and Idaho (Palouse region)**: A legacy center of U.S. pulse production and home to robust processing infrastructure, including milling. Proximity to West Coast ports supports export markets, and the region has longstanding supply chain relationships. However, higher land and energy costs, labor shortages, and regulatory pressures increase operating costs. Montana offers lower-cost inputs and simpler permitting but lacks comparable density, logistics, and CPG integration.
  - **Southern Alberta**: A global leader in pulse processing, particularly in protein fractionation and ingredient manufacturing. The region benefits from vertically integrated supply chains, strong public

investment, and export-focused infrastructure. While Montana's quality and organic production are competitive, it trails in capital investment, technological capacity, and access to value-added buyers.

Montana's advantages include abundant raw supply, low-cost land and energy, and strong grower networks. However, it lacks midstream capacity, certified facilities, and labor availability to support large-scale branded or ingredient ventures. Peer regions have advanced further due to longer-standing investment, clustering effects, and closer proximity to ports and major buyers. Montana is best positioned to grow through modular, midscale strategies rooted in upstream strengths rather than replicating downstream models seen elsewhere.

- **Identify strategies to grow pulse processing Montana**

In our view, the most effective strategies for expanding pulse processing in Montana are those that build outward from existing handler-based infrastructure, lower capital and operational barriers, and strengthen institutional support. Stakeholders emphasized modular growth, grower alignment, and regionally tailored development as guiding principles. Recommended strategies include:

- **Expand handler-based infrastructure** as the base for modular processing growth—starting with food-grade cleaning and sizing, then adding services like bagging, splitting, and milling incrementally.
- **Encourage cooperative or grower-aligned ownership models** to share cost, reduce individual burden, and ensure supply alignment.
- **Prioritize toll processing,** particularly for food-grade and identity-preserved products, to support access for growers, co-ops, and small brands.
- **Address feed-grade processing gaps,** especially for pet food and livestock markets, to reduce out-of-state reliance and improve margins.
- **Create a statewide inventory of underutilized infrastructure,** including idle equipment and facilities, to lower startup costs for new ventures.
- **Expand small-scale packaging and co-packing capacity—**especially for 1–2 lb. bags needed by retail, school, and government buyers.
- **Support dual-use processing models** that serve both pet and human food markets to improve utilization and risk management.
- **Improve outbound logistics** by investing in inland transload hubs and containerized freight solutions in key locations.
- **Provide technical assistance and feasibility support** for cooperative and grower-aligned ventures.
- **Foster regional clustering and specialization**, aligning processing types with local strengths in places like Great Falls, Billings, and Havre.
- **Establish a centralized hub for permitting, financing, and equipment guidance** to reduce barriers and improve project readiness statewide.

Together, these strategies offer a phased, realistic roadmap for strengthening Montana's role in the pulse value chain.

- **Create a projection of the economic impact of a successful business creation or relocation in each Montana region, with particular focus on benefit to pulse farmers**

While this report does not include a formal econometric projection, it offers a qualitative assessment of the likely economic impact of a successful pulse processing facility in each major Montana region. These insights are based on regional data, infrastructure mapping, stakeholder interviews, and pulse market dynamics.

- **North Central Montana**: A region with high pulse acreage and strong infrastructure, a new or expanded facility here would lower freight costs, improve price transparency, and enable farmers to capture more value through basic processing, toll services, or milling. Recent processor expansions in the region are already demonstrating these benefits through higher farmgate returns and stronger supply chain partnerships.
- **Northeast Montana**: With high pulse production but limited processing, a facility here would create meaningful economic impact by improving farm-level market access, reducing transportation burdens, and stimulating job creation. It would help anchor local economies currently dependent on shipping raw commodities to North Dakota and Canda and offer a more stable demand channel for growers.
- **Southeast Montana**: Though pulse production is less concentrated, this region has strong transportation assets and could serve as a distribution or co-packing hub. A facility here could also source pulses from other regions, creating demand pull across the state and linking farmers to new ingredient, institutional, or export markets.
- **South Central Montana:** Processing here would likely focus on niche, branded, or organic products. While the direct impact to farmers may be more limited, demand for identity-preserved and organic pulses could support premium pricing and offer differentiated marketing opportunities for growers.
- **Western Montana:** Though not a major production zone, a small or modest-size downstream facility here (e.g., for snacks or ingredients) could contract with growers in North Central or Eastern Montana—creating added demand, reducing overreliance on shipping pulses out-of-state, and enhancing in-state value retention.

Across all regions, localizing pulse processing can reduce costs, expand marketing options, and create new income streams for Montana pulse growers.

# 1. INTRODUCTION, OBJECTIVES, AND METHODOLOGY

## 1.1. Introduction

In June 2024, the Great Falls Development Authority (GFDA) was awarded a grant to commission a market assessment focused on pulse processing opportunities in Montana. GFDA contracted with Agralytica to carry out the assessment, with the goal of identifying strategies to attract investment in four key areas of pulse processing: pet food, snack food, custom pulse processing, and ingredient manufacturing.

This assessment was conducted in the spring and summer of 2025 and is intended to inform economic development strategies that support new local markets for Montana pulse growers, create manufacturing jobs, and expand access to local food products.

Montana is the nation's leading producer of dry peas, lentils, and chickpeas, and in recent years has developed several processing facilities to handle this growing supply. However, significant untapped potential remains to add value in-state through more advanced processing. The Montana Pulse Crop Committee—funded by pulse checkoff dollars—has supported ongoing research and market development to advance these opportunities, including this assessment.

More broadly, the U.S. pulse processing sector has evolved from its early roots in subsistence farming to a complex and increasingly sophisticated network of domestic and export-oriented facilities. Industry growth has been shaped by improvements in agricultural productivity, infrastructure, and consumer demand for plant-based, high-protein foods. Montana is well-positioned to play a greater role in this value chain. This report evaluates how and where that growth can take place.

## 1.2. Objectives of the Request for Proposals

The objectives of the Request for Proposals were to create a report that:

- Summarizes existing pulse processing services, facilities, and costs of manufacturing pulse pet food, pulse snack food, custom pulse processing, and pulse ingredient making in the state of Montana and the surrounding areas of North and South Dakota, Washington, Idaho, Wyoming and Southern Alberta.
- Provides a SWOT analysis for each of the four identified key areas: pulse pet food, pulse snack food, custom pulse processing, and pulse ingredient making.
- Provides a location SWOT analysis for geographic regions of Montana: North Central Montana, Eastern Montana, South Central Montana, and Western Montana.
- Identifies where pulse processing is currently occurring outside of Montana and assess key similarities and differences to Montana locations.
- Identifies strategies to grow pulse processing in Montana
- Creates a projection of the economic impact of a successful business creation or relocation in each region identified above, with particular focus on benefit to pulse farmers.

## 1.3. Approach and methodology

Our approach to this market assessment involved the following steps:

- Conducting research on available open-source materials on the market for pulse processing services, facilities, and costs of manufacturing in Montana and the surrounding areas of North and South Dakota, Washington, Idaho, Wyoming, and Southern Alberta, Canada.



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- Conducting a wide scale interview program covering each of the identified geographic regions of Montana and surrounding areas. This included interviews with:
  - GFDA staff responsible for the project
  - Subject-matter experts Jeff Winkler and Kevin McPhee
  - Montana based pulse crop farmers and grower organizations to understand local production capacities and needs.
  - Existing pulse processors to gather insights on current challenges, opportunities, and required capabilities.
  - Industry experts to provide third-party perspectives on market dynamics and investment trends.
  - Investment and business development leaders.
- Conducting a regional benefits analysis on the establishment of a new pulse processing facility in Montana.
- Visiting Montana and conducting in-person meetings with pulse farmers and processors.
- Analyzing and synthesizing all findings, and communicating them in a written report that covers the objectives outlined in the RFP

## 1.4. Report structure

The report comprises an Executive Summary plus the following sections:

- **Section 1** includes an introduction, a review of the project objectives, and a description of the evaluation methodology applied.
- **Section 2** gives some background on the U.S. pulse processing industry and describes its evolution.
- **Section 3** provides some background on the market for processed pulse products.
- **Section 4** discusses market opportunities for pulse processing in Montana, including the benefits of pulse processing in various Montana regions with a specific focus on benefits to pulse farmers.
- **Section 5** provides our conclusions, recommended strategies for growing pulse processing in Montana, and answers the objectives posed in the Request for Proposals.
- The **Appendix** provide maps of existing processors in Montana and the surrounding areas.

## 2. U.S. PULSE PROCESSING INDUSTRY OVERVIEW

The U.S. pulse processing industry has evolved over time from small-scale subsistence farming to an increasingly sophisticated network of facilities catering to both domestic and international markets. The expansion of this industry has been influenced by advancements in agricultural practices, infrastructure development, and shifts in consumer and export demand. Montana has played a central role in this growth, emerging over the past two decades as the nation's top pulse-producing state and a key contributor to the industry's supply base. The following sections describe this evolution in additional detail.

### 2.1. Background

The modern pulse processing industry in the U.S. began to take shape in the 1990s, as pulse acreage expanded in the Northern Plains and Palouse regions and new consumer and export markets emerged. Before that, pulse farming was largely small-scale and localized, often focused on dry peas and lentils used in animal feed or for export as whole products.

In the 1990s, growers in northwestern North Dakota and eastern Montana identified pulses as a valuable rotation crop. Simultaneously, the farm economy of the 1980s had been tough: low grain prices and farm program changes pushed some wheat growers to seek alternative cash crops. Amid these conditions, farmers in North Dakota and Montana began trial plantings of pulses. By 1998, nearly 60,000 acres of dry peas, lentils, and chickpeas were planted in Montana and 122,000 acres of dry peas and lentils in North Dakota.[1]

Lacking a local history of pulses, North Dakota and Montana farmers initially had to ship their crops to distant processors (some pulses went by rail to the Palouse, or north to Canadian elevators). With acreage expanding, processing infrastructure also initially lagged. In the late 1990s, there was just one major pulse buyer/processor in North Dakota, limiting options for growers to clean or sell their crop.[2] Most early pulses from the Dakotas and Montana were shipped out raw to established processors or to fulfill government food-aid contracts. Anecdotally, nearly all of the pulse volume from the northern tier went into USDA's Public Law 480 food aid programs or was exported whole, rather than being processed into domestic food products.[3]

During the 1990s, other local pulse cleaning businesses and co-ops also sprang up. Some grain elevators in Montana and North Dakota began offering custom cleaning of pulses—effectively toll processing services where a facility would clean, sort, or bag farmers' pulses for a fee, without taking ownership of the crop. This allowed growers to add value and meet market specifications (e.g., removing splits or foreign material) even if they were too small to afford their own processing equipment.

Pulse processing in the U.S. (and Canada) in the 1990s was primarily focused on producing commodity ingredients—e.g., bulk split peas, whole lentils, and bagged beans—for export or wholesale. But food scientists at places like the Northern Crops Institute in North Dakota were starting to work with state grower groups to mill pulses into flours and protein concentrates on a pilot scale. Their goal was to unlock new markets by incorporating pulse proteins and fibers into processed foods. Pet food was an early target for these experiments. In fact, pulses have quietly been used in pet food formulations for over 50 years, mainly as protein-rich fillers in dog and cat diets.[4] However, this segment saw renewed growth in the 1990s as pet

[1] U.S. Department of Agriculture, National Agricultural Statistics Service (NASS). *Quick Stats: 1998 Montana and North Dakota Planted Acreage – Dry Peas, Lentils, and Chickpeas*. Washington, DC: USDA NASS, 1998.
[2] North Dakota Dry Pea & Lentil Council (NDDPLC), *Biennial Report 2023*
[3] Les Knudson, interview in *Northern Pulse Growers Association Newsletter,* 2023.
[4] NDDPLC, 2023.



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owners and manufacturers showed interest in "grain-free" or novel ingredient diets. Pulse fractions (like pea protein or fiber) started to be tested in kibble formulas, foreshadowing a major trend of the 2000s.

On the human food side, a few specialty snack products using pulse ingredients appeared in the late 1990s, though they were not yet mainstream. For example, pea flour was used in some extruded snack chips and baked goods on a limited basis as a healthier alternative to wheat flour. The concept of pulse-based snacks and pastas was also incubating in these years through small R&D efforts.

## 2.2. Evolution of the pulse processing industry in the 21st century

At the turn of the millennium, U.S. pulse crop production began shifting from its traditional stronghold in the Palouse to the Northern Plains, particularly North Dakota and Montana. By 2009, North Dakota had become the nation's top producer of dry peas, lentils, and chickpeas, with Montana close behind.[5] This rapid expansion outpaced local processing capacity and prompted entrepreneurs to invest in new infrastructure. A family-run firm in Garrison, North Dakota, for instance, opened a pulse cleaning and bagging plant in 2002 to add value locally and support exports.[6] Similarly, a lentil splitting mill was established in Williston in 2000 to serve producers across the broader region.[7]

While the Palouse had long maintained a mature processing network, new facilities were now emerging across the Northern Plains to support this growing industry. These early-2000s efforts—often family businesses or farmer co-ops—laid the groundwork for localized pulse processing, though most production was still shipped out for further processing or export. Policy support was nascent in this era; pulses were not yet full participants in U.S. commodity programs, though growers benefited from rising demand in global markets and crop rotation benefits like nitrogen fixation and soil health.

Pulse processing capacity and diversification accelerated through the 2010s. Acreage of peas, lentils, and chickpeas continued climbing, especially after 2012, and Montana and North Dakota solidified their dominance in U.S. pulse production.[8] Recognizing the need for in-state processing, local investors and agencies began developing plants to clean, sort, and add value to pulses. In Cut Bank, Montana, a $6 million food-grade pulse processing plant was built with support from USDA Rural Development and local lenders.[9] Its founders adopted the toll processing model, which allowed even small-scale farmers to access cleaning, milling, or splitting services and then market their own branded pulse products. At the time, very little processing was done in Montana itself, so these new plants gave growers a closer-to-home outlet and reduced freight costs.[10]

During this period, policy and market drivers strongly influenced the pulse sector's evolution. The 2014 U.S. Farm Bill recognized pulses as a healthy food group and boosted research funding. It created a Pulse Crop Health Initiative with $125 million over five years to study the nutritional benefits and new uses of pulses, and a Pulse Product Program to introduce pulse-based foods into school lunch programs.[11] Such support coincided with mounting consumer interest in plant-based and gluten-free foods. Pulses were being branded as nutritious, sustainable superfoods: industry campaigns highlighted that pulses were high in protein and

[5] USA Dry Pea & Lentil Council, *USA Dry Pea, Lentil & Chickpea Production* (Technical Manual Chapter 3: Production).
[6] USDA Foreign Agricultural Service, "Family Run Farm Finds Success in the Pulses Market," *Feature Story*, Jan. 10, 2025.
[7] Mikkel Pates, "AGT's Minot plant wins as pulse popularity takes off," *Agweek*, Nov. 16, 2020.
[8] Jenny Schlecht, "Pardue Grain facility will increase pulse processing capacity," *Agweek*, July 23, 2018.
[9] Northern Ag Network, "New Pulse Crop Facility Breaks Ground," July 6, 2018.
[10] Ibid.
[11] Matthew Weaver, "Farm bill adds $135 million to pulse research," *Capital Press*, Feb. 17, 2014.

fiber, yet low in fat, and even improved soil health by requiring less water and fertilizer and adding nitrogen to the soil.[12]

Simultaneously, the advent of pulse fractionation marked a major milestone in the industry. Fractionation allows for the separation of protein, starch, and fiber components from pulses, making them more functional for use in alternative meats, dairy-free products, and protein powders. Advanced processing techniques, such as dry and wet fractionation, were adopted to improve efficiency and yield.[13] Alongside fractionation, extrusion technology became more widely utilized, enabling the production of pulse-based snacks, breakfast cereals, and pasta alternatives. The increased adoption of high-moisture extrusion allowed for the development of pulse-based meat substitutes, contributing to the growing plant-based food movement.[14]

Both these developments prompted major food manufacturers to start incorporating pulse ingredients into their products: peas and lentils were increasingly milled into gluten-free flours for baked goods and pasta, and chickpeas rode a wave of popularity as hummus became a staple American snack (U.S. hummus sales soared from just $5 million in the 1990s to nearly $1 billion by 2016).[15] Pulse-based snack foods and pastas gained traction as healthier alternatives, creating new markets for pulse flours and grit. The pet food industry also emerged as a major consumer of pulse ingredients. Grain-free pet diets in the 2010s often replaced corn or wheat with pea and lentil proteins.

Global trade dynamics during the late 2010s brought both upheaval and opportunity. In 2017, India—historically the largest importer of pulses—imposed steep tariffs on peas, lentils, and chickpeas, sharply curtailing U.S. exports.[16] While such tariffs are often tied to India's domestic supply conditions and can fluctuate, they have largely remained in place, forcing the U.S. industry to pivot further toward domestic markets and value-added processing. U.S. processors redoubled efforts to develop new pulse-based foods, promote pulses' sustainability advantages, and find alternate export outlets. Big agribusiness investments followed. For example, in 2018 the French company Roquette began constructing one of the world's largest pea protein isolate facilities in Manitoba.[17]

In more recent years, the Northern Plains states and Southern Alberta have become a focal point for pulse ingredient development. Consumer demand for plant proteins and sustainable ingredients is at an all-time high, which has spurred a wave of new processing capacity for products like pea protein concentrates, starches, and fibers. Southern Alberta, in particular, has seen transformative investment. In 2022, two large wet fractionation plants were announced in Alberta's prime pea-growing belt. Phyto Organix Foods revealed plans for a $225-million state-of-the-art pea protein facility near Strathmore, and PIP International opened a $20-million pilot pea processing plant in Lethbridge (with a larger $119+ million expansion in the works).[18]

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[12] Chad Sokol, "Chickpeas, lentils and other 'pulses' are having a renaissance moment – and it's a boon for Northwest farmers," *Spokesman-Review* (Spokane, WA), June 24, 2018.
[13] Doney and Schalper, "Pulse Fractionation", 2016.
[14] Doney and Schalper, "Chickpea, Lentil, and Dry Pea Spreads", 2016.
[15] Sokol, 2018.
[16] Colter Brown, "Indian Tariff Reduction Big Win for Pulse Crop Growers," *Northern Ag Network*, June 23, 2023
[17] Results Driven Agriculture Research (RDAR) (Alberta), "Pulse processing plants to bring value-added opportunities to Alberta," Oct. 2021
[18] Global News, "Alberta could be global powerhouse for plant-based foods but more support needed: industry insiders," Oct. 13, 2022

# 3. MARKET CONTEXT FOR PROCESSED PULSE PRODUCTS

Montana's leadership in pulse production gives the state a strong foundation to expand its role in supplying processed pulse products across food, feed, and ingredient markets. In recent years, shifting consumer preferences, supply chain diversification, and interest in sustainable protein sources have expanded market opportunities for pulses—not only in traditional dry goods, but in higher-value segments such as plant-based meat alternatives, grain-free pet foods, high-protein snacks, and functional food ingredients. Simultaneously, processors and buyers are placing increasing emphasis on traceability, clean-label ingredients, and reliable domestic supply.

This section provides a snapshot of the current market landscape for key processed pulse product categories—basic processing, toll processing, pulse ingredients, snack foods, and pet food—and outlines how these trends shape opportunities and constraints for Montana producers and processors.

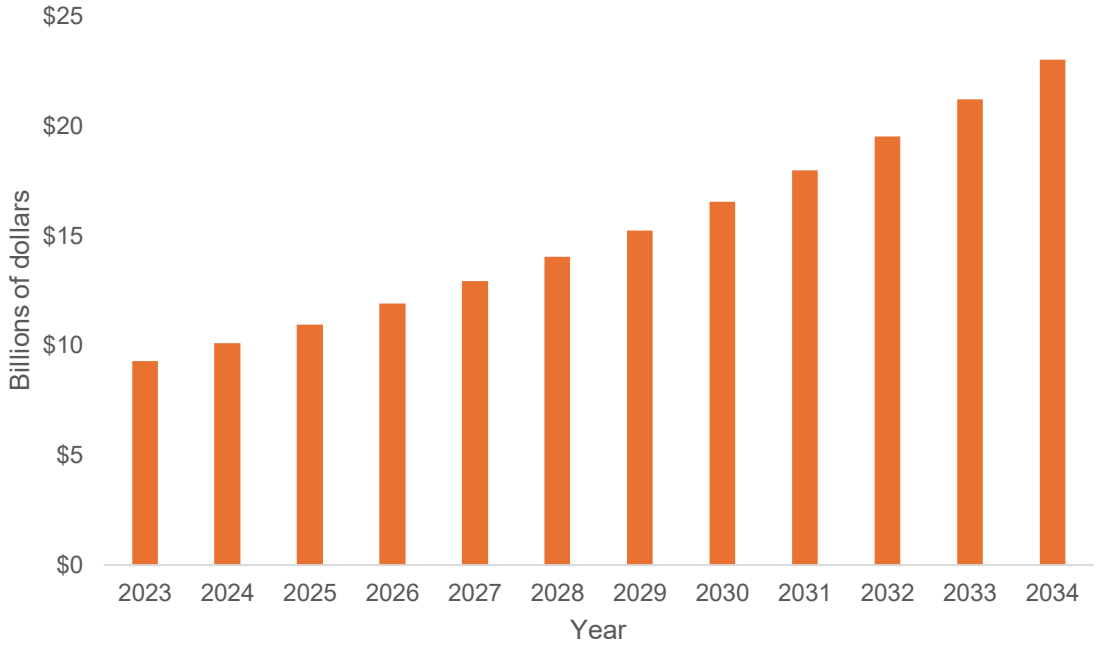
## 3.1. Plant-based ingredient market

### 3.1.1. Introduction

The global food and feed landscape is undergoing a quiet revolution as plant-based ingredients become mainstream in both human and pet food formulations. While each market is shaped by distinct consumer expectations and nutritional demands, both are increasingly turning to plant-based components for their functionality, sustainability, and alignment with evolving values.

In the human food industry, demand for alternative proteins has surged in recent years, driven by concerns over health, environmental impact, and ethics. The global plant-based ingredient market was valued at $9.3 billion in 2023 and is projected to grow at a compound annual growth rate (CAGR) of 8.6 percent through 2034.

**Figure 1: Anticipated global plant-based ingredient market growth**

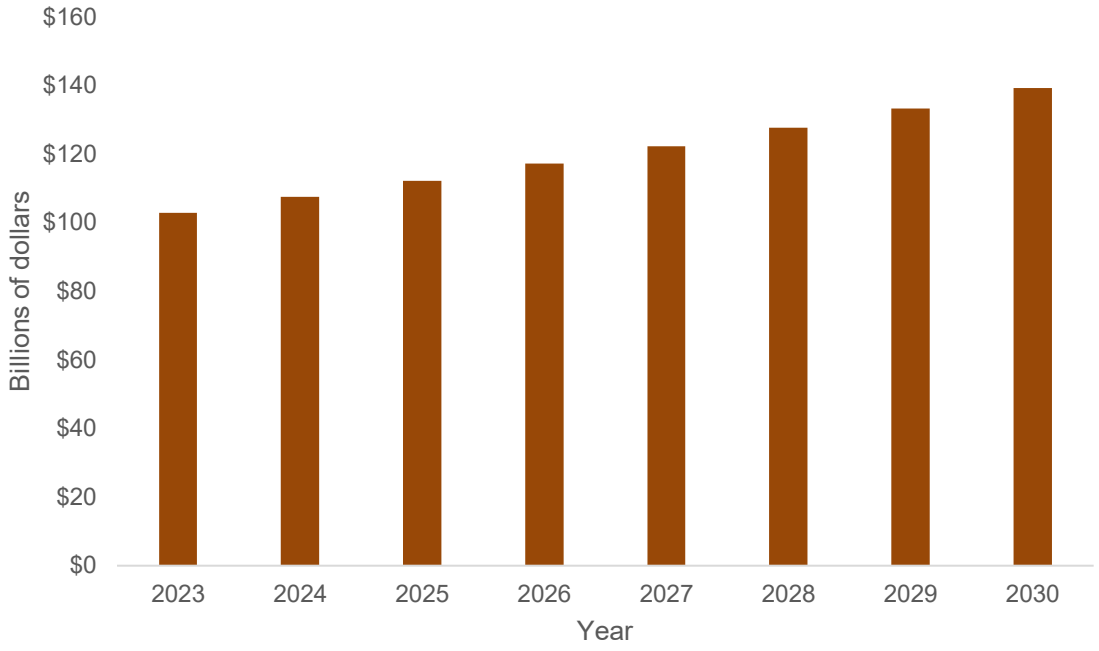



Source*:* Future Market Insights. "Plant-Based Ingredients Market Outlook (2023 to 2033)."

In most advanced economies, traditional protein sources such as dairy, eggs, and meat have long been prized for their nutritional quality, taste, and ability to perform well in cooking and food manufacturing. But consumers are increasingly seeking out ingredients like pea protein, soy protein, and lentil flour as cleaner-label, plant-forward alternatives. These ingredients now appear in everything from meat analogues and dairy substitutes to nutrition bars, snacks, and baked goods.

This same technological transformation is also reshaping the pet food sector. The global pet food market, estimated at $103 billion in 2023, is expected to grow at a CAGR of 4.4 percent through 2030, fueled by increasing pet ownership and demand for premium, health-conscious formulations.

**Figure 2: Anticipated global pet food market growth**




Source: Grand View Research. "Pet Food Market Size, Share & Trends Analysis Report By Animal Type (Dog, Cat), 2024–2030."

Historically, pet foods have relied heavily on animal-derived ingredients—meat meals, animal fats, and byproduct proteins—to meet nutritional requirements for dogs and cats. These ingredients deliver key nutrients that support healthy growth and metabolism in pets. But the rise of grain-free, hypoallergenic, and plant-forward diets has introduced new roles for plant-based ingredients in pet nutrition. Soybeans, pulses, and even novel starches like tapioca or sweet potato now function as both carbohydrate replacements and protein sources.

Whole plant-based proteins and those that have only undergone basic processing—i.e., cleaning the harvested pulses, removing foreign material, then sorting, bagging, and sometimes splitting them—are generally more affordable than animal-derived proteins, making them increasingly popular substitutes in both human and pet food applications. However, in human food, plant proteins often face challenges with taste, texture, and performance: some have "beany" or earthy flavors, while others lack the binding, emulsifying, or foaming power of their animal-based counterparts. To improve taste and texture, manufacturers are using technologies like fermentation and extrusion to make plant proteins more appealing and effective in food products.



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Plant proteins used in pet food may contain compounds that reduce digestibility (anti-nutritional factors (ANF)), so they often need to be supplemented or further processed to meet nutritional standards. They also tend to have a relatively weaker amino acid profile and lower crude protein content. This often requires fortification in pet food with synthetic amino acids like taurine, methionine, or lysine—especially for feline diets—or the use of further processed plant proteins such as soy/pulse protein concentrate/isolate or hydrolyzed wheat gluten to increase amino acid levels and reduce the presence of ANFs.

### 3.1.2. Processed pulse ingredients

Despite being derived from one of the world's most abundant plant protein sources, pulse ingredients that go beyond basic cleaning and sorting remain relatively expensive in both human and pet food markets.[19] The cost barrier is primarily due to two factors:

1. **Processing costs**: In most cases, pulses require dehulling, fractionation, milling, and/or extrusion to enhance digestibility, protein concentration, and functionality, increasing production costs.
2. **Market competition and quality standards**: Food-grade pulse ingredients must meet stricter quality control, food safety, and allergen management standards, further raising costs in specialized food and feed markets.

In animal feed, processed pulse ingredients find ready markets in premium pet food, non-GMO poultry and swine diets, aquaculture, and organic livestock feed, where their nutritional benefits justify the price premium. In human food, they are widely used in plant-based meat and dairy alternatives, gluten-free and high-protein snacks, and functional foods (products designed to offer additional health benefits beyond basic nutrition), where consumer demand for clean-label, minimally processed, and plant-based protein sources supports higher pricing. Demand from these specialized markets bids up the price of processed pulse ingredients, making their use in bulk commodity feed and food applications highly dependent on supply availability and competing demand. In general, manufacturers can command a higher price selling to companies producing premium pet food, plant-based protein products, and functional foods than from those supplying bulk pulses for conventional animal feed or traditional human diets.

More broadly, the selection of pulse ingredients—ranging from whole pulses and meals to flours, protein concentrates, isolates, and starch or fiber byproducts—is guided primarily by their nutritional value, functional properties, and cost-effectiveness in both animal feed and human food applications. In animal feed, formulations are tailored to meet the specific nutritional needs of different species, while in human food, ingredient selection is based on protein content, digestibility, and functional properties such as texture, emulsification, and water-holding capacity.

One of the main advantages of producing protein concentrates or isolates from pulses is the ability to remove or reduce certain compounds that limit nutritional performance—such as hard-to-digest fibers and ANFs. These include compounds like phytic acid and protease inhibitors, which can reduce the body's ability to absorb protein and key minerals. This matters in both animal and human nutrition. In high-performance livestock and aquaculture feed, these compounds can make diets less efficient and reduce growth rates. In human foods, they create formulation challenges and often require extra processing—like soaking, fermentation, or enzymatic treatment—to make plant proteins more digestible. By using pulse protein concentrates or isolates, manufacturers can overcome these barriers and produce higher-quality, more nutritious products.

[19] For example, a 2024 protein pricing review indicated that, on a 100 percent protein equivalent basis, green peas were nearly five times the price of soybeans, and chickpeas were nearly seven. Pea protein isolate was also found to be approximately 2.5 times the price of soy protein isolate, while chickpea protein isolate was nearly 4 times the price.

That said, ultimately, the economic feasibility of pulse ingredients determines their utilization in both animal feed and human food applications. Consequently, both human and pet food manufacturers have found the cost of processed pulse ingredients to be relatively expensive compared with other sources of protein, and their use is relatively small in global terms and limited to specific regions, species, and product categories where they are either cost-competitive or provide specific functional benefits.

### a) Different types of processed pulse ingredients

The conversion of pulses into various processed pulse ingredients results in products with different macronutrient breakdowns. The processes used are relatively simple, although there are many subtleties that modify the characteristics of the final product in critical ways.[20] In the U.S., processed pulse ingredients generally fall into one of two groups:

- **Milled pulse products** (e.g., pulse flour (raw or pre-gelatinized), flakes, or grits), produced from split and decorticated (dehulled) pulses, have roughly 20-25 grams of protein per 100 grams.
- **Fractionated pulse products**, produced using wet and dry methods, include pulse starch (<1 gram protein per 100 grams), pulse protein concentrate (typically 50-60 grams protein per 100 grams, but sometimes higher), pulse protein isolate (70-90 grams protein per 100 grams), and others.[21]

These ingredients have been used to produce a variety of functional foods. We list some of these in the table below.

**Table 1: Pulse foods, pet food, and their protein content**

| Pulse foods and pet food | Protein content per 100 grams |
|---|---|
| **Pulse-based pasta** | Pasta made from pulse flours typically provides 20–25 grams of protein |
| **Pulse-based breads and baked goods** | Protein content varies but generally ranges from 10–15 grams, depending on the recipe |
| **Veggie burgers and meat analogs** | These products often contain 15–20 grams of protein, depending on formulation |
| **Pulse-based snacks (chips, puffs, crackers)** | Protein content varies widely but typically ranges from 10–15 grams |
| **Tempeh and fermented pulse products** | Tempeh provides approximately 19 grams of protein |
| **Pulse-based soups and stews** | Protein content varies but generally provides 5–10 grams, depending on the recipe |
| **Energy bars and protein snacks** | These can offer 10–20 grams of protein, depending on formulation. |
| **Pulse-based dairy alternatives** | Products like pulse-based milks typically contain 1–3 grams of protein, while yogurts may offer 3–5 grams |
| **Pulse pet food** | The protein content in pulse-based pet foods varies depending on the formulation but typically ranges from 20–30 grams |

[20] The normal process of producing pulse ingredients typically involves first cleaning, sorting, drying (sometimes), and dehulling (also known as decortication) to remove the outer seed coat from the pulses, making them easier to digest and more suitable for further refinement. *Source: USA Dry Pea & Lentil Council (USADPLC), USA Dry Pea, Lentil & Chickpea Production (Technical Manual Chapter 3: Production)*

[21] For the wet method, pulses are soaked, ground, and chemically treated to isolate protein, while starch and fiber remain as byproducts. This method produces high-purity protein isolates but can lead to nutrient loss and wastewater challenges. The dry method uses air classification and milling to separate components without chemicals or water. Though lower in protein purity, this method is cost-effective and retains more nutrients. *Source: USADPLC.*

Another method of achieving high levels of protein concentration involves changing the characteristics of the pulse before processing. Some examples include:

- *Traditional breeding for higher protein content:* Conventional plant breeding techniques have been used to develop pulse varieties with increased protein levels. For example, some pea and faba bean cultivars have been bred to contain over 30 percent protein, compared to standard levels of 20–25 percent. Similar breeding efforts in lentils and chickpeas have also led to varieties with enhanced protein content.
- *Genetic selection to increase protein expression:* Certain genetic traits can be selected to enhance the overall protein concentration in pulses, often at the expense of carbohydrate content, making them better suited for protein extraction.
- *Gene editing (e.*g., *CRISPR and TILLING)*: Precision breeding techniques have been used to increase total protein content in pulses while maintaining other desirable traits, such as yield and disease resistance.

### b) Processed pulse ingredient production

Pulses are produced in large volumes globally—roughly 100 million metric tons (MMT) per year, ~1.6 MMT of which is produced in the U.S.—but only a small fraction is processed into value-added ingredients.[22] Most pulses are still consumed in traditional forms (whole or split) rather than as processed ingredients. For example, even with a surge in new pulse-based foods over the last decade, the absolute volumes of pulse ingredients used remain relatively low. In 2015, the U.S. food industry utilized only about 41,000 MT of pulse flours in snacks and pastas and 45,000 MT in dips, with pet food accounting for another ~145,000 MT.[23] Globally, the entire pea protein ingredients market was estimated at just ~500,000 MT in 2019, a tiny share of overall pulse production.[24,25]

Processed pulse ingredient production is dominated by China, though Canada, the U.S., and Europe are also contributors. Despite relatively low market share in processed pulse ingredient production, many U.S. pulses are nevertheless used to make processed pulse ingredients, primarily in Canada, China, and the U.S.

#### Production

China sources pulses domestically (total pulse production was ~1.5 MMT in 2023) but also imports substantial quantities, primarily from Canada (~1.7 MMT annually since 2020), the U.S. (~65,000 MT) and Australia (~63,000 MT), though Russia has recently made inroads, exporting over 900,000 MT of dry peas in 2023 and 650,000 MT in 2024. Chinese companies have built extensive pulse processing facilities, ostensibly to extract starch (used in cellophane noodles), with protein concentrate/isolate as a by-product. This has led to a glut of Chinese pea protein on the world market. In fact, Canadian investigators found that the largest Chinese pea protein producers export over 90 percent of their output.[26]

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[22] Vito Martielli, "Pulses remain niche but show potential for growth," *Rabobank RaboResearch*, August, 2024.
[23] Manitoba Pulse & Soybean Growers, "Pulse Canada's Vision for the Future: 25 x 2025," Dec. 2019.
[24] Henrik Maaß et al., *"Best practices for the commercialisation of grain legumes"* (Technical Report), Dec. 2019 – via ResearchGate.
[25] The process of milling pulses into flour yields nearly a 1:1 ratio (e.g., one metric ton of raw pulses produces approximately one metric ton of pulse flour). Producing pea protein concentrates or isolates involves more complex processing, requiring more raw pulses per unit of concentrate/isolate. For example, industry estimates suggest that producing 1 metric ton of pea protein isolate requires approximately 2.5 to 3 metric tons of raw peas.
[26] Canada Border Services Agency (CBSA), *Statement of Reasons* – Initiation of Investigations: High Protein Content Pea Protein from China, May 2024.

Meanwhile, as a major producer of pulses, Canada uses its own domestic production plus product primarily from the U.S. (mostly dry peas and lentils) for pulse ingredient making. Canada set an ambitious goal to utilize 25 percent of its pulse production in new value-added markets by 2025, translating to about 2 MMT of pulses for ingredients annually.[27] To enable this, several large-scale plants were built in recent years. Notably, Roquette opened the world's largest pea protein plant in Portage la Prairie, Manitoba in 2021, with capacity to process 125,000 MT of peas per year.[28] Additional Canadian startups like Merit Functional Foods (Winnipeg) and Verdient Foods (Saskatchewan, later acquired by Ingredion) launched facilities to produce pea and other pulse proteins.

In the U.S., agrifood companies invested heavily in pulse ingredient capacity in the 2010s through 2022 amid optimism for plant-based proteins. For example, PURIS (backed by Cargill) opened a large pea protein fractionation plant in Dawson, Minnesota in 2021, more than doubling its production capacity.[29] ADM also built a new pea processing line in Enderlin, North Dakota and announced a $300 million expansion of its soy protein facility in Decatur, Illinois aiming to boost alternative protein output by 30 percent globally.[30]

Finally, Europe was also an early mover in pulse ingredient production, with most of its pulses sourced from France or Belgium or imported from Canada. European ingredient firms such as Roquette (France), Cosucra (Belgium), and Emsland Group (Germany) have been processing peas and other legumes into protein concentrates/isolates and flours for decades. European processors have benefited from a stable demand base in food manufacturing (e.g., for pea protein in plant-based foods and pea starch in noodles and snacks) and a more incremental growth strategy.[31]

### Production capacity

Global production capacity for processed pulse ingredient production is considerably higher than current production. In China, a 2024 Canadian trade filing noted that the capacity of just six known Chinese protein producers could "more than overwhelm the entire Canadian [pea protein] market" if fully utilized.[32] In other words, China has built far more capacity than its domestic demand for pea protein ingredients, and it channels that surplus abroad at very low prices. This oversupply has directly contributed to under-utilization elsewhere. Chinese processors remain highly utilized in terms of volume—they keep running thanks to export demand—but China still has "enormous excess" capacity standing by.[33]

In Canada, two of the brand-new plants ceased operations within just a couple of years of opening. The Verdient/Ingredion plant—designed as a 160,000-MT-per-year pea protein facility—shut down by late 2024 due to strategic and market challenges.[34] Similarly, Merit's highly touted Winnipeg plant never reached sustained production and has sat idle since early 2023 after the company went into receivership.[35] Merit's founders attributed their plant's failure largely to economic factors—high input costs and a flood of cheap imports from China that undercut prices—making their operation non-viable despite its state-of-the-art design.[36]

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[27] Manitoba Pulse & Soybean Growers, 2019.
[28] Roquette, press release, "Roquette Opening: World's Largest Pea Protein Plant," Nov. 2021.
[29] Food Ingredients First. "Pea Protein Hailed a 'Rising Star' as PURIS Opens US Facility, Doubling Production." February 9, 2021.
[30] Elaine Watson, "ADM 're-scopes' plant protein plans amid weak market demand," *AgFunder News*, Nov. 2023
[31] Maaß *et al.*, 2019.
[32] CBSA, 2024.
[33] Ibid.
[34] Kelvin Heppner, "Ingredion ceasing operations at Saskatchewan pea protein facility," *RealAgriculture*, Jan. 8, 2025
[35] Ibid.
[36] Elaine Watson, "Flood of cheap Chinese pea protein drove Merit Functional Foods to receivership, says ex-CEO," *AgFunder News*, May 23, 2024

The U.S. has seen a parallel boom-and-bust dynamic. While long-term demand for plant-based ingredients remains strong, the meat alternatives subcategory experienced a recent slowdown, with consumer interest softening and inventories piling up. In response, ADM re-scoped its expansion plans, essentially pausing capacity growth to right size "to the expected lower growth demand environment."[37] U.S. pea protein makers also faced the same import pressure as Canada—a flood of low-priced Chinese pea protein. In fact, PURIS and others filed trade complaints, and by late 2023 the U.S. imposed provisional anti-dumping duties on Chinese pea protein to stem the import surge.[38]

Europe's pulse processing capacity has expanded more gradually compared to the North American boom. For example, Roquette's main pea protein plant in France has operated for years at a significant scale, and the company's new Canadian plant was meant to supplement that growing demand.[39] Europe's utilization rates appear relatively high for these legacy companies—their facilities were sized to match demand and have fewer direct competitors locally.

## 3.2. Pulse processing services, facilities, and cost of manufacturing in Montana and surrounding areas

Montana and the surrounding states/provinces of North Dakota, South Dakota, Washington, Idaho, Wyoming, and southern Alberta, form a major pulse-producing region in North America that has seen significant growth in both production and processing capacity over the past two decades.

This section surveys existing pulse processing services and facilities in these areas—from basic cleaning and splitting operations to more advanced manufacturing of pulse-based pet foods, snacks, and ingredients—and discusses known costs or investments associated with these activities. The focus is on food-grade and ingredient production, including pulse-based pet food, while noting that much of the regional processing historically has centered on basic steps like cleaning, sorting, bagging, and splitting for export markets. An overview of these results is displayed in the following table. Maps of existing pulse processors in these areas are available in the appendices.

**Table 2: Summary of pulse processing services and facilities in Montana and surrounding areas**

| Region | Basic Processing (Cleaning/Sorting/ Bagging/Splitting) | Toll Processing Services (Custom Cleaning/Splitting) | Pulse Ingredient Production (Flours, Protein, Starch) | Pulse-Based Pet Food/Snack Manufacturing |
|---|---|---|---|---|
| Montana | **Yes** – multiple plants. Primarily cleaning, bagging, splitting. | **Limited** | **Limited** – milling of pulse flours; no large-scale protein fractionation. | **Very limited** – no major pet food or snack production in-state. |
| North Dakota | **Yes** – many facilities for cleaning, splitting, and bagging pulses. | **Yes** – several firms offer custom processing. | **Yes** – a leader in pulse ingredients: dry fractionation, wet fractionation, pea fiber/starch co-products, plus new | **Emerging** – North Dakota hosts an extrusion plant making pulse-based pasta, snacks, and meat |

[37] Watson, 2023.
[38] CBSA, 2024.
[39] Roquette, 2021.

| Region | Basic Processing (Cleaning/Sorting/ Bagging/Splitting) | Toll Processing Services (Custom Cleaning/Splitting) | Pulse Ingredient Production (Flours, Protein, Starch) | Pulse-Based Pet Food/Snack Manufacturing |
|---|---|---|---|---|
| | | | extrusion for texturized products. | analog crisps. No large pet food plants. |
| **South Dakota** | **Limited** – one main plant in Harrold cleaning and splitting peas/lentils. | **Possibly** – the Harrold facility was conceived as a toll processor for farmers in the state. | **None** – no known protein fractionation in South Dakota. | **None** – no major pulse pet food or snack producers. |
| **Washington** | **Yes** – Palouse region has many processors (co-ops and private) for cleaning, sorting, splitting. | **Limited** – processing is mostly integrated with handling; custom toll cleaning is not as common as farmers deliver to local processors or co-ops. | **Minor** – no major isolate plants; some flour milling. | **Yes (for pet food manufacturing generally)** – Washington has pet food/treat plants and a large new freeze-dried pet food facility in Lynden (though not pulse-specific). **Pulse-based human snacks: limited production**. |
| **Idaho** | **Yes** – part of Palouse region. Many pulses from north Idaho are handled by co-ops. Cleaning, bagging, and splitting of peas, lentils, chickpeas are common. | **Limited** – like Washington, most processing is via grower co-ops or companies; toll processing services are not widely advertised in Idaho. | **Minor** – Idaho does not have large ingredient plants. | **None known** – Idaho has no major pulse-based pet food or snack food manufacturers. |
| **Wyoming** | **Minimal** – Wyoming grows very few pulses. No dedicated pulse processing facilities in-state. | **No** – no known toll processing in Wyoming for pulses. | **None** – no ingredient production. | **None** – no known pet food or snack manufacturing facilities using pulses in Wyoming. |
| **Southern Alberta** | **Yes** – a strong pulse production area. Numerous elevators and processors clean and bag pulses for export. | **Yes** – some companies offer toll or custom processing for growers/exporters (the practice is increasing as value-added interest grows). | **Yes (significant and growing)** – Alberta is rapidly investing in pulse fractionation. | **Yes** – Alberta has major pulse-utilizing pet food manufacturers and has seen recent investment on the snack side. |



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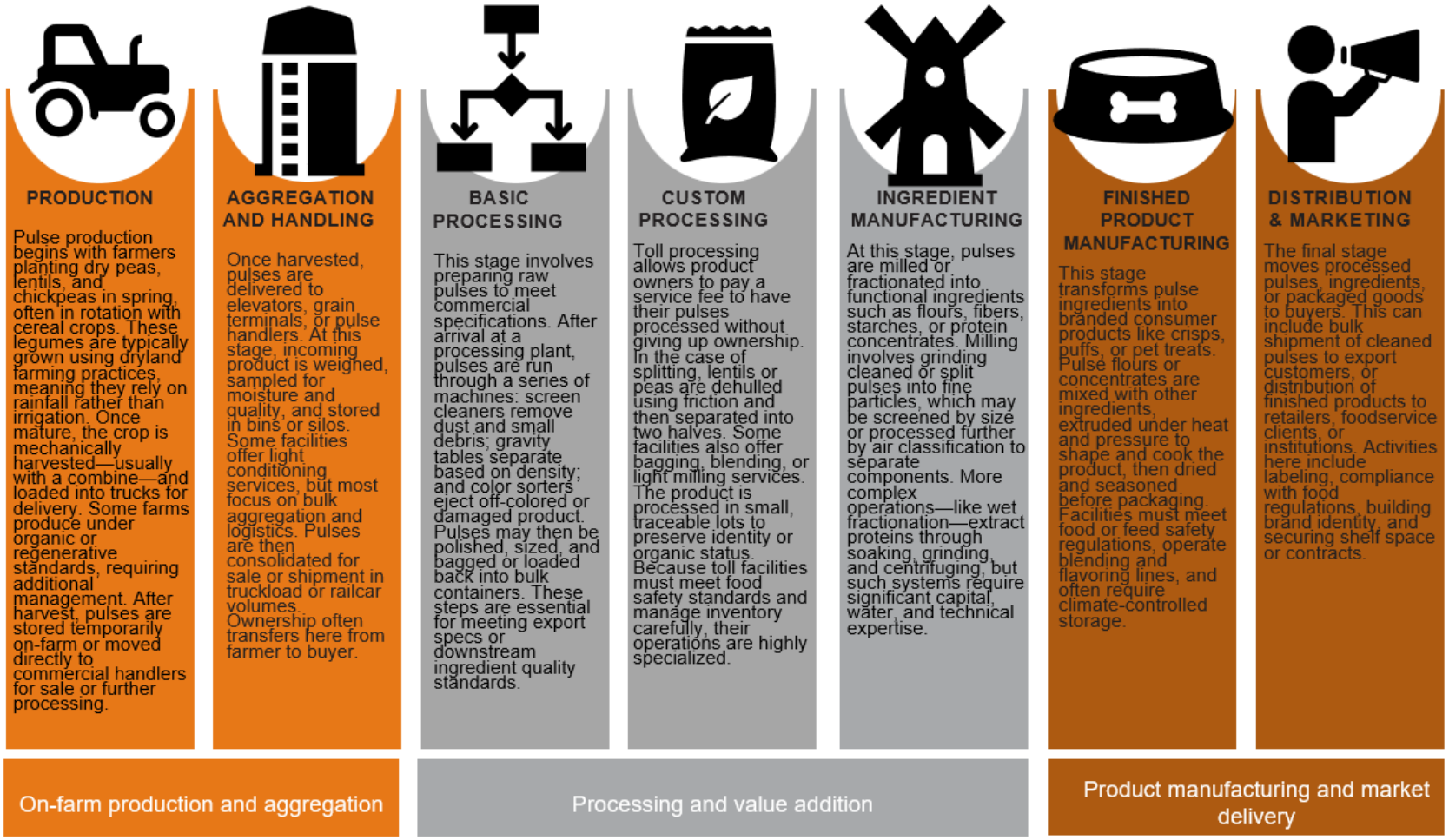
**Pulse supply chain**



In terms of manufacturing costs, most financial details of pulse processing are privately held, and those we interviewed for this report were unwilling to share their private information with us. That said, we were able to estimate these costs based on data from IMPLAN. In general, the cost of pulse processing manufacturing depends on several items, including the type of processing being done, types of products being produced, and the size of the facility. These costs may also be location dependent based on proximity to raw materials, ingredients, and end users. Thus, these estimates should be interpreted cautiously. The results are displayed in the table below.

**Table 3: Estimated pulse processing manufacturing costs in Montana and surrounding areas**

| | Raw materials | Packaging & outbound logistics | Manufacturing overhead | Direct labor | Other | Utilities & facility overhead |
|---|---|---|---|---|---|---|
| **Milling** | 45% | 30% | 10% | 5-10% | 5% | 1-2% |
| **Fractionation** | 50-55% | 25-30% | 5% | 5-10% | 5% | 5% |
| **Pulse snack food manufacturing** | 35-40% | 15-20% | 20% | 10% | 10% | 2-3% |
| **Pulse dog and cat food manufacturing** | 45-50% | 15% | 20% | 10% | 5% | 1-2% |

*Source: Agralytica analysis of IMPLAN data*

- **Raw materials** are the largest cost component for all four processing types, making up a third to a half of manufacturing cost—fractionation has the highest percentage of raw material cost at 50-55 percent, while pulse snack food manufacturing has the lowest at 35-40 percent.
- **Direct labor** costs appear to be somewhat lower for millers and fractionators, typically ranging from 5-10 percent.
- **Utilities & facility overhead** were roughly similar among pulse processors, though perhaps a bit higher for fractionators.
- Pulse dog and cat food manufacturers and pulse snack food manufacturers tend to have higher **manufacturing overhead** costs (20%) than their ingredient making counterparts (5-10%), which aligns with the relative scale of those operations.
- However, the reverse is true for **packaging and outbound logistics** costs, where ingredient makers face costs of 25-30 percent, while they are just 15-20 percent for the pulse dog and cat food manufacturers and pulse snack food manufacturers.

According to our interviews, capital expenditure costs for establishing a greenfield pulse processing facility are estimated to be the following:

- Wet fractionation facility: $300+ million
- Dry fractionation facility: $15-$20 million
- Flour mill: $5 million
- Basic processing facility for cleaning and sorting: $5 million

- *Add a flour mill*: another $2-$3 million.

Below, we provide a state-by-state (and province) narrative detailing the pulse processing landscape, including key facilities and services offered.

### 3.2.1. Montana

Montana is the leading U.S. producer of dry peas, lentils, and chickpeas, and over the past 15 years, the state has seen the establishment of several processing facilities to handle this production. Almost all processing facilities in Montana are either receiving stations (essentially elevators/handlers) or focused on one or more basic processing elements—in total, approximately 40 of these facilities exist in Montana today, mostly in North Central and Eastern Montana, with a couple in South Central Montana outside of Three Forks. Several individuals we interviewed for this report suggested more basic processing was still needed in the state, especially if production continues to increase. Some examples of existing processing facilities include:

- **Columbia Grain International (CGI)** – Perhaps the most ubiquitous, CGI operates multiple pulse processing plants in Montana, including at Chinook, Plentywood, Wolf Point, Havre, and a newer plant at Tiber (near Chester). These plants primarily clean, grade, and split pulses. CGI's Chinook facility, established in 1997, was one of the first pea/lentil processing plants in the state. CGI's Montana pulse plants are strategically located in the northeast and Golden Triangle regions, close to where most pulses are grown. They handle tens of thousands of metric tons of product annually, supplying both export markets and domestic buyers.
- **AgroLink (Agrocorp/LinkOne)** - In 2020, Singapore-based Agrocorp, in partnership with U.S. pet food ingredient firm LinkOne, acquired the large Pardue Grain pulse processing plant in Cut Bank. This facility opened in late 2018 after an $8.25 million expansion by Pardue Grain, but Pardue went bankrupt in 2019 due to global pulse market disruptions. The new joint venture, AgroLink, reopened the Cut Bank plant as a toll processing facility. The Cut Bank plant can process about 30,000 lbs. of pulses per hour (~13.6 MT/hr.) and includes food-grade cleaning and splitting equipment.[40] It primarily handles peas, lentils, and chickpeas from Montana's Golden Triangle region. Notably, this facility is designed to produce human food-grade and pet food-grade ingredients, reflecting a trend toward serving pet food manufacturers and other ingredient markets, not just bagged export pulses.
- **Montana Milling** - Based in Great Falls, this firm offers milling services for food-grade grains and pulses. Montana Milling processes lentils, peas, and other pulses by cleaning and decorticating them, then milling into flours or meals. It is a certified-organic capable facility and serves bakers, food companies, and others seeking pulse flours or pea protein-enriched flours. While Montana Milling's scale is smaller than the large milling or fractionation plants being built elsewhere, it represents an ingredient-grade processing service within Montana, adding value beyond whole seeds.
- **Others** – Several other local and regional companies handle pulse cleaning in Montana. For instance, Hodgkiss Seed in Choteau cleans and markets pulse seeds. The Redwood Group/Stricks Ag operates out of Chester, handling and cleaning pulses for export. Timeless Seeds (Ulm, MT) focuses on organic lentils and specialty grains, cleaning and packaging them for retail (though on a modest scale).

Montana so far lacks large-scale fractionation facilities or pulse-based pet or snack food manufacturing—investments in those have favored locations in the U.S. Midwest or Canadian Prairies, though Montana grown pulses are highly desired by ingredient, pet food, and snack food makers elsewhere. That said, pulse snacks and specialty foods are an emerging niche in Montana. A few small food businesses in Montana use the

[40] David Murray, "International joint venture resuming operations at Pardue Grain processing plant," *Great Falls Tribune*, Jan. 2021

state's pulses in value-added foods (for instance, a local company making lentil snacks or pasta). However, most of Montana's pulses are still exported as whole or split product to international markets.

### 3.2.2. North Dakota

North Dakota, alongside Montana, is the other top producer of pulses in the U.S. and has developed an extensive processing infrastructure. As a result, many pulse processors and ingredient manufacturers have set up in North Dakota, making it arguably the regional leader in value-added pulse processing.

#### a) Basic processing

On the basic processing side, North Dakota has numerous facilities that clean, grade, and bag pulses for food use or export:

- **CGI** runs a few pulse processing plants in places like Ross, Walhalla, and Merrifield, though these latter two locations specialize primarily in dry beans. The Ross plant processes peas and lentils primarily from Northwestern North Dakota and Northeastern Montana.
- **AGT Foods USA** established a presence in North Dakota in 2007 with a facility in Williston and later built a large plant at Minot. Initially, AGT's Minot operations focused on basic processing. AGT's Minot plant has significant storage (it was reported to have 286,000-bushel raw product storage and a 60,000 sq. ft processing building). By around 2018, AGT's Minot facility was processing over 50,000 MT of pulses per year.[41]
- Independent processors like **Stone Mill** in Richardton also contribute to cleaning and prepping pulses. Stone Mill historically focused on organic flax and specialty grains, but in 2019 it added a pulse processing line for chickpeas and lentils. They also installed advanced sorting, decorticating, and even a pasteurization system to ensure food safety.
- Several **local elevators and co-ops** in North Dakota have added pulse cleaning capability as pulse acres expanded. For instance, there are now more facilities in the northeast part of the state that handle pulses. CGI also recently invested in an organic pulse elevator in Arvilla.

#### b) Pulse ingredient making

North Dakota is notable for its developments in pulse ingredients and fractionation. Some examples include:

- **Anchor Ingredients** – a specialty ingredient supplier, Anchor invested in a pea protein fractionation facility in Buffalo, just west of Fargo. This plant, announced in 2017 and commissioned in late 2018, performs dry pea processing to produce pea protein concentrate and pea starch. It was built to meet growing demand from food and pet food companies for plant-based proteins. The Anchor facility uses state-of-the-art dry milling and air classification technology (sometimes described as "dry milled pea protein") to achieve a protein-rich fraction. Although detailed costs were not disclosed, it is known to be a significant strategic investment. The location at Buffalo was chosen for proximity to pea growers and logistics. Anchor also maintains partnerships to source pea protein from overseas (e.g., they partner with Vestkorn in Europe), but the Buffalo plant gives them a domestic production base.
- **ADM** – Agribusiness giant Archer Daniels Midland (ADM) retrofitted its Enderlin edible bean processing complex to add pea protein production, which came online around Q1 2019.[42] ADM's product is a pea

[41] Northern Pulse Growers Association, "Pulse Industry – Equipment Suppliers," *NPGA Industry Directory*, 2020.
[42] Elaine Watson, "ADM: 'We're very confident that our pea protein will have some competitive advantages'," *FoodNavigator-USA*, Nov. 29, 2018.

protein concentrate (~80% protein), and they argue that their processing method has flavor advantages over competitors. ADM did not publicly reveal the capital cost, but those we interviewed for this project suspected the endeavor likely cost tens of millions of dollars. The capacity also has not been publicized, but given ADM's scale it could be substantial (comparable plants process in the range of 20,000–30,000 MT of peas per year). This facility underscores North Dakota's emergence in wet fractionation.

- **Dakota Ingredients** – operating out of Devils Lake (Lakeview site), Dakota runs a pea fractionation plant that has been in operation since 2011, making it one of the earlier adopters of pulse fractionation in the region. Dakota's Lakeview facility produces pea protein and starch, and after upgrades in 2015 it is considered among the world leaders in pea fractionation. This plant likely uses a dry fractionation technique (their company website mentions pelleting lines for the co-products).[43] The company also has a facility at Crary that de-hulls and splits yellow peas, transforming the hulls into fiber products.
- **AGT Foods (Minot extrusion plant)** – In 2024, AGT Foods opened a new extrusion manufacturing facility in Minot, adjacent to its existing pulse processing plant. The Minot extrusion plant (a multi-million dollar project supported by state and federal funding) transforms pulse flours or concentrates into texturized products: gluten-free pasta shapes, puffed snacks, crisps, and plant-based meat analog pieces. For example, AGT is producing a line of yellow pea-based pasta ("Veggipasta") in various shapes, at this facility. They can also produce textured vegetable protein TVP crisps or granules that could be used in meat alternatives or high-protein snacks. AGT's total investment in North Dakota by 2024 was about $100 million (including their original Minot plant and this new expansion).
- Other North Dakota companies contributing to pet food ingredient supply include **Northern Pulse** (trade association but some member companies do toll processing) and **SK Food International** (Fargo-based, sources and processes organic pulses, often working with contract facilities to clean and bag organic lentils destined for food and pet markets). Additionally, **JM Grain** expanded in 2015 to add toll processing in Cummings to clean and package pulses for others.

#### c) Pulse snack and pet food manufacturing

Pulse snacks and foods derived from North Dakota ingredient suppliers are growing as well. Apart from AGT's Veggipasta in Minot, companies like **Prairie Harvest** (a North Dakota-based pasta company) have made whole pea flour pastas in the past. **Tolé** (a new foods brand by Anchor Ingredients) has been developing chickpea and pea-based consumer foods, likely utilizing North Dakota facilities.

North Dakota does not host any of the giant pet food factories (e.g., Purina or Mars Petcare). However, the state's role is crucial in the pet food supply chain: many of the processed pulse ingredients (pea protein, pea fiber, lentil flour) produced in North Dakota are shipped to pet food manufacturers in the Midwest and beyond.

### 3.2.3. Southern Alberta

Southern Alberta has a climate and soil well-suited to peas, lentils, and faba beans. In Canada, Alberta and Saskatchewan have been aggressively expanding pulse processing capacity, especially for ingredients and pet food. We discuss this in additional detail in the following sections.

#### a) Basic processing

Southern Alberta has long had grain elevators and processors handling pulses; operators in the province commonly perform basic processing for export or feed markets. Feed pea usage in particular is significant: feed mills around Lethbridge include peas in hog and cattle rations, so they will clean peas just enough for

[43] Dakota Ingredients – Regional Locations, company website (accessed 2025).

feed, which is not as strict as food-grade cleaning. Many pulses are also bagged for food, (e.g., green peas bagged and sent to Asia for splitting there). The costs for this basic processing are similar to costs in Montana and North Dakota—often, these are elevator operations adding a cleaning line, a relatively minor expense. Some basic processors include:

- Companies like **Viterra**, **Cargill**, and **ADM** are major grain handlers in Canada and operate elevators in southern Alberta that also take in peas and lentils, clean them to export quality, and load railcars.
- **AGT Foods** has a presence in Alberta as well. AGT (through acquisitions) has several processing plants in Western Canada, including plants at St. Albert, Hughenden (on the AB/SK border), and Burdett/Taber.
- A noteworthy processor was **W.A. Grain & Pulse Solutions**, which ran pulse cleaning facilities in Alberta (Innisfail and Bowden in Central Alberta, and a newer one in Vermilion) for several years. They offered cleaning, splitting, and even had plans for fractionation. However, W.A. Grain encountered financial issues by 2021 and went into receivership.
- Many southern Alberta farmers deliver pulses to nearby Saskatchewan processors, but with the new developments in Alberta, more local options exist.

### b) Pulse ingredient making and other specialized manufacturing

The major growth area in recent years in Alberta has been in secondary processing, including fractionation and specialized manufacturing:

- **PIP International** - PIP is a new Canadian company that in 2022 opened a $20 million pea protein pilot facility in Lethbridge and commenced Phase 1 of a larger project. PIP utilizes new technology—known as "coercion" extraction technology—licensed from a French partner that produces pea protein isolate with superior taste and functionality. With government support, PIP is building a full-scale $150 million pea protein isolate plant in Lethbridge, slated to process 126,000 MT of yellow peas per year and create 100 jobs. This facility, once fully operational, will yield high-purity pea protein (branded UP.P – Ultimate Pea Protein), plus starch and fiber co-products. The scale is enormous, roughly equivalent to the output of Roquette's world-scale plant in Manitoba. This single plant will demand a large portion of Alberta's pea production and is poised to be a major supplier to food companies globally.[44]
- **More Than Protein Ingredients (MTPI)** - Another major project, MTPI broke ground in late 2021 on a wet fractionation plant in Bowden (north of Calgary).[45] Initially cited as a $100 million project, some reports indicated it might scale up to $150–$160 million.[46] The Bowden plant aims to produce 85 percent protein pea isolate. It takes peas from a 100-mile radius and sells the protein for plant-based meats, while also capturing the starch and fiber for uses like noodles and pet food. The plant was/is aiming for net-zero waste, and possibly to also fractionate fava beans in the future. Bowden is strategically located between Calgary and Red Deer, near transportation routes and within Alberta's pea belt.
- **Phyto Organix / Phytokána** - Announced in 2021, Phyto Organix Foods planned a $225 million pea processing facility in Strathmore (east of Calgary). This plant, supported by a $10M government grant for its eco-friendly design, is to use proprietary wet fractionation to process about 40,000 MT of peas per year into isolate, starch, and fiber.[47] The design is for a net-zero facility (incorporating solar, etc.).

[44] Shelby Vanson, "Fourth pulse-processing company to set up shop in Alberta," *Alberta Farm Express* (via PIP International press release), June 21, 2022.
[45] Alberta Farm Express. "Bowden Pulse Processing Plant Breaks Ground." *Alberta Farm Express*, June 17, 2022.
[46] Red Deer Advocate. "$160 Million Protein Processing Plant Coming to Bowden." *Red Deer Advocate*, June 21, 2022.
[47] Feedstuffs. "Phyto Organix Building $225M Plant Protein Processing Facility." *Feedstuffs*, July 14, 2022.

Recently, the company rebranded as Phytokána and indicated a shift to also fractionating faba beans, not just peas.[48]

- **Lovingly Made Foods** - A UK-based alternative protein company (subsidiary of **The Meatless Farm Co**.) opened a production facility in Calgary in 2021. This facility is not for fractionation but rather for making plant-based meat analogues (e.g., veggie burgers, sausages, etc.) using pea protein and other pulse ingredients.

- Pet food manufacturing: Alberta has a strong presence in pet food production, led by **Champion Petfoods**. Champion—recently acquired by **Mars, Inc**. in 2022—is headquartered in the Edmonton area and operates kitchens in Morinville and a newer one in Acheson. Their ORIJEN and ACANA brands are high-protein, grain-free pet foods made with peas, lentils, and chickpeas, as well as meats. A typical ORIJEN dog food might be 30%+ peas/lentils by weight. Champion has been a major buyer of pulse ingredients, primarily sourcing from western Canadian farmers for their formulations. Other pet food players like **Smack** (raw food) and some smaller brands also operate in Alberta.
- Other ingredient players: There are also some legacy ingredient companies in Alberta like **Best Cooking Pulses**, which used to mill pea flour in western Canada (they still have operations in Manitoba primarily, but they source from Alberta).

Toll processing has been a significant part of Canada's value-added strategy. For example, some Alberta plants have offered toll milling of pulse flours for food companies instead of each company investing in mills. A 2016 report noted local facilities increasingly offering toll processing to help farmers make value-added products without full investment.[49]

Finally, the Alberta government and Canadian federal programs have heavily supported these value-added processing developments with grants. The private investments are huge (cumulative ~$500 million between the major projects mentioned above). Alberta's advantages include relatively cheap power (which is critical for running energy-intensive isolate processes), abundant natural gas (for process heat), and water resources (wet fractionation requires significant water demands; e.g., the Lethbridge project repurposed an old brewery for water treatment and re-use). The province's meat processing industry also provides an existing workforce and infrastructure relevant to food processing. These high-value projects are also creating new markets for pulse growers. The PIP and Phyto plants together are expected to contract over 150,000 MT of peas annually.[50,51]

### 3.2.4. Washington and Idaho

Washington state's pulse processing is concentrated in the eastern region (the Palouse and surrounding areas), which extends into north Idaho. Eastern Washington has a long history of pulse crop production—notably lentils and dry peas, and more recently, chickpeas—and was the cradle of U.S. lentil farming in the 20th century. The processing infrastructure here includes a mix of cooperative and private facilities that handle pulses alongside small grains. Many operations in this region straddle the Washington/Idaho border, reflecting the integrated nature of the Palouse pulse industry.

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[48] Strathmore Times, "Phytokána shifting focus prior to Strathmore facility construction," *Strathmore Times*, Oct. 2022.
[49] Organic Agriculture Centre of Canada. "Value-Added Crops That Double Your Farm's Income: Alberta Success Stories." *Organic Agriculture Centre of Canada*, n.d.
[50] Vanson, 2022.
[51] Feedstuffs, 2022.

### a) Basic processing

Growers in Eastern Washington and Northern Idaho typically deliver peas, lentils, and chickpeas to local elevators or processing plants for cleaning and bagging. Key players include:

- **Pacific Northwest Farmers Cooperative (PNW Coop)** - This large grower-owned cooperative spans the Palouse (with facilities in Washington and Idaho). PNW Coop processes and ships pulses worldwide. They have processing plants in Colfax and Rosalia in Washington as well as several locations in Idaho, including Genesee, where the Coop is headquartered, Craigmont, and Grangeville. PNW's cleaning plants clean, prepare, and bag peas, lentils, and chickpeas, primarily for export (often through Columbia River ports). PNW's Genesee processing plant is one of the largest in Idaho.
- Other cooperatives like **Lewiston Grain Growers** (Lewiston, ID) and **Clarkia Elevator** (Idaho) deal with pulses to some extent, although PNW Coop has absorbed or represents many of the smaller ones.
- **Palouse Trading (PALOUSE BRAND**) - A smaller processor located in Palouse, Washington. They purchase farmer-stock lentils and chickpeas, then clean, sort by size, and package some for retail under their own brand (Palouse Brand) while also selling bulk.
- **Hinrichs Trading Company**: Headquartered in Pullman, Washington, Hinrichs has been a dominant chickpea processor in Washington for decades. They operate several locations across Washington's Palouse and Columbia Basin. For example, Hinrichs has/had processing or receiving locations in Pullman, Dusty, and Othello, as well as in Montana. They specialize in cleaning and sizing chickpeas for canning companies, hummus makers, etc. Hinrichs Trading was family-owned until 2021, when **Ardent Mills** announced intent to acquire Hinrichs' operations.[52] Hinrichs' Washington facilities clean chickpeas to very high quality (due to requirements from food companies), sometimes employing color sorting, gravity separation, and polishing. They also pack into totes or 50-lb bags for shipment. With Ardent Mills' involvement, future facilities may also produce chickpea flour or other ingredients—Ardent has hinted at expanding into pulse flours, and owning Hinrichs gives them direct access to cleaned chickpeas.
- **CGI** has at least one processing presence in Washington at the Port of Wilma on the Snake River. This facility likely serves as a cleaning and bulk loading facility for pulses onto barges headed to Portland export terminals. It may also process some Washington/Idaho pulses. (Wilma is across the river from Lewiston, Idaho, in the heart of pea/lentil country). By having processing at the river port, CGI can containerize or barge ship pulses efficiently. The Wilma facility, acquired by CGI from a grain company years ago, was upgraded to handle around 50,000+ MT per year.
- **Local seed/grain companies**: A few independent grain companies in the region also process pulses. For example, **Pomeroy Grain Growers** in Pomeroy, Washington and **Palouse Grain Growers** in Palouse, Washington handle some pulses along with wheat. There is also **Uniontown Co-op** that historically has dealt with lentils. Their operations typically include cleaning and export specs.
- While much of today's pulse processing occurs in Washington, Idaho has had its own historic processors as well: for example, **Genesee Union Warehouse** was cleaning lentils since the mid-1900s, and **Harvest Ridge Processing** (near Craigmont) was known for pea processing. Over time, many of these merged into larger co-ops (like PNW).
- Idaho's production of pulses, particularly lentils, was quite high in the past, though today it only produces approximately 10,000 MT per year. The state still consistently grows significant quantities of chickpeas (e.g., Nez Perce and Latah counties grow a lot of large chickpeas), which require quality cleaning for markets. **Hinrichs Trading Co**. also has a significant presence on the Idaho side (they have had a facility at Moscow and reportedly some buying stations around Grangeville).

[52] Ardent Mills, "Intent to Acquire Hinrichs Trading Company Operations," PR Newswire, Feb. 18, 2021.

Toll processing is mainly within the co-op structure. A farmer in Washington or Idaho typically is a co-op member, and the co-op's facility processes the crop. If an external company wants Idaho pulses processed, they might contract with a co-op or independent elevator. Given the integrated nature of the co-op system in the region, it is rare to hear of standalone tolling businesses in Washington or Idaho for pulses.

### b) Pulse ingredient making

Washington state itself currently does not host large pulse fractionation facilities. There have been research efforts at Washington State University on pulse flour and protein, but there have been no commercial fractionation plants established in Washington. That said, some milling of pulses into flour does occur at smaller scale:

- In 2019, **ADM** acquired a pulse flour mill in Spokane (formerly part of **Harvest Innovations**). That mill produces chickpea flour and bean flours for food use.
  - In the 2010s, **ADM and Aston (Russia**) had a joint venture that involved a plant in Washington making pulse-based concentrates (this was related to Harvest Innovations). But subsequently, ADM shifted focus to North Dakota for pea protein concentrate.
- There are also **local food companies** producing lentil baking mixes, pea flour snacks, etc. These often source flour from the region (perhaps milled by a co-op or contracted mill).

In Idaho, there are also no known commercial pulse fractionation plants. There was an initiative around 2019 to explore a pea protein facility near the Port of Lewiston (Idaho's only seaport) but it did not materialize, possibly due to competition from bigger projects elsewhere. That said, the University of Idaho and Washington State University have jointly researched fractionation at a pilot scale (the UI's Food Technology Center in Caldwell can do some pulse flour test milling, for example).

### c) Pulse snack and pet food manufacturing

The Palouse region has leaned into marketing pulses for direct food use. For example, the Palouse Brand sells lentils, peas, and chickpeas in retail bags via Amazon and other channels—effectively snacks or meal ingredients for consumers. Eastern Washington also hosts the annual National Lentil Festival in Pullman to promote lentil foods. Some local companies create lentil chili kits, pea pasta, or roasted chickpea snacks. While manufacturing might occur at co-packer facilities, the innovation and brand development often start in Washington.

Finally, Washington has some pet food production, though not necessarily pulse-centric. For example:

- **American Nutrition (now part of Alphia**) runs a pet food plant in Woodland.[53] That plant produces dry dog and cat food, including grain-free formulas that use peas or lentils.
- **Canature Pet Foods** (a Chinese pet food company) is opening a large freeze-dried pet treat factory in Lynden, touted as the largest freeze-dried pet food plant in North America.[54] Freeze-dried raw pet foods traditionally use lots of meat, but some include veggies and pulses for fiber; however, pulses are not a primary input there currently.

Idaho's snack and pet food footprint in pulses is also limited. There are no major pet food manufacturers in Idaho focusing on pulses. Idaho has some pet treat companies, but they use mostly meat or potatoes. On

[53] PetfoodIndustry.com, "Map of US pet food production plants," Jan. 2020.
[54] Business Pulse (Bellingham), "Canature Kitchen Lynden a massive pet food production facility," July 2021.

snacks, one Idaho-based firm worth noting is **Zürsun Idaho Heirloom Beans** (based in Twin Falls), which markets dry beans and pulses, including some Idaho-grown lentils, in gourmet packs. While not a snack per se, it is a value-added presentation of pulses for consumers. Another is **Time Wise Food**, an Idaho company making quick-cooking lentils, which uses processed lentils from the region.

### 3.2.5. Other states

#### a) South Dakota

South Dakota's pulse industry is relatively small compared to others in the region, but it has made some strides in recent years. Historically, South Dakota was not a major pulse-growing state. However, interest in field peas and lentils grew in the 2010s as farmers looked for rotational crops and new markets. To support this, an initiative was undertaken by a farmer-led venture—the **South Dakota Pulse Processors (SDPP)**—to establish the state's first significant pulse processing facility in Harrold.

The Harrold plant, which began operations in January 2017, was designed to process yellow peas and lentils, with an initial capacity of about 550,000 bushels per year.[55] It performed basic processing: cleaning the pulses, removing the hulls, splitting as needed, and packaging the processed peas/lentils. The SDPP facility was one of the most advanced seed/pulse plants in the area and could even handle other products.[56] The project launched with support from approximately 86 local investors and has operated as a toll processor and marketer for growers. Although the facility faced early financial and operational hurdles—including a multi-month shutdown shortly after startup—it resumed operations in 2017 and was processing pulse products by mid-year. As of the late 2010s, it employed a small team and operated a single shift, with plans to scale as volume increased.

Beyond the Harrold facility, South Dakota does not have other large pulse processors. The state's Pulse Crop Council and Pulse Growers Association (formed in the mid-2010s) have worked to promote pulses, but logistical challenges (e.g., distance to markets, competition from corn/soy for acres) limit expansion. Some South Dakota grown pulses are still shipped to processors in North Dakota.

Pulse ingredient manufacturing in South Dakota is also currently non-existent, likely given the relatively low pulse volumes. That said, there was interest in the region at one point (e.g., in Nebraska, a joint venture built a pea protein plant in South Sioux City in 2019 but had previously considered South Dakota; also, South Dakota's ethanol and corn processing industries have previously considered diversification into peas but nothing major has materialized in-state.)

Finally, South Dakota does not host major pet food manufacturing facilities that use pulses. The state's feed industry is more focused on livestock feed. However, nearby pet food plants (e.g., in Nebraska and Minnesota) may use the limited South Dakota peas as ingredients. On the snack front, there are no known large snack producers in South Dakota making pulse-based products. Any initiatives in that realm would likely be small startups or farm enterprises making lentil snacks or pea flour mixes for farmers markets. The state has also not attracted something like a pulse pasta factory or an extruded snack line.

#### b) Wyoming

Wyoming has minimal pulse processing infrastructure, primarily because very few pulse crops are grown in the state. Its climate and cropping patterns (more dominant in hay, sugar beets, and small grains in certain areas) mean that only a very small acreage is devoted to pulses. In recent years, some farmers in eastern

[55] Lance Nixon, "South Dakota pulse plant seeks to raise $1 million," *Farm Progress*, April 13, 2018.
[56] South Dakota Pulse Processors – facility info, *REED Fund* (Rural Electric Economic Development) case study, 2017.

Wyoming have experimented with dry field peas as a rotational crop in wheat-fallow systems (similar to the way Montana and the Dakotas did). For instance, in the mid-2010s, a few thousand acres of peas were grown in southeastern Wyoming (around Goshen County) to utilize in place of summer fallow.[57] However, the scale remains tiny compared to neighboring states, with just 15,000 MT of beans produced in 2023.

There have been some conservation and research programs in Wyoming encouraging pea planting, which mention processing indirectly. For example, the University of Wyoming extension has talked about field peas for forage and how the grain (if harvested) could be sold into the pet food or processing market, but they note the lack of local buyers. Any sale would require moving the product out of state.

One small bright spot: in the late 2010s, Wyoming had interest in cover crop seed production including peas—and cleaning those seeds would require the use of basic processing equipment. Some local seed companies (or conservation districts) cleaned peas for use as cover crop seed or wildlife feed. This is not food-grade processing but uses similar cleaning principles.

There are no major pulse ingredient, snack, or pet food manufacturers in Wyoming.

[57] Farm Progress. "Replacing Summer Fallow with Field Peas." *Farm Progress*, accessed June 13, 2025.

# 4. MARKET OPPORTUNITIES FOR PULSE PROCESSING IN MONTANA

Montana's dominance in pulse crop production positions the state as a leading candidate for deeper investment in value-added processing. While the majority of peas, lentils, and chickpeas grown in Montana are currently shipped out of state in unprocessed form, there is growing interest among farmers, entrepreneurs, and economic development leaders in capturing more value locally. Interviews conducted for this report revealed a consistent belief that Montana is capable of playing a much larger role in the pulse value chain—particularly through expanded basic processing and mid-scale toll and ingredient manufacturing.

This section assesses the market opportunities for advancing pulse processing in Montana. It begins with a multi-level SWOT analysis of Montana's competitive position: first evaluating statewide structural factors, then analyzing market potential by processing segment, and finally comparing regional readiness across key parts of the state. It finishes by outlining strategic next steps, identifying where early investment and capacity-building could have the greatest payoff.

## 4.1. Montana SWOT analyses

Montana's position as the nation's leading pulse producer provides a strong foundation for expanding value-added processing, but its potential is shaped by a complex mix of structural advantages, logistical hurdles, and emerging opportunities. To assess where the state is best positioned to compete—and where targeted investment could have the most impact—this section provides a strategic SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis of Montana's pulse processing sector.

The table below summarizes these results.

**Table 4: Summary of SWOT analysis by segment and location**

| | Basic processing | Toll processing | Ingredient making | Snack food | Pet food |
|---|---|---|---|---|---|
| **North Central** | Viable | Viable | Limited potential | Not strategic | Limited potential |
| **Eastern** | Viable | Viable | Limited potential | Not strategic | Not strategic |
| **South Central** | Not strategic | Not strategic | Not strategic | Not strategic | Not recommended |
| **Western** | Not strategic | Not strategic | Not strategic | Not strategic | Not recommended |

- **Green** boxes indicate the opportunity is **viable**: conditions are favorable and near-term opportunity exists with appropriate support.
- **Yellow** boxes indicate **limited potential:** the opportunity could be viable in specific or long-term cases, but faces notable barriers.
- **Light red** boxes indicate the opportunity is **not strategic**: it is technically possible, but does not align well with Montana's comparative advantages, or in some cases, its needs.
- **Dark red** boxes indicate the opportunity is **not recommended**: it is currently a poor fit and is unlikely to succeed given Montana's supply base, workforce, and infrastructure limitations.

### 4.1.1. Overview

Montana's leadership in pulse production has catalyzed growing interest in expanding the state's role in value-added processing. But while the raw material base is well established, the landscape for processing is more complex, shaped by evolving infrastructure, market dynamics, and regional development patterns.

#### a) Strengths

Montana's single greatest strength lies in its sheer abundance of high-quality pulses. Many of these pulses are grown with low input intensity, and the state also leads the nation in organic lentil acreage. This combination gives Montana processors a secure, cost-effective raw material base that is well-aligned with growing demand for traceable, clean-label, and identity-preserved supply chains. In-state procurement allows processors to source inputs close to the farm gate, reducing inbound freight costs and enhancing traceability—critical advantages for food-grade and organic markets.

The state also offers a favorable operating environment for value-added agriculture. Land and electricity costs are lower than in coastal regions, while permitting and regulatory burdens are generally moderate. Interviewees pointed to lower labor costs relative to nearby states and provinces and noted that facility startup timelines in Montana can be shorter thanks to a less congested permitting landscape. These features make Montana particularly appealing to firms targeting mid-scale operations—facilities that are large enough to serve regional or specialty markets but flexible enough to avoid the volume and capital demands of commodity-scale processing.

In some areas, notably around Great Falls and Billings, industrial infrastructure is beginning to take shape. The Great Falls AgriTech Park, for example, is among the only shovel-ready industrial zones in Montana equipped with utilities like three-phase power, natural gas, and wastewater handling. These sites offer an entry point for processors requiring more than basic commodity handling but less than full-scale CPG manufacturing. In addition, Montana State University (MSU) and its Food Product Development Lab—while not yet fully activated for this sector—provide research and technical capacity that some stakeholders saw as a long-term asset, particularly for product prototyping, recipe development, and clean-label innovation.

#### b) Weaknesses

Despite these strengths, Montana faces persistent infrastructure and ecosystem gaps that limit the scalability of pulse processing. These include the following:

- **Many existing pulse handling facilities are designed primarily for bulk commodity storage, cleaning, and export**. Only a small fraction are food-grade certified or equipped for traceability, organic segregation, or batch-level identity preservation. As a result, even producers interested in capturing more value locally often must ship pulses out of state for splitting, milling, packaging, or certification—losing margin and marketing potential in the process.
- **The state suffers from a fragmented and underdeveloped food processing ecosystem**. There are very few co-packers, flavor houses, ingredient blenders, or contract manufacturers located in Montana, and no large in-state vendors for food-safe packaging, label design, or shelf-stability testing. These missing links make it harder for food and pet food ventures to scale, especially those producing finished goods. Even ingredient processors may face hurdles if they need to send product out of state for final packaging or blending.
- **Montana lacks small-scale contract packaging operations capable of producing 1- or 2-pound consumer-ready bags of pulses**—formats increasingly requested by institutional buyers, government tenders, and some regional retail channels. This gap limits the ability of processors and brands to test

new products, meet specific bid requirements, or participate in USAID, Farm to School, or buy-local initiatives without significant outside support.

- **Stakeholders noted that there is no statewide inventory of underutilized or distressed assets—such as older splitters, packaging lines, or food-safe handling equipment—that could be refurbished or relocated to support new ventures**. Without such a resource, prospective processors must start from scratch or rely on informal networks to identify infrastructure opportunities, which raises startup costs and slows project development.
- **Interviewees cited a lack of centralized technical assistance for aspiring pulse processors**. Navigating the startup process—equipment selection, permitting, regulatory compliance, food safety standards, and financing—was described as especially daunting for new entrants. While some regional organizations offer piecemeal support, stakeholders felt that Montana would benefit from a "clearinghouse" model to consolidate resources, share vetted vendor contacts, and provide streamlined access to technical and financial guidance.
- **Labor emerged as another consistent concern**. While Montana has a strong agricultural labor force, food-grade manufacturing and advanced processing require specialized skill sets—HACCP training, extrusion line operation, food safety certification, and quality assurance, among others—that are not widely available in rural communities. In some areas, even finding general plant labor or maintenance personnel can be a challenge. Although institutions like Great Falls College–MSU and MSU-Northern are beginning to address these gaps, most interviewees agreed that workforce pipelines are not yet aligned with the needs of value-added food and ingredient production.
- **Logistics pose yet another constraint**. While Montana offers strong inbound freight economics for pulses, it lacks efficient outbound transportation for processed goods. Most finished ingredients or packaged products must be trucked long distances to reach distribution hubs in the Midwest, West Coast, or South. For low-margin or bulky products like flours, snacks, or pet food, these outbound costs can significantly erode competitiveness—especially compared to processors located closer to large population centers or ports.
- **Stakeholders noted that Montana's limited access to containerized shipping options exacerbates these outbound freight challenges**. While containerization is increasingly important for processors serving export markets or regional buyers requiring smaller, traceable shipments, Montana lacks sufficient inland transload facilities and pulse-specific freight aggregation systems. Interviewees suggested that targeted investments—such as improved transload capacity in Great Falls, Billings, or Havre—could lower costs, expand market access, and make Montana-grown pulses more attractive to high-value or international buyers.

### c) Opportunities

Given its strengths in production and its early-stage infrastructure, Montana is well-positioned to build out the mid-tier of the pulse processing value chain—particularly in basic processing, food-grade toll services, and small-to-medium-scale ingredient manufacturing. Several stakeholders emphasized the need for new or expanded facilities offering cleaning, splitting, milling, and extrusion services, especially those that meet food-grade standards and support organic or regenerative supply chains. These investments could serve multiple customer segments, including small food brands seeking identity-preserved pulses, pet food companies looking for traceable ingredients, and growers aiming to retain ownership through farm-branded products.

In terms of cost competitiveness, Montana is well-suited for mid-scale processing aimed at regional or niche buyers. Facility startup costs tend to be lower due to affordable land and permitting, and operating costs (labor, utilities) are manageable outside major cities. Although outbound logistics remain a challenge, processors could partially offset these costs through brand and ingredient differentiation—offering organic, non-GMO, or

"Montana-grown" products with premium positioning. These attributes resonate especially with food manufacturers targeting clean-label or regional sourcing claims.

There is also growing interest in building shared infrastructure or multi-client toll facilities. Several interviewees described opportunities for facilities that serve as third-party processors for farm cooperatives, food startups, or legacy brands developing new pulse-based lines. These models can reduce individual capital exposure while building processing density in pulse-rich areas. Moreover, some regions—such as Great Falls and Billings—already have the zoning, workforce, and basic utilities to support such ventures, making them logical focal points for development.

Some stakeholders suggested that Montana could accelerate infrastructure development by repurposing distressed or underutilized assets—such as shuttered cleaning lines, bagging equipment, or small extruders—instead of relying entirely on new construction. Legacy assets, whether located in Montana or neighboring states, could be relocated, upgraded, or shared to reduce capital costs and speed up project timelines. A statewide inventory of such assets could help processors identify opportunities to retrofit rather than build from scratch.

Finally, Montana's clean agricultural reputation and growing organic lentil acreage give it a strong platform for differentiated product development. If paired with technical support from MSU or other partners, Montana-grown pulses could feed into the next generation of plant-based snacks, protein-enhanced flours, or allergen-sensitive foods—especially if developed under identity-preserved systems that allow farm-to-label traceability.

### d) Threats

Several external threats could stall or reverse Montana's momentum in pulse processing. Chief among them is competition from more mature ecosystems in North Dakota, Alberta, and the Washington/Idaho Palouse region. These locations offer dense co-location benefits, more efficient transportation, larger labor pools, and long-standing institutional support for value-added agriculture. Processors in those regions can offer bundled services, volume discounts, or logistics advantages that Montana firms cannot easily match.

The risk of overbuilding certain processing segments also looms large. Pea protein, in particular, has seen a dramatic surge in capacity over the past five years, with several large North American facilities operating well below utilization targets. If Montana were to invest heavily in fractionation or concentrate/isolate production without securing offtake agreements or establishing a unique market niche (e.g., organic, regenerative, lentil protein), it could face the same underutilization risk. This concern was raised repeatedly by stakeholders, especially those familiar with failed or paused investments elsewhere.

Other threats are more structural. Climate variability, such as droughts or disease outbreaks, can affect pulse supply quality and volume. In tight years, processors may be forced to pay premiums or compete with long-term contract buyers from Canada or the Midwest. Additionally, without contracts that reward quality traits, growers may deprioritize pulse specifications needed for higher-value markets, reducing processor access to contract-grade inputs.

Lastly, there is the possibility that market interest in certain pulse-based foods—particularly in snacks or pet foods—could cool. Consumer trends can shift quickly, and ongoing regulatory scrutiny (e.g., around grain-free dog foods) may constrain demand for certain formulations. Unless Montana processors and brands are positioned to adapt or differentiate quickly, these shifts could strand new investments or limit long-term scalability.

### 4.1.2. SWOT analysis by segment

While Montana's broad strengths and weaknesses shape its overall competitiveness in pulse processing, the nature and viability of value-added activity differ significantly depending on the type of processing being pursued. Some segments—such as basic cleaning and food-grade toll services—are already gaining traction, while others—like snack food or pet food manufacturing—face steeper barriers to entry and may require more targeted support to succeed.

This section breaks down the pulse processing landscape into five discrete segments: basic processing (cleaning, sorting, splitting, bagging), toll processing (contract-based services such as dehulling, milling, or extruding without the processor owning the product), ingredient manufacturing, snack food production, and pet food manufacturing. Each is evaluated through a SWOT lens to capture the specific advantages, constraints, and market dynamics shaping its potential in Montana.

The table below summarizes key themes across each segment before turning to detailed narrative analysis.

**Table 5: Summary of target pulse processing segments for Montana**

| Processing segment | Strengths | Weaknesses | Opportunities | Threats |
|---|---|---|---|---|
| **Basic processing** | Strong foundation of handler-based infrastructure; concentrated in pulse-dense regions; low-cost inputs | Limited food-grade certification and packaging capabilities; thin margins | Modular expansion of cleaning, sorting, bagging, and potential for upgrading to splitting or milling | Market volatility; consolidation and competition from larger out-of-state processors |
| **Toll processing** | Aligns with identity-preserved, organic, and food-grade markets; retains grower ownership | Requires consistent throughput; challenging to staff and manage; not viable for most individual farmers | Cooperative or anchor-client models; expansion of flexible, certified services for niche and premium markets | Underutilization risk; dependence on few reliable operators; freight and payment risk |
| **Pulse ingredient manufacturing** | High-quality pulse supply; alignment with clean-label and allergen-free markets | No in-state fractionation; limited local buyers; high capital and workforce requirements | Incremental upgrades to splitting facilities (e.g., flour milling); dry ingredient markets with premium pricing | Overcapacity in North America; high barriers to entry; intense price competition |
| **Pulse snack food manufacturing** | Favorable consumer trends; strong interest in clean-label and gluten-free products | No co-packing or CPG infrastructure in Montana; remote from major retail markets | Innovation or mission-driven startups; potential for R&D or small-scale production near urban centers | Long supply chains; crowded market; high development and marketing costs |
| **Pulse pet food manufacturing** | Montana pulses align with grain-free and clean-label demand; | No pet food manufacturing in-state; challenging | Supply ingredients for pet food formulations; potential for dual- | Buyer concentration; shifting formulations; lack |

| Processing segment | Strengths | Weaknesses | Opportunities | Threats |
|---|---|---|---|---|
| | traceability strengths | market entry and labor availability | use facilities (pet + human food) | of in-state manufacturing base |

### a) Basic processing

Montana's basic pulse processing sector—focused on cleaning, sorting, splitting, and bagging—has grown steadily over the past 15 years, largely in response to increased pulse acreage and export demand. Facilities in North Central and Eastern Montana handle much of this volume, and companies like Columbia Grain, Stricks Ag, and others have made targeted investments to expand food-grade capacity and meet evolving market requirements. Many elevators and handlers now provide these foundational services, helping Montana move beyond raw commodity exports.

Still, several challenges remain. Basic processing infrastructure has historically lagged behind production growth, and capacity in some regions—particularly in Eastern Montana—is not yet sufficient to serve local growers. Most pulses are still shipped out of state unprocessed, adding freight costs and reducing the share of value captured locally. While Montana has improved its food-grade capabilities, not all plants meet the traceability, certification, or segregation standards required by high-spec buyers or organic markets.

Even with these constraints, basic processing continues to present a relatively low-risk entry point for new investment. Modest expansions—such as adding a splitter or small-scale packaging line—could help existing elevators capture more margin without requiring major capital outlays. Importantly, this segment also lays the groundwork for more advanced uses of Montana-grown pulses. Clean, identity-preserved whole or split pulses are the building blocks for downstream opportunities in snack food, pet food, and ingredient manufacturing. Expanding and upgrading this segment, especially in underserved regions, could increase market access for growers while helping anchor a broader pulse processing ecosystem.

### b) Toll processing

Toll processing—where a facility performs processing services without taking ownership of the product—offers Montana a flexible, service-based model for expanding value-added pulse markets. Technically, toll processing can occur at any stage of the supply chain, from basic cleaning and splitting to advanced functions like extrusion or protein fractionation. However, given Montana's current infrastructure and market position, the most practical opportunities lie at the basic processing and possibly dry milling or extrusion levels. These include services such as cleaning, splitting, sorting, bagging, and flour milling—steps that enable producers and small brands to access food-grade or identity-preserved markets without needing to invest in large-scale infrastructure.

Several stakeholders, including processors and economic developers, pointed to toll processing as a promising entry point for building local capacity without relying on vertically integrated supply chains. In theory, the model allows growers, cooperatives, or food entrepreneurs to retain ownership of the product while accessing certified facilities to perform value-added services—an especially appealing option in a state dominated by independent producers.

At the same time, there are good reasons why most individual growers do not pursue toll processing themselves. Toll processing is a fundamentally different business from farming, requiring expertise in operations, food safety, regulatory compliance, marketing, and quality control. For producers already managing significant agronomic and market risk, taking on a processing enterprise introduces new operational demands and financial exposure. As a result, most growers are not looking to develop facilities themselves,

but rather to partner with or access shared infrastructure that allows them to participate in downstream markets without taking on that added burden.

The challenge is that toll processors depend entirely on client throughput, making them vulnerable to seasonal variability, demand shifts, and payment risk. Several stakeholders noted that past attempts to build toll capacity in Montana had struggled due to underutilization, especially when facilities lacked anchor clients or diversified service offerings. In rural areas, additional barriers—such as staffing, freight access, and food safety compliance—can further complicate the economics.

Still, many see strong potential for toll processing models tailored to emerging food-grade, organic, and regenerative markets. As demand grows for traceable, clean-label, and identity-preserved pulses, the need for flexible, small-lot processing infrastructure is increasing. Stakeholders highlighted interest in locating such facilities in North Central and Eastern Montana, where pulse production is concentrated but mid-scale services remain limited.

Several interviewees also emphasized the value of cooperative or grower-aligned ownership models. These structures allow producers to pool volume, share infrastructure risk, and retain ownership of their product through processing. Shared-use or hybrid cooperative facilities were seen as particularly well-suited to Montana's independent grower base—offering a way to reduce utilization risk, strengthen farmer engagement, and support the development of regionally rooted, food-grade toll capacity.

### c) Pulse ingredient making

Montana's strong pulse production base positions the state well to support further development of pulse ingredients such as flours, fibers, starches, and proteins. Several stakeholders expressed optimism about Montana's potential to contribute more meaningfully to this rapidly evolving market, especially in organic, clean-label, and functional food segments. But others cautioned that optimism must be tempered by logistical, financial, and strategic constraints—particularly given the recent overcapacity in North American pea protein production and the absence of large-scale fractionation infrastructure in Montana.

At a fundamental level, Montana offers ingredient manufacturers access to high-quality inputs close to the farm gate, with growing interest in transparency, environmental claims, and farm-level traceability. These advantages could support production of differentiated ingredients—especially lentil or chickpea flours or pulse fiber products—targeted at brands seeking sustainable or specialty plant-based formulations. Infrastructure and workforce costs are generally lower than in states like Washington, and certain regions (such as Great Falls and Billings) offer sufficient industrial zoning, water, and rail access to support mid-size manufacturing.

But ingredient manufacturing is highly capital-intensive and operationally complex. No Montana facility currently performs large-scale fractionation, and the technical workforce needed for food-grade ingredient production—process engineers, quality control specialists, and food scientists—is limited. For companies considering investment in this space, Montana's distance from downstream food manufacturing hubs also raises transportation costs and complicates supply chains. Several interviewees emphasized that ingredient processors would need to ship most product out of state, since Montana has relatively few food companies large enough to absorb significant volumes of flour, starch, or protein concentrates/isolates.

Moreover, even where infrastructure and inputs are available, market dynamics present real risks. Many stakeholders were aware of the recent "boom-bust" cycle in pea protein, in which a flurry of investment created more capacity than demand. In that environment, Montana would likely struggle to attract a fractionation project unless it could differentiate by serving an under-met niche or operate at smaller scale with a secured customer base. Several interviewees noted that co-manufacturing or modular facility models might offer more promise than a greenfield build aimed at bulk commodity fractions.

Despite these headwinds, there is still enthusiasm for smaller-scale ingredient ventures—particularly flour or fiber milling—that add value beyond cleaning or splitting, while staying short of the complexity and volume demands of protein extraction. For instance, stakeholders in Great Falls and Billings described interest in dry-milling or extrusion plants. If developed in partnership with existing buyers, these ingredient operations could offer processors an avenue for growth that fits Montana's infrastructure profile more realistically than large-scale fractionate production.

Some interviewees also emphasized the potential for dual-use processing models—facilities that produce pulse ingredients suitable for both human and pet food applications. These operations can help boost utilization rates, reduce risk exposure to a single market, and make better use of shared infrastructure such as extrusion equipment, dry mills, and packaging lines. Given Montana's raw material base and growing interest from both sectors, such models offer a pragmatic path toward long-term resilience and scale-up. Several stakeholders suggested that dual-use ventures might be particularly feasible in regions like Great Falls or Billings, where basic infrastructure exists and workforce availability is comparatively stronger.

### d) Pulse snack food manufacturing

Montana's abundant supply of pulses creates a promising foundation for pulse-based snack food manufacturing. As consumer demand grows for healthier, protein-rich, and allergen-conscious snacks, pulses are increasingly recognized for their nutritional value and formulation versatility. Pea and lentil flours are already common in extruded snacks, crackers, and puffed crisps, and many interviewees saw potential for Montana to supply ingredients—or even finished products—to this expanding category.

That said, this segment faces steep structural barriers in Montana that limit its viability beyond niche applications. While stakeholders acknowledged strong consumer demand for pulse snacks, there was general agreement that Montana lacks the ecosystem to support large-scale snack manufacturing. One of the most frequently cited constraints is the absence of co-manufacturers, packaging firms, and specialized CPG infrastructure. These supply chain elements are often taken for granted in food clusters in California, the Midwest, or along the East Coast but are limited or nonexistent in Montana. Even companies currently active in food production noted the difficulty of finding contract manufacturing partners or turnkey service providers in-state.

Montana's geographic isolation further compounds the challenge. Finished snacks are generally low in weight but high in volume and value, which means freight costs can quickly eat into margins. Several interviewees noted that Montana-based food businesses must contend with long shipping distances to reach core markets, increasing distribution costs and slowing lead times. While not disqualifying, these factors put a premium on product differentiation if products are to succeed nationally.

Some stakeholders suggested that snack manufacturing might still work in Montana, but only at a small or regional scale. For example, extruded snacks made with Montana-grown lentils could be sold into Pacific Northwest co-ops, outdoor retailers, or tourism-related channels. Others floated the idea of using modular extrusion equipment for test batches or limited-run products. Still, even these smaller ventures would face challenges related to labor, packaging, and food safety compliance, particularly if attempting to scale.

Overall, there was cautious interest in pulse-based snack foods as a downstream opportunity, but few saw Montana as a likely home for large-scale manufacturing in the near term. The state may be better positioned to supply high-quality, identity-preserved ingredients into snack production chains elsewhere or to support small brands looking to tell a distinctive origin story. To move beyond this niche role, Montana would need to cultivate much more robust food infrastructure, and attract firms willing to invest in long-distance logistics, formulation talent, and brand development.

### e) Pulse pet food manufacturing

Montana's strong production of high-quality pulses naturally invites interest in pulse-based pet food manufacturing, especially as pet owners increasingly seek grain-free, sustainable, and traceable ingredients. Several stakeholders pointed to pet food as one of the few large, stable markets where pulses remain in regular demand. While demand from major brands has fluctuated—particularly following the Food and Drug Administration's (FDA) 2018 alert on potential links between grain-free diets and canine heart issues—many manufacturers continue to use pulses in limited-ingredient and premium formulas. In this context, Montana's reputation for clean, identity-preserved pulses was widely seen as an asset.

However, few interviewees viewed pet food manufacturing as a likely near-term opportunity for Montana. The state currently has no pet food production facilities, and most stakeholders pointed to the same core issue: a lack of local access to the complementary inputs that go into pet food formulas. While Montana can provide the pulse content, it does not produce—or easily source—essential components like meat meals, fats, synthetic nutrients, and packaging materials. This adds cost, complicates logistics, and makes it harder to achieve the economies of scale required for national distribution. The idea of formulating a complete, competitive pet food product entirely within Montana was seen by most as impractical under current conditions.

Some stakeholders raised the possibility of small-batch treat manufacturing or ingredient partnerships with established pet food brands. These were considered more realistic entry points, especially if built around Montana's strengths in organic or traceable inputs. For example, pulse fiber or flour could be supplied into existing brands seeking farm-to-bowl marketing angles, especially in direct-to-consumer formats. However, even these approaches were expected to require contract manufacturing relationships or significant external investment, as Montana lacks the packaging suppliers, flavor formulators, and third-party logistics infrastructure common in pet food hubs elsewhere.

Finally, interviewees were generally cautious about overstating the opportunity. Some made clear that they had evaluated pet food ventures in Montana—often multiple times—and concluded that they could not make the economics work. Others emphasized that the pulse supply chain itself was not the constraint; rather, it was the absence of surrounding assets needed to support full product manufacturing. In this light, pulse-based pet food might remain a future opportunity, but not one that Montana is likely to lead in without deeper integration into broader feed and pet food supply chains.

## 4.1.3. SWOT and regional benefit analysis by location

Montana's strengths in pulse production are not evenly distributed across the state, and neither are its infrastructure assets, workforce capacity, or market access. As a result, the feasibility and potential impact of pulse processing investments vary significantly by region. This section evaluates four key areas—North Central, Eastern (split into Northeast and Southeast), South Central, and Western Montana—through a location-based lens. These narratives also consider the potential economic and agricultural benefits of expanding processing capacity in each region, based on input from stakeholders and analysis of existing assets. Together, they provide a geographically grounded view of where Montana is best positioned to grow its pulse processing sector, and what kinds of investments might yield the greatest local impact.

### a) North Central Montana

North Central Montana stands out as one of the most promising regions for expanded pulse processing. The region has long been the epicenter of Montana pulse production, with dense acreage in counties such as Chouteau, Hill, Liberty, and Blaine. It also offers the most developed ecosystem of pulse-related businesses and infrastructure.

The area's biggest advantage is its concentration of assets around Great Falls. The Great Falls AgriTech Park is the state's only shovel-ready industrial site specifically designed for agricultural processing, with access to heavy utilities (three-phase power, natural gas, water, wastewater), rail spurs, and industrial zoning. Stakeholders consistently cited the park as a major draw for investors. Great Falls also offers comparatively better workforce availability than other rural regions. Institutions like Great Falls College–MSU and MSU-Northern provide training relevant to processing, logistics, and industrial operations, although food-grade expertise remains limited statewide.

North Central also hosts multiple existing pulse operations, including Stricks Ag, Montana Milling, and several export-oriented handlers. This co-location fosters opportunities for expanding toll processing, contract manufacturing, or shared service models that reduce risk and encourage scale.

However, the region is not without challenges. Like the rest of the state, it lacks fractionation or high-value finished goods processing capacity, and packaging, flavoring, and co-packing infrastructure remains underdeveloped. These limitations inhibit full vertical integration and may explain why firms targeting national CPG markets have opted to site manufacturing elsewhere.

Nonetheless, interviewees frequently identified North Central as the most strategic anchor point for scaling Montana's pulse processing sector. Its cumulative advantages in raw supply, infrastructure, and workforce—while not perfect—are stronger than in any other region.

### Regional benefits

- North Central Montana would likely see significant economic and agricultural benefits from expanded pulse processing—especially in the form of job creation, farm-level savings, and new market access. As one of the densest pulse-producing areas in the state, this region already moves a high volume of pulses each year. But despite a growing cluster of pulse-focused businesses, much of the crop still undergoes very little, if any, processing.
- New or expanded processing facilities would deepen the region's value chain and reduce growers' reliance on out-of-state processors. That could translate into lower freight costs, quicker turnaround at delivery points, and more competitive prices due to proximity. Growers in Chouteau, Hill, and Blaine counties would especially benefit, as their fields sit within easy reach of the processing corridor already forming around Great Falls.
- At the community level, even a modest expansion in processing could deliver a meaningful jobs multiplier. While a typical basic processing facility might employ just 8 to 10 people, plants with ingredient or toll capacity could generate broader employment in maintenance, trucking, food safety, and facility operations. These jobs—often located in small towns—can support local incomes and help retain workers who might otherwise leave the region.[58]

## b) Eastern Montana

### Northeast

Northeast Montana is one of the state's most productive pulse regions but remains the least developed from an infrastructure perspective. Counties like Daniels, Sheridan, and Valley produce significant volumes of peas and lentils, yet rely heavily on out-of-state facilities—particularly in North Dakota—for processing.

[58] Bureau of Business and Economic Research. *Evaluation and Economic Impact of the Montana Manufacturing Extension Center*. University of Montana, 2019.

Stakeholders noted that farmers in this region often have long-standing business relationships across the border, especially with processors in Williston, Garrison, and Minot. As such, infrastructure gaps are partially mitigated by access to North Dakota's more mature processing network. However, this also means Montana loses value-added opportunities to its neighbor.

The region lacks centralized industrial parks or water-ready sites suitable for food-grade facilities, and utilities like three-phase power and broadband are often unavailable. Workforce availability is low, and workforce development institutions are limited. Startup ventures would likely require greenfield development, adding cost and complexity.

Nonetheless, local interest is growing. Some stakeholders pointed to the potential for small-scale cleaning and splitting operations or cooperatively owned toll processors that could serve organic and food-grade markets. These could reduce outbound freight costs and support regional identity-preserved supply chains. However, scaling would remain constrained by distance, sparse population, and lack of industrial infrastructure.

***Regional benefits***

- Expanded pulse processing in Northeast Montana would deliver meaningful economic and logistical benefits to one of the state's most production-heavy yet infrastructure-light regions. While farmers here grow high volumes of pulses, much of that crop currently exits the region unprocessed—adding freight costs and narrowing marketing options. Even a new basic processing facility would allow growers to capture more value locally and reduce dependency on hauls to North Dakota, Canada, or the Pacific Northwest.
  - This is especially important in Northeast Montana, where many growers already maintain longstanding relationships with buyers in Canada and North Dakota. While those relationships provide market stability, they also reflect the absence of competitive in-state alternatives. A new facility would, in theory, give farmers more leverage in pricing and contract terms and could catalyze more buyer interest within Montana, particularly from organic and food-grade markets where traceability and proximity are valued.
- The community-level impact could also be significant. In counties with small populations and limited employment diversity, even a modest processing plant could offer stable jobs, generate local spending, and support secondary businesses in trucking, maintenance, and support services. While basic processing facilities in this region would likely be lean, they can anchor broader value chains and serve as a launch point for cooperatives, joint ventures, or additional investment.
- Finally, localized processing in the northeast would reduce bottlenecks during harvest, giving growers more flexible delivery options and quicker turnaround times. That logistical predictability could help growers manage risk and make more confident cropping decisions—reinforcing the long-term viability of pulses in the region's rotations.

### Southeast

Southeast Montana presents a more mixed picture. While pulse production is not as dense here as in the Northeast or North Central, it benefits from better access to infrastructure, workforce, and transportation, particularly around Billings.

Billings is Montana's largest city and a freight hub, with access to I-90 and I-94, rail lines, utilities, and a more diverse labor pool. It also has small-scale food manufacturing infrastructure and services that rural towns lack. This gives Southeast Montana an edge for attracting CPG-adjacent processing or ingredient manufacturing operations. Importantly, Montana Pure Protein—an ingredient-focused firm producing pulse flours and

mixes—is located in this region. Though the company currently outsources most processing and packaging steps, it provides a knowledge base and business anchor that could be leveraged for further growth.

Still, challenges remain. The region's pulse production is more scattered, meaning processors would need to draw from a wider area to secure supply. Some interviewees noted that while production volume was sufficient to support year-round operation, other barriers—like workforce, freight costs, and supply chain support—were more decisive in shaping investment decisions.

***Regional benefits***

- Southeast Montana stands to gain economically from expanded pulse processing, particularly through better integration of existing supply, infrastructure, and workforce assets. With Billings serving as a logistical and industrial hub, the region offers a unique opportunity to reduce inefficiencies in how pulse products move between growing areas, processors, and downstream buyers. For ingredient-focused businesses already operating here, enhanced in-state processing would reduce reliance on out-of-state partners and allow more value to be captured locally.
- For growers, the greatest potential benefit may lie in improved contract diversity and better alignment between crop production and local demand. A plant capable of sourcing from multiple parts of the state—but located closer to packaging and shipping infrastructure—could offer forward contracts, identity-preserved programs, or more generous receiving windows that de-risk planting decisions. That is particularly important in a region where pulse acreage is more scattered and growers must weigh multiple market options each year.
- New processing capacity could also help catalyze adjacent investments. Stakeholders pointed to interest from small food brands, regenerative agriculture advocates, and regional buyers looking for traceable, Montana-sourced ingredients. These markets are not easily served by remote facilities located out of state. A local processor operating at modest scale in Southeast Montana could become a connective node—linking pulse farmers with co-packers, CPG brands, and distribution networks seeking clean-label and sustainable products.

### c) South Central Montana

South Central Montana, anchored by Bozeman, is not a pulse production hub but offers a compelling innovation and entrepreneurship ecosystem. MSU's Food Product Development Lab, local venture networks, and the area's strong reputation in natural foods and sustainable agriculture create opportunities for early-stage food ventures.

Bozeman's appeal lies in its ability to support R&D and pilot-scale innovation, rather than industrial-scale processing. While freight disadvantages and high land costs limit its suitability for sourcing-intensive manufacturing, the area could play a role in incubating new pulse-based CPG products. For example, a snack food startup might prototype in Bozeman and eventually scale elsewhere.

Without a local supply base, basic or toll processing makes little sense here. But for ventures aiming to create functional food products, secure investment, or access technical assistance, South Central Montana may serve as a valuable node in the broader pulse processing ecosystem.

#### Regional benefits

- Although South Central Montana is not a major pulse-producing region, it could still benefit from targeted investment in pulse-based product development and research-driven food ventures. The area's strongest assets lie not in raw commodity volume, but in its human capital, university infrastructure, and entrepreneurial ecosystem centered around Bozeman.

- Rather than supporting traditional processing operations, a pulse-related facility in this region could serve as an incubator for food innovation—especially for high-value or niche products. Early-stage companies could leverage proximity to MSU for food science R&D, pilot-scale testing, and support from the Food Product Development Lab. While such ventures would rely on pulse supply sourced from elsewhere in the state, they could play an important role in building markets for differentiated or identity-preserved products grown in Eastern or North Central Montana.
- The economic benefits for South Central communities would likely center on jobs in product development, quality control, and small-batch manufacturing, as well as indirect employment through local suppliers, logistics, and technical services. Although the job count might be lower than in regions with large-scale commodity processing, these roles could offer higher average wages and help retain skilled professionals in the area.
- For Montana pulse farmers, activity in South Central Montana could still deliver indirect benefits. Companies launching new products in Bozeman or the Gallatin Valley would need reliable, traceable pulse ingredients, potentially creating new contracting opportunities for growers elsewhere in the state. A successful food startup, even one headquartered far from production zones, can create ripple effects throughout the supply chain, including stable demand for food-grade or organic pulses.

### d) Western Montana

Western Montana, including Missoula and Kalispell, is the state's most population-dense region, but has almost no pulse production. Its economy leans toward tourism, services, and specialty foods. Pulse processing here would rely entirely on imported inputs from Eastern or North Central Montana.

However, Western Montana could still play a niche role. Missoula is home to several small CPG and natural foods companies, and the region's lifestyle branding, distribution connections to the Pacific Northwest, and consumer proximity could benefit specialty food companies using Montana-grown pulses.

Stakeholders were skeptical of major processing investment here, given freight costs and infrastructure gaps. But some felt there could be limited opportunity for snack food or pet food development aimed at local or regional buyers. Any success here would likely require high-margin, premium positioning to offset input and logistics costs.

#### Regional benefits

- Western Montana, while not a major producer of pulse crops, could still benefit economically from pulse-based ventures—especially those focused on natural foods, sustainability, or regional branding. Cities like Missoula and Kalispell offer a relatively developed consumer base, skilled workforce, and proximity to natural and organic food markets, making them well-suited for targeted downstream manufacturing or packaging operations that rely on Montana-grown pulses.
- If a pulse-focused snack or functional food company were to locate in Western Montana, the most immediate benefit would be job creation in light manufacturing, packaging, and sales—potentially supported by the region's small-business infrastructure and proximity to I-90. Local employment would likely be modest in absolute numbers but could offer higher-wage roles in marketing, logistics, and value-added food production compared to more commodity-oriented regions.
- Although the region's pulse supply would need to be sourced from Eastern or North Central Montana, this type of cross-regional integration could still deliver value to farmers. A Western Montana processor marketing "Montana-grown" pulses in consumer-ready formats could generate new contracting opportunities for pulse growers elsewhere in the state. Western Montana's strong local food and sustainability culture might also support shorter, in-state supply chains for institutional buyers like schools, hospitals, or food co-ops. In these cases, a Western Montana-based processor could serve as a conduit

between Montana pulse growers and Montana consumers—an arrangement that offers both marketing and economic benefits.

- That said, the economic ripple effects would likely be smaller than in regions with direct access to large-scale production. The high cost of real estate, limited industrial land, and lack of existing ingredient infrastructure mean that any pulse-based development here would need to be niche, high-margin, or mission-driven. Still, as a node in a broader statewide processing ecosystem, Western Montana could play a complementary role—particularly for companies aiming to access West Coast markets or build differentiated, value-driven brands.

## 4.2. Next steps

Stakeholders interviewed for this report conveyed a wide range of perspectives about the future of pulse processing in Montana—but most shared a common theme: the state has real potential to grow beyond its role as a raw commodity supplier, provided investments are aligned with realistic opportunities and local capacity.

While few saw Montana becoming a major player in global protein fractionation or snack food manufacturing, many described grounded, near-term opportunities in segments like food-grade toll processing, splitting, and small-scale ingredient manufacturing. In particular, mid-scale facilities, particularly those tailored to food-grade, organic, or identity-preserved supply chains, were frequently cited as both needed and feasible. These operations could serve regional food and pet food companies, support Montana-based startups, and offer farmers more diverse marketing channels. Several interviewees noted that existing basic processing plants are already reaching capacity in high-production regions like the Golden Triangle, signaling a market pull for expanded or upgraded infrastructure.

Basic processing remains the logical starting point. Expanding cleaning and splitting capacity was a near-consensus priority. These investments were viewed not only as a way to increase grower returns, but also as a prerequisite for more specialized processing. In some cases, stakeholders described efforts already underway: local development groups exploring cooperative cleaning ventures, private firms seeking to retrofit elevators for food-grade handling, and communities pursuing USDA support for infrastructure upgrades.

Beyond basic processing, there is tentative momentum around scalable toll processing—particularly in North Central and Eastern Montana. Interviewees envisioned facilities offering services like dehulling, flour milling, or extrusion that could support multiple clients rather than a single proprietary supply chain. Such a model would require strong marketing, quality assurance systems, and risk-sharing structures, but could address a major gap for small food brands that lack in-house capacity. Some also emphasized the need for modular or flexible infrastructure that can accommodate seasonal throughput, adapt to niche crops, or scale gradually over time.

Several stakeholders described a longer-term vision for ingredient manufacturing, including protein concentrates and functional flours. However, enthusiasm here was tempered by past overinvestment in pea protein, ongoing market uncertainty, and the absence of anchor buyers in Montana. As a result, most interviewees framed this segment as a possible second phase—viable only if Montana can first build out its basic and toll processing base and secure consistent, high-quality raw inputs. Some suggested that incremental steps—such as dry milling or co-manufacturing with established brands—might be more realistic entry points than building a full-scale concentrate or isolate facility from scratch.

Interest in snack and pet food manufacturing was more exploratory. While a few stakeholders floated ideas for branded Montana-grown snacks or pet treats, most acknowledged that such ventures would face high costs, steep competition, and infrastructure gaps. The consensus was that Montana may eventually play a

role here—but likely through partnerships, co-packing, or ingredient supply rather than as a manufacturing hub. Interviewees noted that local brands or startups might still emerge, especially in Bozeman, Missoula, or Billings, but would likely rely on out-of-state partners for production.

Across these discussions, stakeholders emphasized that success would depend on better coordination across public, private, and research sectors. This includes aligning infrastructure investment with business readiness, expanding workforce training for food-grade operations, and providing technical and financial assistance to emerging ventures. Some interviewees specifically called for greater institutional leadership from MSU and state economic development agencies, both to attract external investment and to provide on-the-ground support for existing Montana businesses exploring value-added growth.

Ultimately, the next phase of Montana's pulse processing industry will not be defined by a single anchor plant or silver-bullet investment. Instead, it will depend on steady, targeted efforts to close the gaps that currently prevent Montana pulses from reaching their full value. If successful, these efforts could unlock new economic opportunities for growers, entrepreneurs, and rural communities across the state.

# 5. CONCLUSIONS AND RECOMMENDATIONS

## 5.1. Overall conclusions

Montana sits at a pivotal moment in the evolution of its pulse processing sector. As the nation's top producer of dry peas, lentils, and chickpeas, the state holds a natural advantage in raw material supply. Yet despite this strong foundation, the majority of pulses still leave the state unprocessed—representing a missed opportunity for value capture, rural job creation, and market differentiation.

This report confirms that real opportunities exist across the pulse value chain, particularly in basic processing, food-grade toll services, and selected areas of ingredient manufacturing. Montana's most strategic niche lies not in large-scale fractionation or mass-market CPG production, but in mid-scale, flexible, and identity-preserved processing models—especially those serving organic, regenerative, or regionally branded supply chains. These opportunities are most feasible in North Central and parts of Southeast Montana, where pulse supply, infrastructure, and industrial readiness converge. Northeast Montana, while rich in pulse production, remains limited by infrastructure gaps. South Central and Western Montana may play more complementary roles—supporting product development, branding, and innovation rather than sourcing-intensive manufacturing.

More speculative opportunities—such as snack food or pet food manufacturing—may emerge over time, but currently face steep barriers related to logistics, co-manufacturing access, and ecosystem support. As such, stakeholders emphasized a cautious, phased approach: starting with scalable investments in toll and ingredient processing, particularly those designed to serve multiple clients or value-added programs. Models that emphasize co-packing, modularity, and traceable supply chains are especially well-suited to Montana's agricultural profile and entrepreneurial landscape.

To realize this potential, Montana must address persistent challenges—including limited food-grade infrastructure, workforce capacity, capital access, and outbound logistics. Institutional partners like Montana State University (MSU), local economic development groups, and technical assistance providers will need to play a stronger role in workforce training, facility planning, and certification support.

Montana does not need to compete on volume with global protein hubs. Its long-term success will hinge on positioning itself as a high-integrity source for sustainable, traceable, and locally processed pulses—a model that rewards quality over scale and roots value creation in the communities where pulses are grown.

## 5.2. Recommended strategies for growing pulse processing in Montana

To accelerate growth in Montana's pulse processing sector, stakeholders emphasized the need for strategies grounded in the state's agricultural strengths and responsive to its structural constraints. The most promising approach is to build outward from what already exists—expanding the footprint of elevators and handlers, layering on modest, modular upgrades, and scaling incrementally toward higher-value processing.

This approach avoids the pitfalls of high-capital ventures in regions with limited labor availability, dispersed production, and weak co-packing ecosystems. While downstream manufacturing has a role, Montana's near-term processing potential is greatest in models that reduce startup costs, support grower ownership or alignment, and emphasize shared-use infrastructure. These strategies fall into three broad categories: **scaling from foundational assets**, **lowering capital and operational barriers**, and **strengthening institutional and coordination support**.

### 5.2.1. Scale from foundational assets

#### a) Expand handler-based infrastructure as the anchor

Montana's best entry point for value-added pulse processing lies in expanding and upgrading existing grain handling infrastructure. Stakeholders consistently emphasized the need to support more elevators and handler facilities—not just for aggregation, but as platforms for modular, scalable processing.

A practical path forward is to begin with food-grade cleaning and sizing lines, then add capabilities such as sorting, decorticating, or bagging. According to interviews, a greenfield facility with basic cleaning and sorting capacity may cost around $5 million, though costs could be substantially reduced by repurposing idle or distressed assets. Not all buyers require bagged pulses, but adding a bagger opens new institutional and retail markets. From there, facilities could expand into splitting or dry milling—creating regional hubs that serve a variety of clients while building capacity over time.

#### b) Encourage cooperative ownership to share cost and risk

While handler-based infrastructure is essential, it is often out of reach for individual growers due to the capital, time, and operational demands involved. Pulse processing is a fundamentally different business than farming—it requires staff, compliance systems, and logistics expertise. Most growers do not have the capacity or interest to manage those complexities alone. Cooperative models, joint ventures, or hybrid structures (where growers partner with a technical operator) can lower the entry barrier while ensuring producer alignment and supply consistency.

#### c) Prioritize toll processing, particularly for food-grade and specialty markets

Toll processing remains a significant opportunity for growers, cooperatives, and smaller brands that want to retain ownership while accessing certified processing services. Stakeholders described particular interest in splitting, milling, or bagging on a contract basis, especially when facilities can handle identity-preserved or organic lots. Capital costs for modest toll facilities were estimated at $4–5 million by interviewees. Because most growers would unlikely want to manage toll infrastructure themselves, stakeholders suggested the state could rely on a small number of specialized operators, potentially supported by co-op alignment or anchor client agreements, to reduce utilization risk.

#### d) Address unmet demand for feed-grade processing

Beyond food-grade markets, buyers in the pet food, aquaculture, and livestock sectors increasingly require well-conditioned, traceable pulses. However, Montana has limited infrastructure specifically designed for commercial feed-grade cleaning and sorting. Investments in more flexible infrastructure—particularly in Eastern and North Central Montana—could expand market access for growers while keeping more conditioning work in-state.

### 5.2.2. Lower capital and market entry barriers

#### a) Create a statewide inventory of underutilized infrastructure

Stakeholders cited idle baggers, cleaners, and even extrusion equipment across Eastern Montana and nearby states—assets that could be refurbished, relocated, or repurposed. A statewide infrastructure inventory would help new entrants identify low-cost startup opportunities and reduce reliance on greenfield construction, especially in underserved regions.

#### b) Expand small-scale and co-packaging capacity

Montana lacks contract packaging infrastructure for 1–2 lb. consumer-ready bags, which limits the ability to serve retail, school nutrition, and government aid programs. Co-pack investment or equipment-sharing pilots would allow processors to test branded concepts, serve institutional buyers, and access new channels without needing full CPG-scale capacity.

#### c) Support dual-use processing for pet and human food markets

Facilities that can serve both pet and human food markets—such as those producing chickpea flour or lentil fiber—have more flexible throughput and greater resilience to market shifts. Stakeholders saw promise in these dual-use models, especially in places like Billings and Great Falls where labor availability and ingredient infrastructure are comparatively strong.

#### d) Improve outbound logistics through expanded containerized shipping

Montana's limited access to containerized freight remains a barrier for smaller shipments, export markets, and traceable product lines. Inland transload facilities or pulse-specific aggregation hubs in Great Falls, Billings, and Havre could improve cost efficiency and support more specialized, mixed-load buyers.

### 5.2.3. Strengthen institutional support and industry coordination

#### a) Provide support for cooperative and grower-aligned ventures

While cooperative models are critical to enabling infrastructure development (see Section 5.2.1), they also build long-term trust and supply chain resilience. Stakeholders emphasized the need for technical assistance and feasibility support to help producer groups explore co-op governance, risk-sharing mechanisms, and financing models—especially for projects serving organic and regenerative markets.

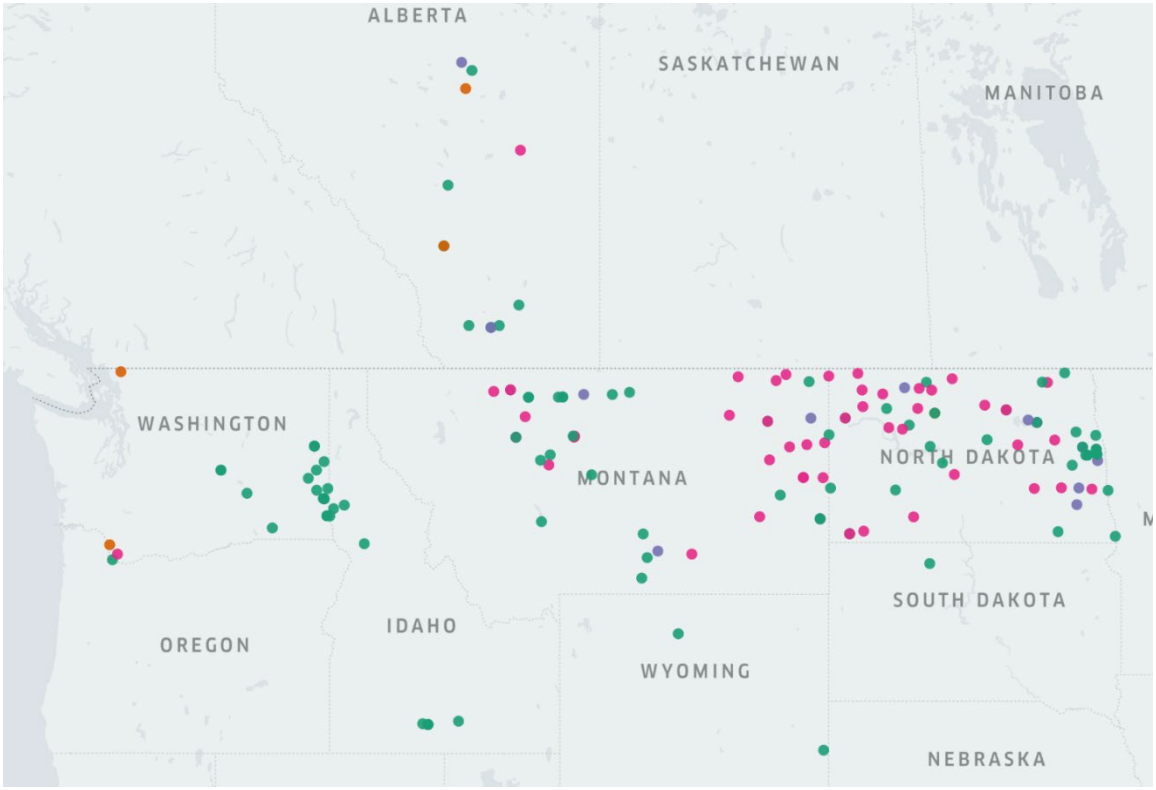
#### b) Foster regional clustering and specialization

Rather than centralizing all development in one area, Montana could benefit from region-specific micro-clusters aligned with local strengths. For example, Great Falls is well-suited for food-grade toll services; Billings for ingredient packaging and co-packing; and the Golden Triangle in general for expanded cleaning and sorting. Investments in site readiness, utilities, and branding can help these regions build complementary roles.

#### c) Establish a centralized technical assistance and capital access hub

Entrepreneurs face steep learning curves navigating food safety, permitting, equipment selection, and financing. A centralized hub—potentially hosted by GFDA, MSU, or another partner—could provide vetted vendor lists, regulatory templates, financial models, and links to ag-friendly lenders. This support would reduce friction, improve project readiness, and enable more successful investments statewide.

## APPENDIX – MAP OF EXISTING PROCESSORS IN MONTANA AND SURROUNDING AREAS




- **Receiving –** Receives pulses, may do basic processing
- **Basic processing** – Includes cleaning, sizing, bagging, splitting, and milling
- **Ingredient production** – Includes dry and wet fractionation, textured proteins, and extruded kibble
- **Finished goods** – Includes branded snacks, pet food, retail packs

The following is a list of all processors visualized on the map above. This includes all current processors in Southern Alberta, Idaho, Montana, North Dakota, South Dakota, Washington, and Wyoming.

**Southern Alberta processors**

| | Location | Capabilities |
|---|---|---|
| **Agrocorp Processing** | Falher, Alberta | Basic Processing |
| **Agrocorp Processing** | Innisfail, Alberta | Basic Processing |
| **AGT Foods** | Calgary, Alberta | Basic Processing |
| **AGT Foods** | Gibbons, Alberta | Basic Processing |
| **Arjazon Seed Trading** | Fort Macleod, Alberta | Basic Processing |
| **Battle River Railway** | Forestburg, Alberta | Receiving |
| **Benchmark Commodities Ltd.** | Panoka, Alberta | Receiving |
| **Champion Petfoods** | Edmonton, Alberta | Finished goods |
| **Columbia Seed Co** | Vauxhall, Alberta | Basic Processing |
| **Faba Canada** | Legal, Alberta | Ingredient Production |
| **L.A. Grain LTD** | Lethbridge, Alberta | Basic Processing |



Agralytica

| | Location | Capabilities |
|---|---|---|
| Lovingly Made Foods | Calgary, Alberta | Finished goods |
| PIP International | Lethbridge, Alberta | Ingredient Production |
| Viterra | Coaldale, Alberta | Basic Processing |

**Idaho processors**

| | Location | Capabilities |
|---|---|---|
| Crites Seed, Inc. | Twin Falls, Idaho | Basic Processing |
| George F. Brocke & Sons, Inc. | Kendrick, Idaho | Basic Processing |
| Kelley Bean | Filer, Idaho | Basic Processing |
| Kelley Bean | Rupert, Idaho | Basic Processing |
| PNW Farmers Cooperative | Genesee, Idaho | Basic Processing |
| PNW Farmers Cooperative | Lewiston, Idaho | Basic Processing |
| Trinidad Benham Corp | Twin Falls, Idaho | Basic Processing |
| Zürsun Idaho Heirloom Beans | Twin Falls, Idaho | Basic Processing |

**Montana processors**

| | Location | Capabilities |
|---|---|---|
| AgroLink LLC | Cut Bank, Montana | Ingredient Production |
| Anchor Ingredients | Culbertson, Montana | Ingredient Production |
| Ardent Mills | Fort Benton, Montana | Receiving |
| Beach Cooperative Grain | Baker, Montana | Basic Processing |
| Belle Pulses USA | Hingham, Montana | Ingredient Production |
| Big Sky Wholesale Seeds | Shelby, Montana | Basic Processing |
| Cahill Seeds, Inc | Scobey, Montana | Receiving |
| Columbia Grain | Chinook, Montana | Basic Processing |
| Columbia Grain | Choteau, Montana | Receiving |
| Columbia Grain | Conrad, Montana | Receiving |
| Columbia Grain | Fort Benton, Montana | Receiving |
| Columbia Grain | Havre, Montana | Basic Processing |
| Columbia Grain | Kasa Point, Montana | Receiving |
| Columbia Grain | Meriwether, Montana | Receiving |
| Columbia Grain | Plentywood, Montana | Basic Processing |
| Columbia Grain | Tiber, Montana | Basic Processing |
| Columbia Grain | Whitetail, Montana | Receiving |
| Columbia Grain | Wolf Point, Montana | Basic Processing |
| Commercial Lynks | Shelby, Montana | Basic Processing |
| Crop Production Services | Hardin, Montana | Receiving |
| Equity Cooperative | Baker, Montana | Receiving |
| Farmer's Elevator-CHS | Circle, Montana | Receiving |
| Farmer's Elevator-CHS | Glasgow, Montana | Receiving |
| Farmer's Elevator-CHS | Glendive, Montana | Receiving |

| | Location | Capabilities |
|---|---|---|
| **Farmer's Elevator-CHS** | Richey, Montana | Receiving |
| **Farmer's Elevator-CHS** | Wolf Point, Montana | Receiving |
| **Gavilon Grain** | Miles City, Montana | Receiving |
| **Hogskiss Seed** | Choteau, Montana | Basic Processing |
| **ITC Grain International Inc** | Glendive, Montana | Receiving |
| **JM Grain** | Great Falls, Montana | Basic Processing |
| **Kelley Bean** | Bridger, Montana | Basic Processing |
| **Kelley Bean** | Terry, Montana | Basic Processing |
| **Madoc Ag** | Fort Benton, Montana | Receiving |
| **Montana Flour and Grains** | Fort Benton, Montana | Basic Processing |
| **Montana Pure Protein** | Billings, Montana | Ingredient Production |
| **Montana Specialty Mills** | Cascade, Montana | Receiving |
| **New Century Ag** | Westby, Montana | Receiving |
| **Nortana Grain Co.** | Lambert, Montana | Receiving |
| **Nortana Grain Co.** | Sidney, Montana | Receiving |
| **Pardue Grain** | Cut Bank, Montana | Receiving |
| **Pro Coop** | Four Buttes, Montana | Receiving |
| **Pro Coop** | Opheim, Montana | Receiving |
| **Safflower Technologies** | Broadview, Montana | Basic Processing |
| **Safflower Technologies** | Fairview, Montana | Basic Processing |
| **Safflower Technologies** | Laurel, Montana | Basic Processing |
| **Stricks Ag** | Chester, Montana | Basic Processing |
| **The Redwood Group** | Chester, Montana | Basic Processing |
| **The Redwood Group** | Stanford, Montana | Basic Processing |
| **Timeless Food** | Ulm, Montana | Basic Processing |
| **Townsend Seeds** | Townsend, Montana | Basic Processing |
| **Viterra** | Baker, Montana | Basic Processing |

**North Dakota processors**

| | Location | Capabilities |
|---|---|---|
| **ADM** | Enderlin, North Dakota | Ingredient Production |
| **Agrican International Inc** | Mohall, North Dakota | Basic Processing |
| **AGT Foods** | Minot, North Dakota | Finished goods |
| **AGT Foods** | Williston, North Dakota | Basic Processing |
| **Alliance Valley Bean Co-op** | Larimore, North Dakota | Basic Processing |
| **Anchor Ingredients** | Hillsboro, North Dakota | Ingredient Production |
| **Anchor Ingredients** | Buffalo, North Dakota | Ingredient Production |
| **Anchor Ingredients** | Hatton, North Dakota | Ingredient Production |
| **Ardent Mills** | Harvey, North Dakota | Basic Processing |
| **Ardent Mills** | Fairmount, North Dakota | Basic Processing |
| **Beach Cooperative Grain** | Beach, North Dakota | Basic Processing |
| **Berthold Farmers** | Berthold, North Dakota | Receiving |

| | Location | Capabilities |
|---|---|---|
| **Border Ag & Energy** | Bottineau, North Dakota | Receiving |
| **Bowman Grain** | Bowman, North Dakota | Receiving |
| **CenDak Cooperative** | Leeds, North Dakota | Receiving |
| **CenDak Cooperative** | New Rockford, North Dakota | Receiving |
| **Central Valley Bean** | Buxton, North Dakota | Basic Processing |
| **CHS - McVille** | McVille, North Dakota | Receiving |
| **Columbia Grain** | Ross, North Dakota | Basic Processing |
| **Columbia Grain** | Walhalla, North Dakota | Basic Processing |
| **Columbia Grain** | Merrifield, North Dakota | Basic Processing |
| **Cummings Ag** | Buxton, North Dakota | Basic Processing |
| **Cummings Ag** | Cummings, North Dakota | Basic Processing |
| **Dakota Dry Bean** | Crary, North Dakota | Ingredient Production |
| **Dakota Dry Bean** | Lakeview, North Dakota | Ingredient Production |
| **Dakota Dry Bean** | Lansford, North Dakota | Receiving |
| **Dakota grain Company** | Elgin, North Dakota | Receiving |
| **Dakota Ingredients** | Crary, North Dakota | Basic Processing |
| **Dakota Ingredients** | Devils Lake, North Dakota | Ingredient Production |
| **Downs Brokerage** | Langdon, North Dakota | Receiving |
| **Engstom Bean** | Leeds, North Dakota | Basic Processing |
| **Great Northern AG** | Plaza, North Dakota | Basic Processing |
| **Great Northern AG** | Bowman, North Dakota | Basic Processing |
| **Harlow Coop Elevator** | Leeds, North Dakota | Receiving |
| **High Plains Grans** | Bowman, North Dakota | Receiving |
| **Horizon Resources** | Williston, North Dakota | Receiving |
| **Italgrani USA** | Powers Lake, North Dakota | Receiving |
| **Italgrani USA** | Renville, North Dakota | Receiving |
| **JM Grain** | Garrison, North Dakota | Basic Processing |
| **JM Grain** | Cummings, North Dakota | Basic Processing |
| **Kelley Bean** | Cavalier, North Dakota | Basic Processing |
| **Kelley Bean** | Hatton, North Dakota | Basic Processing |
| **Kelley Bean** | Mayville, North Dakota | Basic Processing |
| **Kelley Bean** | Oakes, North Dakota | Basic Processing |
| **Legume Matrix** | Jamestown, North Dakota | Receiving |
| **Lone Prairie Grain** | Rugby, North Dakota | Receiving |
| **New Century Ag** | Crosby, North Dakota | Receiving |
| **North Plains Grain and Milling** | Valley City, North Dakota | Receiving |
| **Ray Farmers Elevator** | Ray, North Dakota | Receiving |
| **Scranton Equity Feeds** | Scranton, North Dakota | Receiving |
| **SK Food International** | Fargo, North Dakota | Basic Processing |
| **SRS Commodities** | Mayville, North Dakota | Basic Processing |
| **SRS Commodities** | Falkirk, North Dakota | Basic Processing |

| | Location | Capabilities |
|---|---|---|
| **SRS Commodities** | Portland, North Dakota | Basic Processing |
| **Stone Mill** | Richardton, North Dakota | Basic Processing |
| **Trinidad Benham Corp** | Hope, North Dakota | Basic Processing |
| **United Quality Grain Coop** | Parshall, North Dakota | Receiving |
| **Valley Grain Milling** | Casselton, North Dakota | Receiving |
| **Viterra** | Minot, North Dakota | Basic Processing |
| **West Plains** | New Town, North Dakota | Receiving |
| **Wildrose C&D** | Wildrose, North Dakota | Receiving |
| **Wilton Farmers Union Elevator** | Wilton, North Dakota | Receiving |

**South Dakota processors**

| | Location | Capabilities |
|---|---|---|
| **South Dakota Pulse Processors** | Harold, South Dakota | Basic Processing |

**Washington processors**

| | Location | Capabilities |
|---|---|---|
| **ADM** | Spokane, Washington | Ingredient Production |
| **American Nutrition** | Woodland, Washington | Finished goods |
| **Ardent Mills** | Pullman, Washington | Basic Processing |
| **Ardent Mills** | Wilma, Washington | Basic Processing |
| **Blue Mountain Seed** | Walla Walla, Washington | Basic Processing |
| **Canature Pet Foods** | Lyden, Washington | Finished goods |
| **Central Bean Co** | Quincy, Washington | Basic Processing |
| **Cereal Byproducts** | Vancouver, Washington | Basic Processing |
| **CHS SunBasin Growers** | Othello, Washington | Basic Processing |
| **Columbia Grain** | Wilma, Washington | Basic Processing |
| **Crites Seed, Inc.** | Quincy, Washington | Basic Processing |
| **DDS Seed Co, LLC** | Pullman, Washington | Basic Processing |
| **Guinn Trading** | Brush Prairie, Washington | Receiving |
| **Inland Empire Milling Company** | St. John, Washington | Basic Processing |
| **Palouse Brand** | Pullman, Washington | Basic Processing |
| **Palouse Grain Growers** | Palouse, Washington | Basic Processing |
| **Palouse Pulse** | Farmington, Washington | Basic Processing |
| **PNW Farmers Cooperative** | Fairfield, Washington | Basic Processing |
| **PNW Farmers Cooperative** | Lewiston, Washington | Basic Processing |
| **PNW Farmers Cooperative** | Pullman, Washington | Basic Processing |
| **PNW Farmers Cooperative** | Spokane, Washington | Basic Processing |
| **PNW Farmers Cooperative** | Colfax, Washington | Basic Processing |
| **PNW Farmers Cooperative** | Rosalia, Washington | Basic Processing |
| **PNW Farmers Cooperative** | Craigmont, Washington | Basic Processing |

| | | |
|---|---|---|
| **PNW Farmers Cooperative** | Grangeville, Washington | Basic Processing |
| **Spokane Seed** | Spokane, Washington | Basic Processing |

**Wyoming processors**

| | Location | Capabilities |
|---|---|---|
| **Kelley Bean** | Manderson, Wyoming | Basic Processing |
| **Kelley Bean** | Torrington, Wyoming | Basic Processing |