Know Your Potential

B2B Market Scan

Prepared for
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01
Key Takeaways

Key Takeaways

While Overall Market Sizing Varies by Analysts, There is Consensus That the Market is Enormous, and Growth is Strong & Accelerating for All Markets Observed

Industry	Market Size	CAGR
Global Pulse Flour Market	**$11.4-29.2 B**	**14.31-15.81%**
Global Pea Protein Market	**~$500 M**	**10.88%**
Global Plant-Based Protein Products Market	**$12.5-40.6 B**	**8.56%**

- For the purpose of this initial market scan, the BDC focused on the global pea protein market, global plant-based protein products market, and the global pulse flour market. All markets are moving through a period of strong and accelerating growth, with the pulse flour market showing elevated growth potential over the forecast period (14.31% → 15.81% compound annual growth rate [CAGR] leading up to 2024, compared 10.88% for pea protein, and 8.56% for the broader plant-based protein products).

- Growth is being driven largely by increasing health consciousness, a growing vegan population, increasing product launches (both in terms of volume and variety), rising demand for gluten-free products, and ongoing concerns around sustainability and ethically sourced foods. ***Industry operators providing product in these categories stand to benefit in the years ahead due to favourable market conditions and a long-term trend of increasing demand both from food & beverage producers, and consumers.***

02

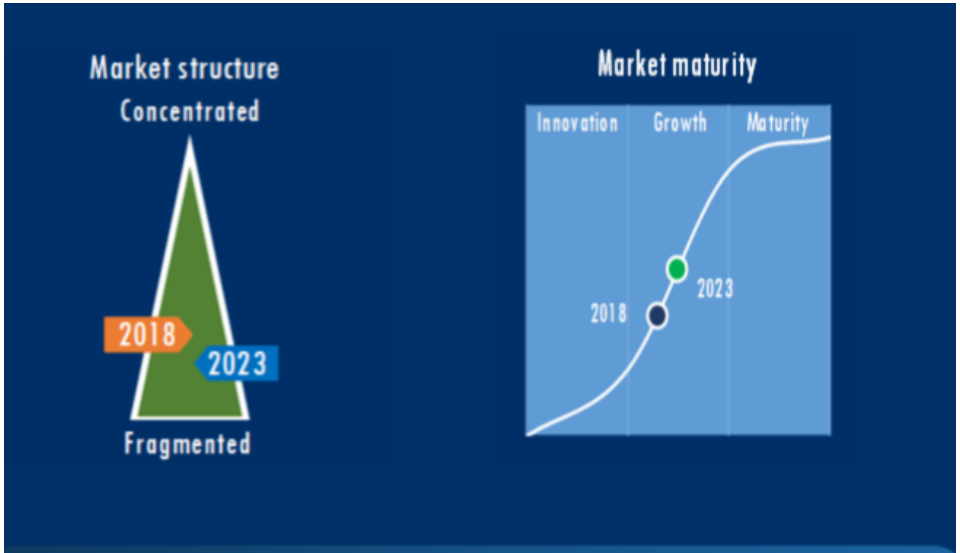
Global Plant-Based Protein Products Market

Market Structure & Definition

The Market is Moving Through a Growth Phase, Somewhat Fragmented

- The global protein ingredients market, which is the parent market of the global plant-based protein products market, is currently growing at a moderate rate. This growth is mainly driven by an increase in the demand for functional food and beverages and other nutritional products from health-conscious consumers.

- In addition, the market is witnessing new applications of protein ingredients, such as their use as ingredients in sports drinks and ready-to-eat (RTE) meals. In 2018, Europe was the leading market for animal protein ingredients, whereas **North America was the largest market for plant protein ingredients. However, the increase in the cost of raw materials such as grains, meat, fruits, and oilseeds is a challenge for the global protein ingredients market.**



Market participants

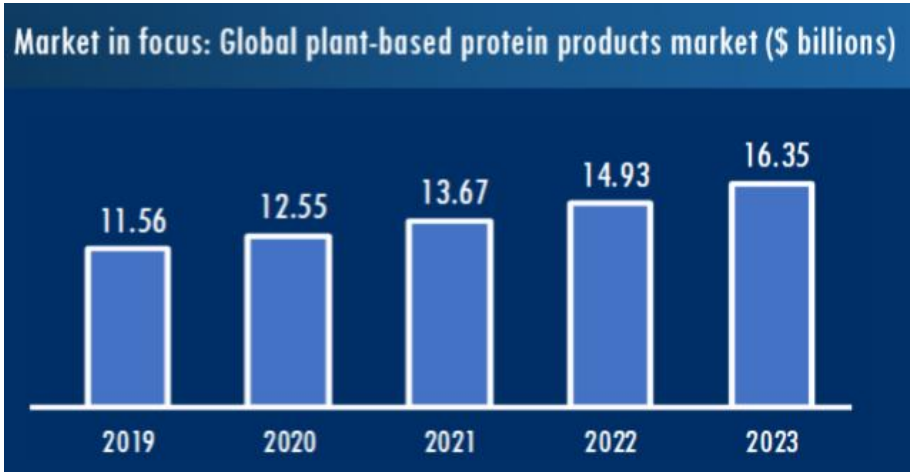
Company name	Key products
Archer Daniels Midland Company	CLARISOY
Cargill	Prolia
DowDuPont	SUPRO
Kerry Group	ProDiem

Source: Technavio - Global Plant-Based Protein Products Market

Market Size & Growth

The Market is Moving Through a Period of Robust and Accelerating Growth

- The market was valued at $12.55 B in 2020. We expect it to reach nearly $16.35 B by 2023, growing at a compound annual growth rate (CAGR) of 8.89% over the forecast period.
- **Growth in this market is accelerating, with analysts forecasting a CAGR of 9.51% by 2023.**
- **<u>NOTE: Analysts market sizing varies, with some estimating value to be over $40 B.</u>**

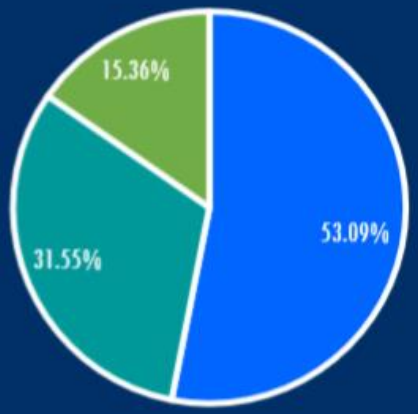


Source: Technavio - Global Plant-Based Protein Products Market

Market Share by Geography

Americas Holds Largest Share of Market, Growth in APAC to Outpace Other Regions

- The Americas currently hold the largest share of the global market at 53.09%, followed by Europe (31.55%), and APAC (15.36%).
- Looking at growth rates, we see APAC showing the strongest growth potential moving forward, (14.23%).
- **Despite growth variances, analysts highlight there are substantial growth opportunities for industry products in all regions observed.**



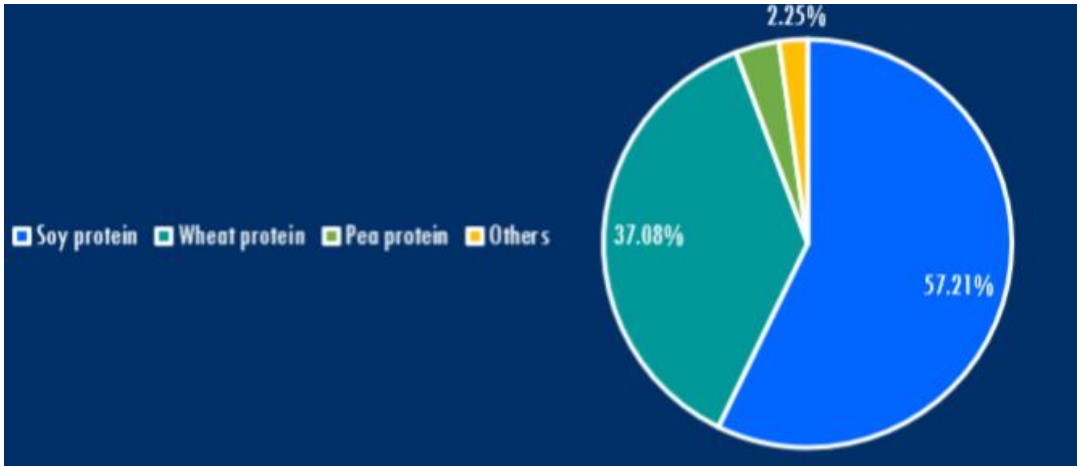
Geography	CAGR (2018 - 2023)	Opportunities ($ billions)	
Americas	7.47%	5.67 2018	8.13 2023
EMEA	8.34%	3.37 2018	5.03 2023
APAC	14.23%	1.64 2018	3.19 2023

Source: Technavio - Global Plant-Based Protein Products Market

Market Share by Product

Soy Protein Products Dominate Market, Pea Protein to Gain in Market Share Moving Forward

- Looking at share of market by product type, we see the Soy Protein market dominates with 57.21% of global market share, followed by Wheat Protein at 37.08%.
- Growth will be highest over the forecast period for Pea Protein (10.88%).
- **Despite these minor variances, analysts highlight there are substantial growth opportunities for the market across all product types.**



Product	CAGR (2018 - 2023)	Opportunities ($ billions)	
Soy protein	9.37%	6.11 (2018)	9.56 (2023)
Wheat protein	7.86%	3.96 (2018)	5.78 (2023)
Pea protein	10.88%	0.37 (2018)	0.62 (2023)

Source: Technavio - Global Plant-Based Protein Products Market

Market Drivers

Expanding global vegan population base

- **The expanding global vegan population base is one of the primary growth drivers of the global plant-based protein products market. With the rising awareness about the various health benefits of vegan diets, the number of people adopting vegan lifestyles is increasing across the globe. Some of the health benefits associated with vegan diets have been listed below:**
    - Vegan diets provide more fiber, antioxidants, and beneficial plant compounds. They are also rich in potassium, magnesium, folate, and vitamins A, C, and E.
    - Vegan diets help to lose weight. Vegan consumers tend to be thinner and have a lower body mass index (BMI) than non-vegan consumers.
    - Vegan diets help to improve kidney function and lower blood sugar levels.
    - Vegan diets lower the risk of heart diseases.
- **It is estimated that the number of consumers who are opting for plant-based diets over animal-based diets is increasing, and the trend is more common among millennials.** The number of vegan consumers is increasing in countries such as the US and Canada. The number of millennials adopting the vegan lifestyle is also increasing in these countries. The Vegan lifestyle is gaining popularity among the young population in Mexico and is expected to increase during the forecast period. The number of people adopting a vegan lifestyle is increasing in countries such as the UK, Germany, and France. There are more than 3 million vegans in the UK and the number is expected to increase during the forecast period. Thus, the growing global vegan population will help in the growth of the global plant-based protein products market during the forecast period.

Source: Technavio - Global Plant-Based Protein Products Market

Market Drivers (continued)

Celebrity endorsements of plant-based products

- **Another growth driver of the global plant-based protein products market is the increasing endorsement of plant-based products by several celebrities across the globe.** The endorsement of plant-based products by various celebrities will help in increasing the popularity of these products among the fan bases of these celebrities. In September 2017, famous Formula One racer Lewis Hamilton announced that he is shifting to a plant-based diet and urged his fans to shift their diet pattern to include more plant-based food products. In August 2017, Ne-Yo, famous American singer, songwriter, record producer, actor, and dancer, announced that he was going 100% vegan. In November 2017, NBA player Kyrie Irving announced that he had adopted a vegan lifestyle and had cut down on his animal protein intake. It is likely that such endorsements will encourage the adoption of plant-based products among the global population in the coming years.

Source: Technavio - Global Plant-Based Protein Products Market

Market Drivers (continued)

Increasing investments

- **Most players operating in the global market have actively started investing in increasing their production capabilities and are also investing in startups with innovative ideas.** In December 2017, Tyson Foods invested in Beyond Meat, which sells plant-based burger patties, heat-and-eat meals, and non-GMO soy and pea protein frozen foods at various grocery chains.

- In January 2018, Cargill announced its entry into a venture agreement with PURIS, North America's largest producer of pea protein. Cargill invested an undisclosed amount into the company to support its efforts in developing sustainable plant-based foods. In February 2017, Maple Leaf Foods acquired Lightlife Foods, which offers refrigerated plant protein products. Thus, the increasing investments will help in the growth of the global plant-based protein products market during the forecast period.

Source: Technavio - Global Plant-Based Protein Products Market

Market Challenges

Increasing number of product recalls

- Manufacturers usually purchase or source raw materials from third-party suppliers. If these raw materials or supplies are not handled properly, the safety and quality of the finished products might get compromised. In line with this, food regulatory and compliance authorities in any country can shut down a business and recall its products from the market if they pose a threat to the wellbeing of consumers. A product recall severely affects a company's brand image as well as its operation and sales. Also, manufacturing and packaging defects further hamper the market's growth.

- In October 2018, Forager Project issued a recall of its Nuts and Vanilla – Organic Plant Protein Shake due to the presence of undeclared almond flour in the product. People who have an allergy or severe sensitivity to almonds would have had a risk of serious or life-threatening allergic reaction if they had consumed this product. In January 2018, Healthy Body Services issued a recall of its Soy Complete brand plant-based protein shake due to the presence of undeclared milk in the product. This recall was triggered by the Canadian Food Inspection Agency. Thus, product contamination and product recalls can severely affect the growth of the global plant-based protein products market during the forecast period.

Source: Technavio - Global Plant-Based Protein Products Market

Market Challenges (continued)

The Impact of Climate Change

- The growth of the global plant-based protein products market can be challenged by various natural calamities, such as droughts, floods, storms such as cyclones and hurricanes, earthquakes, and volcanic eruptions, that damage crops and plants. Apart from natural calamities, cultivated plants can also be affected by various diseases. In 2016, about 315 natural calamities around the globe caused crop damages worth about $210 billion. Floods, earthquakes, and severe weather accounted for more than 70% of the total economic losses. In 2017, natural calamities caused about $5-billion worth of losses to the agricultural sector in the US. The increasing crop damages due to natural calamities can severely impact the growth of the global plant-based protein products market during the forecast period. Crop damages can also increase the product prices, which again acts as a deterrent for the market's growth

Source: Technavio - Global Plant-Based Protein Products Market

Market Challenges (continued)

Distribution challenges

➔ Retail stores like supermarkets and large chains of discount or convenience stores are important distribution portals for manufacturers of plant-based protein products. However, this presents some serious challenges for the manufacturers, which have been listed below:

- Pressure on the manufacturers regarding the prices and margins from the product as retail stores operate at a lower profit margin.
- Rising demands from retailers to manufacturers for frequent and smaller product deliveries to reduce the warehousing costs.
- Increasing expectations from retailers for manufacturers to come up with innovative merchandising units like movable shelves that can be rolled when fully stocked, to reduce the replenishment cost of the store.
- Growing eagerness of retailers to avoid the decline in revenues resulting from the gaps in inventory by making the order fulfillment rate a key factor in developing a relationship with a vendor. This means that the retailer will not hesitate to go to others if a manufacturer is not able to supply enough goods for promotional initiatives and peak demand points.
- Channel shifts by consumers forcing manufacturers to develop new skills in category management. Shoppers have shown more inclination toward convenience stores, which has forced manufacturers to find a suitable balance between price and volume.

Source: Technavio - Global Plant-Based Protein Products Market

Market Trends

Increasing health consciousness

- **One of the positive trends which can influence the growth of the global plant-based protein products market during the forecast period is the increasing health consciousness among consumers.** The increasing instances of obesity and related diseases is making consumers more health conscious and they are demanding food and beverage products that are natural and low in fat and calorie content. To cater to the changing consumer demands, players have started coming up with new plant-based products that have lower fat and calorie content.

- **The health and wellness trend is gaining popularity among consumers, especially young consumers in the age group of 18-32 years. Many consumers are also ready to pay a premium price for healthy products that offer various functional benefits.** The increasing demand for healthy food and beverage products will, therefore, help in the growth of the global plant-based protein products market during the forecast period.

Source: Technavio - Global Plant-Based Protein Products Market

Market Trends (continued)

Increasing number of new product launches

- Successful new product launches, in addition to helping increase the revenue flow of the players, also help in increasing the market shares of the players. New product launches also help in keeping the interest of the players alive in the market. Some of the new product launches in the global plant-based protein products market have been mentioned below:
    - In September 2018, Vitacost launched new protein bars and cookies with plant-based protein as an ingredient. The new line includes Vitacost Plant-Based Protein Bars and Vitacost Plant-Based Protein Cookies.
    - In September 2018, Health Warrior launched a new plant-based protein powder fortified with probiotics. The new product claims to be gluten-free, soy-free, dairy-free, and GMO-free.
    - In September 2017, DuPont Nutrition & Health added three new products to its 90% protein nugget product range. The new products contain plant-based protein, have a neutral flavor, and are ideal for use in snacks, cereals, and nutrition bars.

Source: Technavio - Global Plant-Based Protein Products Market

Market Trends (continued)

Emergence of private label brand

- The emergence of private label brands is one of the positive trends that can influence the growth of the global plant-based protein products market during the forecast period. Private label products are priced lesser than mainstream brands, which makes private label products a popular option among consumers who are budget conscious. Product innovations and continuous product launches are helping private label products grow in the market. Supermarket chains are also allocating more shelf space for their private label offerings and carrying out in-store promotions and campaigns to increase their popularity. In June 2018, Tesco and Sainsbury's launched private label vegan ranges, including plant-based proteins.

Source: Technavio - Global Plant-Based Protein Products Market

03

Global Pulse Flour Market (Updated)

Market Structure & Definition

The Market is Moving Through a Growth Phase, Highly Concentrated

The Global Pulse Flour Market analysis considers geography, end-user, and product under the following categories:

Based on application, the global pulse flour market has been categorized into the following:

- **Bakery products and snacks**
- **Beverages**
- **Others**

The geographical segmentation of the global pulse flour market includes:

- **Europe**
- **APAC**
- **North America**
- **South America**
- **MEA**

Factors that define the market characteristics

Life cycle stage		Market structure	
Growth	2019	Fragmented	2019
Growth	2024	Fragmented	2024

Market behavior of participants

	2019	2024
Innovations	Medium	Medium
Mergers & Acquisitions	Medium	Medium

Impact of external forces

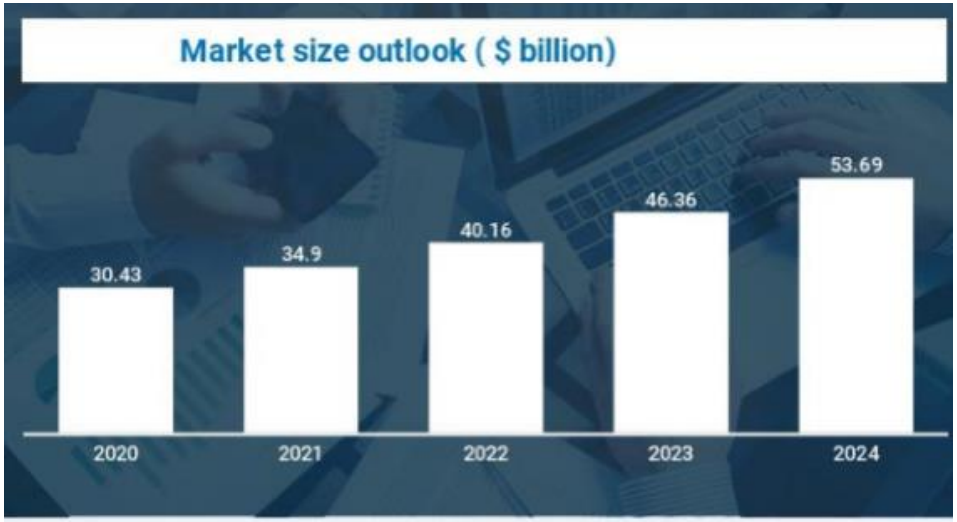
	2019	2024
Regulatory control	High	High
Disruption threat	Medium	Medium

Source: Technavio - Global Pulse Flour Market

Market Outlook: Forecast for 2020-2024

The Market is Moving Through a Period of Strong & Accelerating Growth

- The market outlook has been developed by studying the combined impact of factors that drive the growth in conjunction with the challenges faced by the industry to **estimate a compounded annual growth rate of 15.06% between 2019 and 2024.**
- The global pulse flour market was valued at $26.62 billion in 2019 and is estimated to grow to $53.69 billion in 2024. This will create an incremental growth opportunity worth $27.07 billion between 2019 and 2024, which translates to around 102% of the market size in 2019. This represents significant growth opportunities for vendors. Vendors can continue to grow by leveraging the inherent growth opportunities available within the market while avoiding direct competition.
- **The overall growth of the global pulse flour market is built on consistent growth across all the years of the forecast period between 2019 and 2024. The year on year, growth will vary between a range of 15.81% and 14.31%, indicating an element of volatility in the overall growth.**



26.62
2019 market size ($ billion)

15.06
CAGR (2019-2024)

Accelerating
Growth momentum

27.07
Incremental growth between 2019 and 2024 ($ billion)

Source: Technavio - Global Pulse Flour Market

Market Share by Geography

Europe Holds Largest Share of Market, APAC Growing Fastest

- The five regions have been ranked based on their market size in 2019. Europe ranked first as the largest region, while MEA was the smallest region in 2019. In 2024, the five regions will maintain their position as that of 2019. This is indicative of limited changes in the geographical composition of the market, given that the ranking of no region will change by 2024.

- **Europe and APAC, which collectively represented 62.42% of the global market in 2019, will be the fast-growing geographies during the forecast period. APAC, South America, and MEA, which together held 37.58% of the global market in 2019, will be the slowgrowing geographies.**

Source: Technavio - Global Pulse Flour Market

Market Share by Application

Bakery Products & Snacks Hold Largest Share of Market

- **In 2019, 89.22% of the overall market was occupied by bakery products and snacks.**
- Growth opportunities are robust across all segments, with the 'other' category slightly outpacing other segments. This segment includes the use of pulse flour in the pet food industry, the cosmetics industry, and batter and breading applications.

Source: Technavio - Global Pulse Flour Market

Market Drivers

Rising demand for gluten-free food products

- Gluten is a group of proteins that is present in grains and is known to cause celiac disease. The growing prevalence of celiac disease has increased awareness about the health effects of gluten in food products. Hence, consumers are preferring non-gluten or gluten-free products. As most of the pulse flour varieties such as lentil flour and chickpea flour are gluten-free, there has been a significant rise in the demand for pulse flour among consumers globally.

- Gluten, when consumed, triggers an auto-immune response in the body. The body cannot absorb nutrients into the bloodstream efficiently, which leads to anaemia, delayed growth, weight loss, among other health issues. Severe complications such as multiple sclerosis, osteoporosis, infertility, and neurological conditions arise when an individual with celiac disease continues the consumption of gluten. Gluten sensitivity also aggravates digestive issues, causes inflammation of the small intestine, leads to attention deficit hyperactivity disorder (ADHD), and mitigates healthy brain function. Moreover, it is believed that gluten causes gut inflammation in almost 80% of the consumers. Gluten consumption might also lead to hypothyroidism and type 1 diabetes. An estimated around 1% of adults and children in Europe have celiac disease, with the age group 30-64 years being the most susceptible.

- As the number of people with gluten intolerance is increasing, consumers are removing all sources of gluten from their diets. This has resulted in an increase in demand for pulse flour, which will drive the growth of the global pulse flour market during the forecast period.

Source: Technavio - Global Pulse Flour Market

Market Drivers (continued)

Product launches

- There has been a significant rise in the number of product launches in the last few years, which is likely to drive the growth of the global pulse flour market during the forecast period. Vendors are introducing new varieties of pulse flour to gain a competitive advantage in the market. Product launches help in attracting consumers and increase vendors' visibility in the market. They also help vendors increase their sales and market share. Some examples of recent product launches are listed below:
  - ***In August 2019, Milhão announced the launch of a wide range of pea, chickpea, and lentil flours.***
  - ***In March 2019, Ingredion launched VITESSENCE Pulse 1803 organic pea protein solutions, including flours, concentrates, and isolates as a part of a range of plant-based proteins in the US and Canada.***
  - ***In November 2018, Bunge Ltd. (Bunge) introduced a variety of pulse flours in its portfolio of clean-label ingredients. This helped the company expand its product portfolio and meet customers' demands.***

Source: Technavio - Global Pulse Flour Market

Market Drivers (continued)

Growing demand from emerging markets

- Pulse flour is a clean-tasting form of pulse that is extensively used in the preparation of various food items. The demand for pulse flour as an ingredient for preparing various traditional and staple dishes has increased over the years in emerging countries such as India, Brazil, and South Africa. Rapid urbanization and changing lifestyles in these countries have increased the demand for convenience foods and readymade ingredients such as pulse flour.

- As pulse flour is a clean-tasting ingredient with water-holding properties, it is used as a thickening agent in baking gluten-free products such as bread, pastries, and cakes. Manufacturers are offering various types of pulse flour owing to the increasing demand for clean-tasting products and gluten-free thickening agents. For instance, Ingredion offers various types of multi-functional pulse flours through its HOMECRAFT brand. The company is heavily investing in its food ingredients business in APAC due to high demand. All these factors will significantly contribute to the growth of the global pulse flour market during the forecast period.

Source: Technavio - Global Pulse Flour Market

Market Challenges

Price volatility of grains due to weather conditions

- The global pulse flour market is highly dependent on the availability of pulses, which are the main raw materials in the production of pulse flour. Fluctuations in the availability of pulses can impede the growth of the market. Insufficient pulse harvest leads to reduced production of pulse flour, which triggers a rise in the price of low-quality pulse flour due to the increasing demand. The dependency of vendors on climate increases the volatility in the price and quality of pulses, which causes a demand-supply imbalance in major pulse flour-consuming countries.

- Global warming is causing changes in climatic conditions across the world and, in turn, leading to severe droughts and floods as well as extreme variations in temperatures. These changes can affect the volume and quality of crop yield. The majority of pulses are produced in APAC. However, climatic changes affect the production of pulses in the region.

- Changing weather cycles such as El Niño and La Nina can cause droughts on the eastern side of the Pacific Ocean and floods on the western side. Such conditions have an adverse impact on pulse production. As a result, the gap between demand and supply widens. Short supplies lead to high prices of pulses. This increases the price of pulse flour and, in turn, affects overall sales. Therefore, a decrease in the production of pulses due to adverse weather conditions can negatively impact the growth of the global pulse flour market during the forecast period.

Source: Technavio - Global Pulse Flour Market

Market Challenges (continued)

Availability of substitutes

- The availability of a large number of substitutes is one of the major factors that can impede the growth of the global pulse flour market. Some of the common substitutes for pulse flour include rice flour, corn flour, and sorghum flour. These substitutes have several health benefits. Hence, consumers across the world prefer these types of flour.

- Sorghum flour is free of gluten and genetically modified organisms (GMOs). It also has a high amount of fiber and improves digestive, hormonal, and cardiovascular health. Sorghum flour is rich in antioxidants and helps in reducing the risk of cancer, diabetes, heart disease, and some neurological diseases. Corn flour also has several health benefits, such as high fiber and protein content. The antioxidants present in corn flour helps in fighting free-radical damage. Moreover, corn flour contains certain insoluble fibers such as amylose, cellulose, lignin, and hemicellulose, which are beneficial for the digestive system. Rice flour helps in maintaining a healthy liver function due to high choline content. Consumption of rice flour also helps in lowering cholesterol levels and balancing blood sugar levels.

- New product launches and innovations in substitute products will prove to be a challenge for the growth of the market during the forecast period. For instance, in May 2019, Paragon Pure Inc (Paragon Pure) launched a new powdered-flavor carrier made from organic brown rice flour. Similarly, in May 2018, Kalimark launched a new corn flour product in India in sizes of 1.1 pounds and 55.1 pounds. Thus, the increasing popularity and availability of substitute products can impede the growth of the global pulse flour market during the forecast period.

Source: Technavio - Global Pulse Flour Market

Market Challenges (continued)

Stringent regulations

- Stringent regulations imposed by various government and non-government organizations across the world are a major challenge for the growth of the global pulse flour market. These regulations pertain to new product launches, entry of new players, product specifications, labeling, sales, marketing, and advertising.

- Pulse flour products with gluten-free labeling need to follow stringent government regulations. Most countries follow international food standards (Codex Alimentarius) for labeling gluten-free food products. In Australia, the government directive states that food products labeled gluten-free must not contain traces of gluten greater than 5 parts per million (ppm). In Brazil, food products must be clearly labeled as gluten or gluten-free. In Europe, the European Parliament and the Council adopted Regulation (EC) No 178/2002, which laid down the general principles for food safety in 2002. According to the European Commission, food products that have gluten content 20 ppm or lower can be deemed as gluten-free. In the US, food products are regulated by the FDA. Manufacturers in the US are required to submit petitions to the FDA regarding the ingredients used so that the quality of food products can be evaluated. In China, regulations such as GB 2760-2014 and GB 29924-2013 ensure the quality and safety of F&B products.

- Non-compliance with any of the above-mentioned food safety regulations can lead to product recalls at any stage of the supply chain, which will impact brand image and lead to high losses for vendors. This may negatively impact the growth of the global pulse flour market during the forecast period.

Source: Technavio - Global Pulse Flour Market

Market Trends

Expansion of retail stores offering pulse flour

- Pulse flour is sold through various retail stores such as supermarkets, hypermarkets, independent stores, and convenience stores. Expansions by these retailers can lead to an increase in the sales of pulse flour and, in turn, drive the growth of the global pulse flour market during the forecast period. Some of the recent examples of such expansions are listed below:
  - ***In May 2019, Germany-based supermarket chain ALDI announced its plan to open two retail stores in Shanghai, China.***
  - ***In March 2019, Kaufland, a Germany-based hypermarket chain, announced its plan to open three new stores and warehouse facilities in Australia by the end of 2019.***
  - ***In September 2018, Hyderabad-based Ratnadeep Supermarket in India announced its plan to increase the number of retail stores in the country over the next two years.***
  - ***Avenue Supermarts, which operates DMart, increased its number of stores in India from 155 in 2017 to 176 in 2018.***
  - ***In June 2017, ALDI announced its plan to open around 900 new stores across the US and is expected to expand to around 2,500 stores in the country by 2022.***
- This growing focus on retail space expansion is expected to increase the sales of various types of flour, including pulse flour. This will accelerate the growth momentum of the global pulse flour market during the forecast period.

Source: Technavio - Global Pulse Flour Market

Market Trends (continued)

Growing popularity of organic farming

- Organic farming is done without the use of harmful pesticides. This increases the productive capacity of a farm. Organic farming relies on organic fertilizers such as green manure, compost, and others. It involves methods such as crop rotation. Instead of using artificial enhancers such as pesticides, organic farmers use organic herbicides, fungicides, and other natural ingredients, which enhance the quality of the cultivated crops. Pulses can convert atmospheric nitrogen into nitrogen compounds. For instance, legumes are known to fix between 72 and 350 kg of nitrogen per ha per year approximately. The versatility of pulses allows them to be used in organic farming systems in different ways, including rotations, intercropping, and ley farming, and as a cover crop.

- Governments of several countries provide incentives to farmers that adopt organic farming. The rising demand for organic products across the world has encouraged farmers to adopt organic farming techniques. Environmental concerns are also influencing consumers to purchase organic food, including organic pulse flour. Organic farming does not use toxic chemicals, pesticides, fertilizers, and other ingredients. This helps in controlling soil and air pollution and leads to environmental sustainability. Thus, the multiple benefits of organic farming might result in an increase in the number of producers opting for this method. This, in turn, can drive the growth of the global pulse flour market during the forecast period.

Source: Technavio - Global Pulse Flour Market

Market Trends (continued)

Rising preference for clean-taste flour

- The increasing preference for clean-label food products has significantly contributed to the growing demand for clean-taste flour. This flour is made from conventional pulses that undergo a proprietary physical treatment. The proprietary process deactivates enzymes and removes most off-flavor compounds while maintaining a clean label and ingredient functionality.
- With the growing demand for clean-taste pulse flour, food manufacturers are launching nutritional and clean-label products such as beverages and nutritional mixes. These are plant-based products and help in boosting protein levels. Moreover, the use of clean taste flour enhances the protein content and flavor of these food products.
- Clean-label pulse flour can also be used in low-moisture products, which include baked foods, snacks, cereal, bars, pasta, batters, and bread. Pulse flour provides high-quality protein without further fractionation. It is highly economical as it involves low costs and is a clean-label product.
- Major vendors have started offering clean-label pulse flour in order to meet the growing consumer demand. For instance, Ingredion offers clean-taste pulse flour that allows F&B manufacturers to formulate products with more flour without affecting the taste. The company offers clean-taste HOMECRAFT Pulse CT 1203 flour, which is used in making snacks and pasta. It offers HOMECRAFT Pulse CT 2201 flour, which is suitable for making gluten-free sweet bakery goods. Similarly, Bunge Ltd. offers clean-taste flour that is suitable for various types of sweet and savory applications. Therefore, the rising preference for clean-taste flour has increased its application in a number of food items. Hence, vendors across the world have increased their number of offerings. This, in turn, is expected to positively influence the growth of the global pulse flour market during the forecast period.

Source: Technavio - Global Pulse Flour Market

05

Plant-based Protein Trends

Plant Based Protein Trends

Alternative proteins: The race for market share is on

- **Consumer interest in non-meat-based protein options is increasing globally. Food industry players that want to capture the opportunity must understand the evolving market dynamics and where to place their bets.**

- In countries with economic wealth, there is growing consumer awareness of, and interest in, alternative proteins. Meat has been the main source of protein in developed markets for years, and there has been an increased appetite for traditional protein in developing markets in recent years. However, **changing consumer behavior and interest in alternative-protein sources—due in part to health and environmental concerns as well as animal welfare—have made way for growth in the alternative-proteins market.**

- Several entrants in the alternative-protein space are already rolling out new technologies and ingredients, and some are attempting to solidify their place in the market. Innovative food companies can mirror the customer experience of eating meat to a much higher degree. This is paralleled with strong social media marketing campaigns to gain traction for their products. Beyond Meat recently had a high-performing IPO, which signaled to investors that there is opportunity ahead in the alternative-proteins market. And numerous fast-food chains announced deals with alternative-protein producers to offer vegetarian options of popular menu items.

- This emerging shift could explain why even though aggregate consumption of meat-based proteins worldwide is increasing, the overall growth rate is expected to decline by half. Plant-based food (the largest source of alternative protein) sales rose 17 percent in 2018 and the use of alternative protein as a food ingredient in consumer products is predicted to continue growing. Currently, the market base for alternative protein is approximately $2.2 billion compared with a global meat market of approximately $1.7 trillion, making the growth rate of the alternative proteins marginal to the overall meat market. While there is significant headroom for consumer-packaged goods (CPG) companies and food manufacturers in the alternative-proteins market, many don't have the necessary production capabilities to capture this market opportunity, nor do they know where to focus their efforts.

Source: McKinsey (Aug 2019)

Plant Based Protein Trends (continued)

Alternative proteins: The race for market share is on

- **In response to these market forces and consumer concerns, industry leaders are rolling out a range of products and ingredients using different plant-based proteins (soy, pea), new animal sources (insects), and biotechnological innovations (cultured meat or fungal protein). In fact, a 2015 McKinsey survey of dairy-industry professionals showed that 21 percent of respondents believe the nondairy alternatives market, including plant protein, is "sizable and will continue to grow."**

- For CPG companies and food manufacturers to win market share in this fast-growing segment over the long term, they must invest in the capabilities required to develop and manufacture the most promising alternative-protein products.

Evolving consumer and market trends

- Interest in alternative protein grew gradually up to and including 2007, only accelerating over the past decade. Several factors contributed to this evolution: increased consumer interest in health, price, and ethical considerations (such as where meat is sourced from and animal welfare) around different types of protein. Global populations and ethnic communities vary significantly in the amount and types of meat consumed. In the Middle East and much of Asia–Pacific, for example, most protein comes from legumes and seafood, while Chinese consumers mainly rely on beef, pork, and poultry. In China, approximately 50 percent of animal protein calories come from pork, compared with the Middle East, which reports minimal protein calories coming from pork but nearly 50 percent from dairy and eggs.

- **An analysis of consumer search queries found that the most popular food-and-beverage product search was for vegan products, with a 16 percent compound annual growth rate (CAGR). Dairy-free products (products free of milk proteins) drew increasing consumer interest, growing at a 22 percent CAGR. These findings are consistent with McKinsey's 2018 Dairy Survey, which revealed that 73 percent of millennials and members of Generation Z reported purchasing a dairy-free alternative in the past 12 months.**

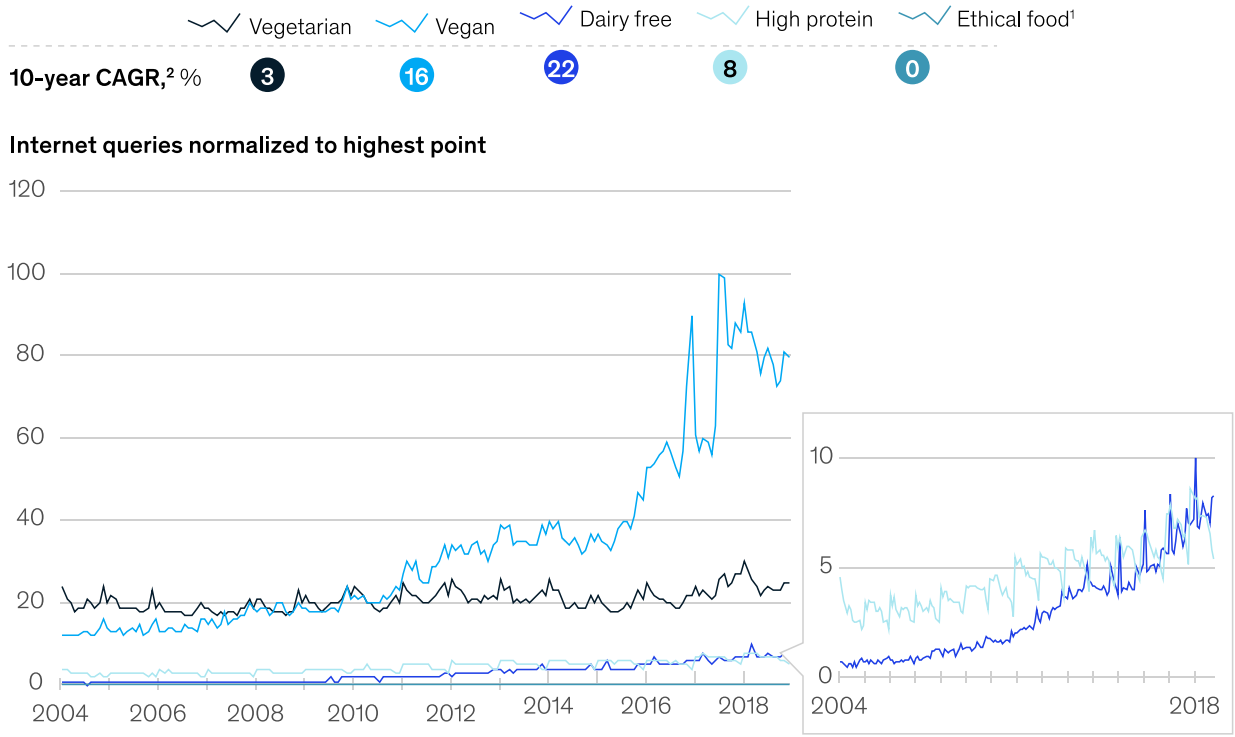
Source: McKinsey (Aug 2019)

Plant Based Protein Trends (continued)

Alternative proteins: The race for market share is on

Customer interests in alternative protein diets have evolved over the past 15 years.

Interest in different protein diets, 2004–19



[1]"Ethical" means producers do not contribute to animal cruelty.
[2]Compound annual growth rate.
Source: Google Trends

McKinsey & Company

Source: McKinsey (Aug 2019)

Plant Based Protein Trends (continued)

Alternative proteins: The race for market share is on

- In general, protein consumption has grown slowly in developed markets, while demand in developing markets is increasing more rapidly. As countries experience rising income levels and urbanization, for example, the demand for protein increases, whereas in developed markets protein consumption is a matter of market maturity. US residents, for example, consume almost twice the amount of beef protein compared with the global average. It is therefore likely that traditional protein consumption in the United States will continue to be robust and may include both conventional and alternative-protein products. However, consumer views on protein are shifting; the **2018 McKinsey dairy survey found that 82 percent of respondents rated plant protein as healthy, and 74 percent viewed animal protein as such.**

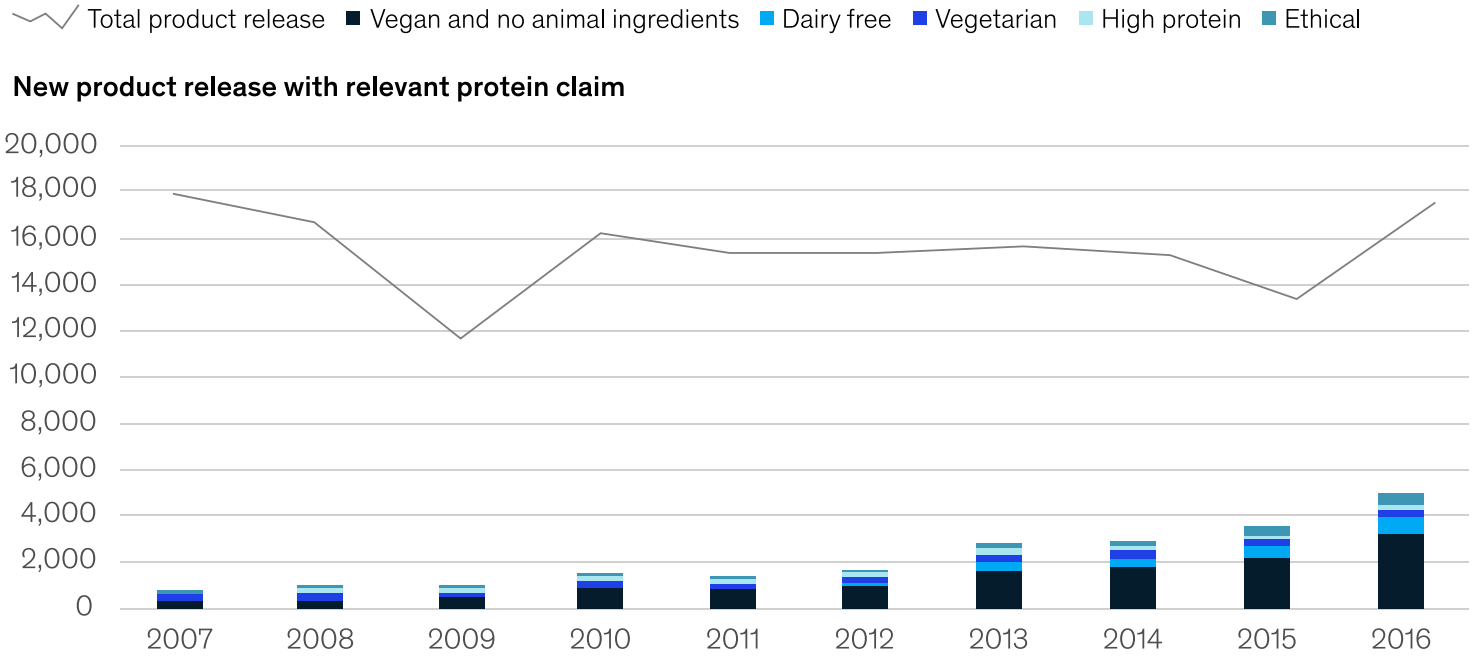
- Food manufacturers are taking note of shifting consumer interests. The share of new products released with a protein claim grew from 2 percent to more than 5 percent from 2007 to 2016. In addition, there was a surge in released products touted as vegan, 11 dairy free, and ethical (meaning producers do not contribute to animal cruelty). As new trends grow, the landscape becomes more competitive with the presence of additional products.

Source: McKinsey (Aug 2019)

Plant Based Protein Trends (continued)

Alternative proteins: The race for market share is on

New product releases in the alternative-protein categories have evolved to address customer interests.



Note: Vegan (contains no animal ingredients or byproducts); high protein (any product whether it's plants, insects, fungi, or meat that contains a high protein claim); dairy free (product free of dairy but may include other animal-based ingredients); vegetarian (product free of meat and fish but may use dairy-based ingredients); and ethical (concerned with animal welfare).
Source: Mintel

McKinsey & Company

Source: McKinsey (Aug 2019)

Plant Based Protein Trends (continued)

Leading alternative-protein sources

- Alternatives are protein-rich ingredients sourced from plants, insects, fungi, or through tissue culture to replace conventional animal-based source. **Four alternative-protein profiles offer promising opportunities for CPG companies:**

- **Plant protein**: This type of protein is the most well established and is derived from protein-rich seeds through dry or wet fractionation. The most popular types for consumers are soy, followed by pea and several niche types, such as chickpea, rapeseed, and lupin, among others.

- **Insect:** Crickets are the most common source of edible insects and a good source of protein. In fact, some producers are already milling crickets for flour. However, it is currently cost prohibitive to isolate protein from the flour as the cost of the crickets is high, making the process difficult to scale. Food producers are also exploring using grasshoppers as an edible insect source, but development is still in an early stage. Other insects are more commonly used for the feed industry. Ynsect uses mealworm, while Protix uses black soldier flies.

- **Mycoprotein:** This protein source is typically composed of whole, unprocessed, filamentous fungal biomass, commonly known as mold. It has been around since the 1980s and is produced through fermentation of biological feedstock. Fungi contain approximately 40 percent protein, are high in fiber, have limited carbohydrates, and contain no cholesterol.

- **Cultured meat:** Scientists have been working on this protein since 2013, when the first lab-grown burger made its public debut. Cultured meat is made using tissue-culture technology (the process by which animal cells are regenerated using a single cell as the source) to propagate animal cells in vitro. This process creates muscle tissue that mimics animal muscles and has the same protein profile.

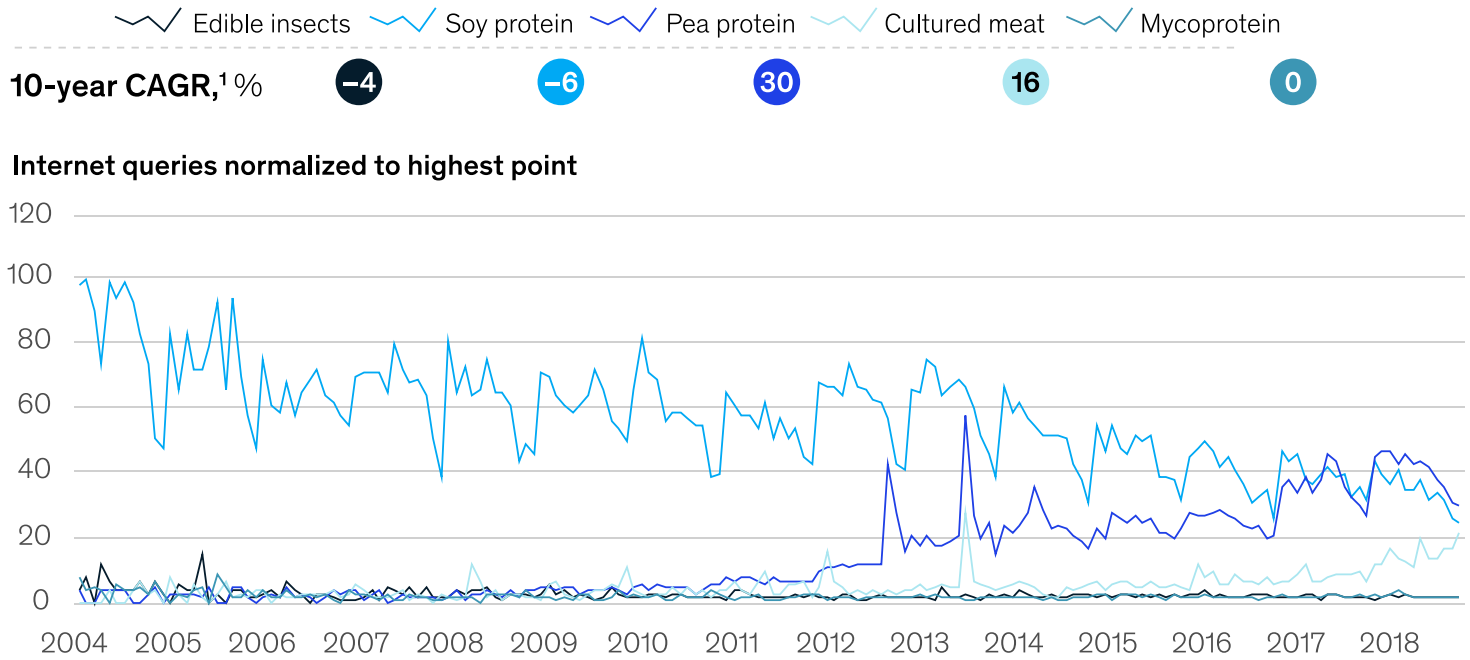
Source: McKinsey (Aug 2019)

Plant Based Protein Trends (continued)

Alternative proteins: The race for market share is on

Customer interest in soy protein declined over a 15-year period, while interest in pea protein is growing.

Interest in different alternative proteins, 2004–19



[1]Compound annual growth rate.
Source: Google Trends

McKinsey & Company

Source: McKinsey (Aug 2019)

Plant Based Protein Trends (continued)

Leading alternative-protein sources

- **Based on an analysis of search query data, consumer interest remains flat around mycoprotein and edible insects. Soy protein, which was an early leader in alternative protein, has declined by a CAGR of 6 percent. This trend is due in part to the development of other production options (such as pea protein) and concerns over allergenic and estrogenic effects from the soybean.** However, recent studies have shown that these concerns are limited to only a small percentage of the public. **In contrast, interest in pea protein grew at a CAGR of 30 percent from 2004 to 2019. This growth signals that consumers are interested in protein sources that are consistent with a plant-based diet.**

Comparing alternative protein sources based on key consumer criteria for food selection reveals opportunities and challenges.

Soy protein	Pea protein	Insect protein; 'crickets'	Mycoprotein	Cultured meat	Whey protein

Product nature
Sold as concentrate containing around 65 percent protein or isolate containing 85 percent protein.

Functionality
It has one of the highest scores on digestibility and amino acid balance for all alternative proteins and a neutral taste profile, making it a versatile ingredient.

Competitive position
Soy is extremely well developed, with major investments across its value chain from farm to fork. It has one of the lowest levels of environmental impact as a nitrogen-fixing crop and a low price point. All of these factors make soy the highest-value alternative protein.[1]

Challenges
Soy is generally a GMO, so perceptions may be affected by the broader consumer debate about the safety of GMOs. In addition, soy is reported to have allergenic and estrogenic effects, though a recent review of the literature shows that any negative effects are very limited.[2]

Safety perception	$/kg, 100% protein
Concern over estrogenic effect or GMO	2.0

Taste
Clean taste; versatile ingredient

Protein digestibility-corrected amino acid score	Perceived animal welfare
0.96[3]	N/A

Environmental impact	Novelty
Low	>10 years on the market

Note: Prices are based on industry interviews at the time of writing this article.

McKinsey & Company

Source: McKinsey (Aug 2019)

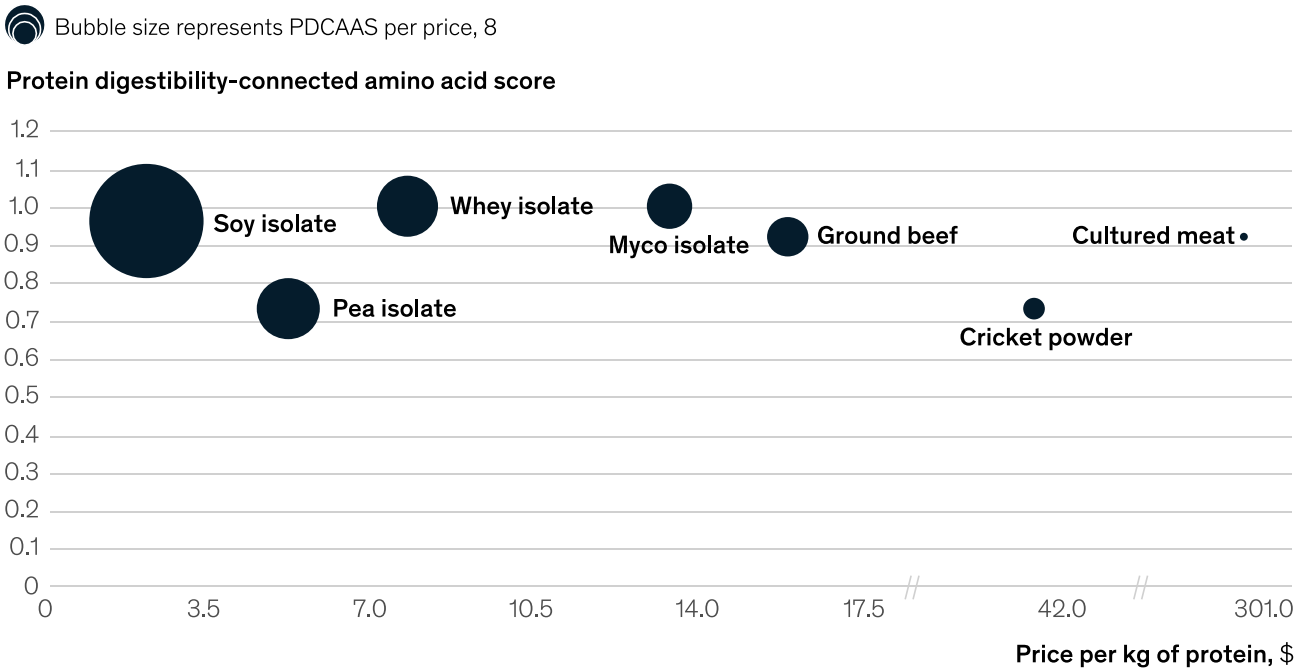
Plant Based Protein Trends (continued)

Leading alternative-protein sources

- The chart below showcases the viability of certain protein sources as measured by price per kilogram and protein digestibility-corrected amino acid score (PDCAAS)—a tool used to measure a protein by its amino acid requirements and the ability of humans to digest it.
- Soy and pea protein are leaders by price, while cultured meat and cricket powder are not yet economically viable on a large scale.

Soy and pea protein are the most competitively priced alternative proteins.

Protein alternatives price vs PDCAAS



Source: *Dietary protein quality evaluation in human nutrition: Report of an FAO Expert Consultation*, Food and Agriculture Organization, Food and Nutrition paper, number 92, March/April 2011, fao.org.

McKinsey & Company

Source: McKinsey (Aug 2019)

Plant Based Protein Trends (continued)

Leading alternative-protein sources

Where is the opportunity for alternative protein?

- **In general, pea protein and cultured meat show the most promise for market growth over the coming five to ten years, and plants are expected to be the largest source of alternative protein due to their limited environmental impact and healthy perception by customers.** The economics of plant protein production are also advantageous because it avoids the feed-to-food conversion loss typical of other protein forms. For example, insect protein loss ratio is the lowest among animal protein at 1.7 to 1.0 and it is still higher than plant protein. Producers may need to balance plant-protein nutritional profiles with additional amino acids to make them competitive with the amino acid profile in animal proteins.

- However, with the projected growth of meat consumption in major developed markets, such as China, animal protein will likely maintain a significant market share. This type of protein has advantages: poultry, pork, and dairy-based proteins are relatively efficient in feed conversion compared with traditional meat protein (though not as efficient as plant-based proteins) and offer products and tastes that are familiar to most consumers. Nonetheless, producers should not discount alternative proteins, as they do have the potential to capture a share of the growing protein market.

Source: McKinsey (Aug 2019)

Plant Based Protein Trends (continued)

Leading alternative-protein sources

Pea protein

- **Pea protein is expected to lead the alternative-protein market in the short and medium term, though the product does face certain challenges.**

- **The past few years witnessed a limited supply of pea protein caused by a shortage in processing capacity.** Processors responded and announced additional capacity: Roquette announced a $400 million project in Manitoba, while Archer Daniels Midland announced its own facility in North Dakota. For production to be economically feasible, food developers must identify a high-value application for pea starch, which makes up 60 percent of the pea volume but is not used in pea protein–based products. If the protein is sold but not the starch, or if the starch is sold at a low price point, then it becomes difficult for the process to be economically feasible. Thus, producers could make a profit by selling this protein if they don't lose money on the starch. Producers of mainstream products such as veggie burgers who rely on soybean protein are likely to enjoy lower input cost and more stable feedstock supply. However, high-end products will likely use pea protein to cater to consumer expectations of a niche ingredient, which is a product that touts health claims and is on sale at a premium price.

- **Companies aiming to break into the pea-protein market should focus on producing a quality product with a minimal taste and color profile—a current challenge for producers. Improved processing technology and carefully developed pea protein sources will be critical to capturing market share. In fact, some industry players are already investing in an innovative seed technology to increase protein content. The demand for pea protein is expected to continue growing; analysis of online search query data shows that pea protein experienced a 30 percent CAGR from 2004 to 2019, suggesting that investing in this protein alternative will be worth the effort.**

Source: McKinsey (Aug 2019)

Plant Based Protein Trends (continued)

Leading alternative-protein sources

Cultured meat

- The cultured-meat industry is well positioned for the future, even with major technical challenges to overcome, including the difficulties in the development of an immortal cell line, the recycling of culture media (the blood plasma used to produce the cells), small molecules to replace growth factors, and different reactors of design. Major progress has been achieved over the past five years. The industry received backing from innovators (including Bill Gates and Richard Branson) as well as industry players (such as Tyson Foods and Cargill).

- However, the price of cultured meat has already decreased significantly in the past nine years (the first lab-grown hamburger cost $325,200 in 2013 and then decreased to around $11 in 2015; one company estimates that by 2020 costs will be about $2.30 to $4.50 a pound). Industry leaders expect the product to enter the retail market in the next three to five years, with a preliminary introduction to consumers through high-end restaurants. However, the product may appeal to a limited segment mainly concerned with animal welfare and the environment rather than health, limiting the potential consumer market. If mass production is successful, this technology is best positioned to replace beef, since it is not as cost effective as conventional poultry production.

- Animal protein will likely continue to dominate the market driven by key advantages such as customer familiarity. However, there is room at the table for plant-based products as evidenced by growing, shifting customer concerns around traditional meat protein. Companies are already investing in alternative proteins technology and will continue to do so in the coming years. And players that can market high-end products made from soy protein are likely to capture the largest margins. For CPG companies to win market share in the long term, they must place their bets and invest in the capabilities needed to meet their marketing strategy and the target consumer segments. Overall, alternative proteins present an exciting development for the entire food industry.

Source: McKinsey (Aug 2019)

Five Alternative Protein Trends in 2020

New products, growing partnerships, and an expanding international market all point to big opportunities on the horizon

1. New plant-based and cultivated meat products

- 2019 brought a slew of new products and innovations. From new breakfast items to plant-based jerky, bacon, and seafood, alternative proteins are now much more than just burgers. Options will continue to expand this year as the demand grows and new players get involved.

- According to GFI sustainable seafood initiative manager Jen Lamy, “2019 was a year of milestones. We saw new products, new investments, and retail expansions. We also saw a family-owned conventional seafood company, the Van Cleve Seafood Co., launch a line of plant-based seafood products in response to these growing trends. And cultivated seafood startup BlueNalu closed out the year with a stunning demonstration featuring whole muscle portions of yellowtail cooked in different ways.”

- She concluded, “This year, we expect more companies and investors in legacy meat and seafood to capitalize on these growing opportunities and get involved. Expect more investment, more product rollouts, and more truly sustainable seafood in 2020!”

2. Innovative ingredients and enhanced flavors

- In addition to new products, we expect 2020 to bring products that use new ingredients more efficiently and offer even more mouth-watering flavors. GFI food scientist MJ Kinney notes, “There’s a significant amount of innovation and problem-solving that goes into creating efficient processes that isolate protein fractions from their raw materials. Using all parts of the plant is the end-goal when we’re approaching this from a lens of optimal sustainability.”

- In addition to using new processing techniques, we predict manufacturers will enhance their product’s flavors using umami-rich foods. “I foresee more conventional flavors combined with raw materials that offer the umami flavors and compounds seen in cooked meat,” MJ speculates. “That may include fermented plant products, yeast, and various mushrooms.”

Source: GFI.org

Five Alternative Protein Trends in 2020

(continued)

New products, growing partnerships, and an expanding international market all point to big opportunities on the horizon

3. A growing international market and increasing consumer demand

- From South America, to Asia, to Europe, the international market for alternative protein is growing at a rapid rate—and it will likely drive much of the industry's growth and innovation in 2020. Major industry partnerships have brought alternative protein products to more consumers than ever before and will continue to make products more accessible internationally.

- As accessibility increases, consumer perceptions will continue to evolve. GFI senior consumer research scientist Keri Szejda said, "In multiple countries, survey research shows that prior familiarity with plant-based meat is the strongest predictor of purchase intent. Implicit testing indicates that taste is the strongest driver at the actual point of purchase."

- Keri added, "As innovative alternative protein products diffuse through society, social norms and familiarity drive an increase in positive attitudes. Once barriers decrease, greater proportions of the population will begin to adopt these foods."

4. More private sector investments and opportunities

- New products and ingredients, burgeoning industry partnerships, and growing consumer demand all point to great opportunities for investors and entrepreneurs. GFI business innovation specialist Blake Byrne observes, "In 2019 we strapped a rocket to demand for alternative proteins. In 2020 we will need to do the same, but this time on the supply side. Companies should increasingly focus on building manufacturing capacity and boosting product diversity."

Source: GFI.org

Five Alternative Protein Trends in 2020

(continued)

New products, growing partnerships, and an expanding international market all point to big opportunities on the horizon

- In 2020, we also expect more private sector investment in alternative proteins. GFI business analyst Nate Crosser notes, “At a high level, alternative proteins are now mainstream, so the industry generally will be viewed as an attractive area to invest and work in by a broader audience. Commercialization of new plant-based meat production methods like 3D printing, the increased use of microbial fermentation to enhance and produce plant-based foods, and the scaling up of cultivated meat production to at least a pilot scale, are all trends in the space that could attract investors.”

5. A greater need for public sector funding

- While 2020 offers great promise for growth, optimal progress cannot happen with private sector funding alone. Government-funded research is needed to transform our food system. GFI director of policy Jessica Almy notes, “Last year, both the U.S. House and Senate encouraged research on plant proteins in their agriculture appropriations reports. This year, we hope to see direct allocations of public funds for research that will benefit plant-based and cultivated meat. Publicly funded research will accelerate progress toward a healthy, sustainable, and just food system.”

- With all of the exciting innovation we saw in 2019, we at GFI expect—and will continue our work to ensure—2020 to be another landmark year for alternative protein.

Source: GFI.org

06

Supplemental Content

Additional Reading

BDC Identified Other Areas of Potential Interest Relating to Pea Protein & Alternative Flours

Agriculture and Agri-Food Canada. (November 2019) Customized Report Service - Pea protein markets: North America and Europe

- ➔ While animal proteins and soybean protein continue to dominate the North American and European food markets, pea protein is increasingly becoming a competitor to alternative protein crops such as soy.
- ➔ **Peas protein concentrates** in Europe are becoming a popular choice for pet food processors over pea proteins isolates as they contain a similar nutritional profile, but at a lower cost for pet food processors. Pea protein concentrates have a bland taste and aroma that be masked by other aroma/flavored. Concentrated pea protein has also been used in chews and injection-molded treats.

Royal Blue Capital. (Fall 2018) GLOBAL PULSE MARKET, PART I and Part II

- ➔ While Canada seemingly has a current lock on the lentil export market – representing approximately two-thirds of all world exports – Canada's recent dominance in the dry pea export market (representing 50%+ of the export market) – has recently seen significant increased competition from the Black Sea region (Russian and Ukraine) and to a lesser degree the Baltic States (Lithuania, Latvia and Estonia).
- ➔ Canadian exporters were able to increase pea sales into China and the United States, compensating some for the significant decrease in exports to India from the prior year.

Food technology Magazine (December 1, 2017) Making Over Pasta and Noodles

- ➔ Covers growing popularity of alternative flours but no specific market information was provided.

Source: Various sources

Funding Programs

The BDC Located the Following Resources Relating to Potential Funding Assistance

- Agriculture and seafood producers and processors can access programs and funding to support their businesses. Please check this link for additional potential sources link.
- The **Buy BC Partnership Program** provides up to **$2M in funding per year over the next three years** to increase the competitiveness of B.C.'s agrifood and seafood industry in the domestic market. The Program includes both cost-shared funding as well as Buy BC logo licensing.
- **Innovation** (Canada-BC Agri-Innovation) - the development of promising "new to B.C." agriculture and agrifood products, practices, processes or technologies that might be adopted or commercialized by the sector.
- **B.C. Agrifood & Seafood Market Development**, Provides funding to support businesses to develop marketing skills, purchase market research, create marketing plans and expand export sales.
- **BC Government**. Economic Development Funding & Grants for "Food"-related projects
- **Investment Agriculture Foundation of BC** Funding opportunities for Agri-Innovation
- **BC Agriculture & Climate Action Initiative.** Farm Adaptation Innovator Program and Regional Adaptation Program
- **Food Processing Skills Canada** Funding for Companies for implementation of food safety activities.

Source: Various sources

Funding Programs (continued)

The BDC Located the Following Resources Relating to Potential Funding Assistance

- **Northern Development Initiative Trust** offers a range of Funding Programs suited to a diverse set of economic development priorities in central and northern British Columbia. And $25 million will be available to communities as they prepare for major economic development through the B.C. Northern Healthy Communities Fund, administered through the **Northern Development Initiative Trust**.

Other possible sources of funding

- In May 2015, the Province and eight Peace River local governments signed a 20-year, **$1.1 billion Peace River Agreement** (PRA) to develop the Peace River as a service centre for industry and its employees.
- On Jan. 22, 2020, British Columbia and Yukon partnered on **strategies to feed the North**.
- Although no funding under this program, **Food Security Task Force**, is the newest undertaking and is designed to find new ways to use technology and innovation to strengthen B.C.'s agriculture sector and grow the economy by helping farmers farm and processors become more productive, now and in the future.

Source: Various sources

Rail & Freight

The BDC Located the Following Resources Relating to Rail & Freight

- **Based on our research, the most direct way to get your product to market would be via CN Rail's Intermodal service, which appears to connect Fort St. John with the Prince George Intermodal Terminal.**
- This network then connects with other Intermodal Terminals, from Vancouver, to Halifax, to New Orleans.
- You can contact an expert at CN Rail to get more information via this link.
- This link also contains more information about the network: https://www.cn.ca/en/our-services/maps-and-network/intermodal-terminals
- If you can provide product codes to the BDC, we can obtain more detailed and accurate quote information, and cost estimates per car of product from Fort St. John to Vancouver.
- The BDC has also obtained a directory of local freight forwarders that we will provide in an Excel file. There are several potential partners in your region that may be able to offer a most cost effective solution when compared to the CN Rail managed Intermodal service.

Source: Various sources

Appendices

Agenda

- A1 Key Findings
- A2 Dry Pea and Bean Farming
- A3 Wheat, Canola, Barley / Oat Stats & Trends
- A4 Yellow vs. Green Peas for Processing to Proteins / Flours
- A5 Pulse Protein Value Chain & Pricing
- A6 Best Markets for Pea Processing By-Products
- A7 Buy BC Logo Requirements
- A8 Canadian Pulse Brokers, Buyers, Processors, Associations

A1

Dry Pea and Bean Farming

Key Takeaways

The Following Highlights Key Additional Info the BDC Located

Dry Pea and Bean Farming

- Pea farming is booming due to the viability of the crop, low water usage, and accelerating demands for processed pea products. While most peas are farmed in Saskatchewan, we see tremendous opportunity for operators in BC due to favourable growing conditions in the northern regions, and low competition (only 2 employer companies, and 15 non-employer companies).

Wheat, Canola, Barley / Oat Stats & Trends

- Looking at seeded crops in BC, we see canola, oats, and barley as stable year to year, while wheat is showing some increases, particularly for winter wheat. In terms of overall trends, oats are seen as the most attractive crop in this group, due to lower supply, and increasing prices.

Yellow vs. Green Peas for Processing to Proteins / Flours

- Based on our review of available data, it appears yellow peas are preferred to green for processing into proteins / flours, and other byproducts. This is primarily due to the following factors – first and foremost, the colour of the peas is less desirable for consumer foods. The second factor ties back to nutritional characteristics – while both are nearly identical in their unprocessed forms, cooking and baking of processed green pea products reduces the protein content, while doing the same with yellow peas increases protein content. In addition, and relating to the product colour, green pea processed products often require additional processing to neutralize the colour which isn't in alignment with consumer packaged goods (CPG) companies that are seeking to use plant-based proteins in their products.

Key Takeaways (continued)

The Following Highlights Key Additional Info the BDC Located

Pulse Protein Value Chain & Pricing

- Based on recent data, the value of processed pea components is approximately $1400 CDN per MT, compared to $340 for dry unprocessed product, with protein, and fiber having the highest ROI.

Best Markets for Pea Processing By-Products

- Pea starches and fibers (cell wall, hull) are used in a wide variety of food products, for humans, pets, and livestock. Some processors sell directly to food producers / feed mills, while others work with wholesalers / distributors. There are many paths to market based on production scale.

Buy BC Logo Requirements

- A review of BC Logo requirements yielded the following information:
  - **Primary Agriculture and/or Seafood Producers or Cooperatives:**
    Producing fresh food, beverage, or agricultural and seafood products which are 100% grown, caught, or raised in B.C.
  - **Agriculture, Food and Beverage and/or Seafood Processors:**
    Processing food, beverage, or agricultural and seafood products which are processed and packaged in B.C. with 51% or more of the direct cost of producing the product in its final form (i.e. sum of raw materials, direct labour, variable processing, and packaging) originating in B.C. *When the main raw materials are available in sufficient quantities from B.C. producers, they must be used.*
- We have provided a link to the application in the relevant section of this Appendix.

A2

Dry Pea and Bean Farming

Dry Pea and Bean Farming in Canada

Definition, Exclusions, Businesses, and Financial Performance

Looking at Dry Pea and Bean Farming in Canada, there are 2,280 establishments, with all employing between 0-99. Average revenue is $863,000, with 24.2% of businesses being profitable according to the latest available statistics.

Dry Pea and Bean Farming - 11113

Definition

This industry comprises establishments primarily engaged in growing dry peas, beans and lentils.

▼ Read more

Example Activities:
Dry field beans, growing
Dry field peas, growing
Faba beans, growing
Lentils farming, dry
Pulses, dry, growing

Exclusions

Establishments primarily engaged in:
growing fresh green beans and peas (see 111219 Other vegetable (except potato) and melon farming)

Businesses

Information on the number and size of businesses for 2019.

Establishments
2,280

0-99 Employees
100%

$ Financial performance

View financial data for 2018 based on industry averages for SME's.

Average revenue
$863.4
thousand

Profitable
24.2%

Source: Various sources

Dry Pea and Bean Farming in Canada (cont)

Establishments by Employment Type and Province / Territory

- The information on the number, size and location of establishments can be used to assess the existing level of competition within the industry in your province/territory. **Competition in BC is low.**
- The table below shows the breakdown between employer and non-employer or indeterminate establishments for each province and territory as well as at the national level. For this industry, 1,780 of establishments are non-employers or indeterminate and 500 have one or more employ

Establishments by employment type and province/territory (2019)

Province/territory	Employers	Non-employers / Indeterminate
Saskatchewan	417	1,339
Alberta	63	260
Manitoba	8	52
Ontario	6	96
Quebec	4	15
British Columbia	2	15
New Brunswick	0	1
Newfoundland and Labrador	0	0
Nova Scotia	0	2
Northwest Territories	0	0
Nunavut	0	0
Prince Edward Island	0	0
Yukon	0	0
Canada	500	1,780

Source: Statistics Canada, special tabulation, unpublished data, unclassified excluded, 2019.

Source: Various sources

Dry Pea and Bean Farming in Canada (cont)

Estimated areas, yield, production, average farm price and total farm value of principal field crops, in metric and imperial units

- Looking specifically at producers of peas, we see **BC has the lowest production of the top 4 producing provinces / territories in Canada, again highlighting the potential for new entrants, particularly those leveraging BuyBC program, and the Buy Local / 100km diet trends that are increasing in Canada – heightened by the current pandemic situation.**

- While detailed statistics are not available at the provincial level for processed products, based on the production of dry product one can draw the conclusion competition is extremely low within the province for pea protein, flours / starches, and other byproduct.

		Seeded area (hectares)	Harvested area (hectares)	Average yield (kilograms per hectare)	Production (metric tonnes)
Geography	Reference period	Peas, dry [5] [6]	Peas, dry [5] [6]	Peas, dry [5] [6]	Peas, dry [5] [6]
Canada (map)	2016	1,732,600	1,676,900	2,900	4,835,900
	2017	1,656,200	1,642,100	2,500	4,112,200
	2018	1,463,100	1,431,200	2,500	3,580,700
	2019	1,753,400	1,711,000	2,477	4,236,500
	2020	1,731,600	..	..	..
Manitoba [7] (map)	2016	66,000	63,900	2,600	164,200
	2017	26,200	25,400	3,200	80,300
	2018	34,400	33,100	3,200	104,800
	2019	50,800	49,400	3,318	163,900
	2020	69,500	..	..	..
Saskatchewan (map)	2016	874,100	862,000	2,700	2,346,100
	2017	876,100	867,300	2,300	1,973,800
	2018	783,200	768,000	2,300	1,780,700
	2019	944,900	929,900	2,488	2,313,100
	2020	926,200	..	..	..
Alberta (map)	2016	772,700	732,400	3,100	2,271,200
	2017	728,400	724,300	2,700	1,991,500
	2018	611,600	598,900	2,700	1,608,400
	2019	728,500	705,500	2,390	1,685,900
	2020	705,600	..	..	..
British Columbia (map)	2016	19,800	18,600	2,900	54,400
	2017	25,500	25,100	2,700	66,600
	2018	28,300	26,000	2,900	74,400
	2019	21,000	19,100	2,979	56,900
	2020	21,100	..	..	..

Source: Various sources

Dry Pea and Bean Farming in Canada (cont)

Canada: Outlook for Principal Field Crops

Dry peas

- **For 2019-20**, dry pea supply is slightly higher than the previous year at 4.6 million tonnes (Mt). Canada's exports are forecast to rise to 3.65 Mt, up from the 2018-19 level. Steady exports to India and Bangladesh have been augmented by the record export pace to China. Canadian exports to the US for the year-to-date (August-March) are lower than for the same period last year due to the near record US dry pea crop. As a result of larger domestic supply and higher exports, carry-out stocks in Canada are expected to be marginally lower than the previous year at 0.3 Mt.

- The average price is expected to be unchanged from 2018-19, due to higher yellow and green pea prices being offset by lower feed pea prices. Green dry peas prices are expected to maintain a crop year premium of $130/t over yellow dry peas, similar to 2018-19. During the month of April, Saskatchewan yellow pea farmgate prices rose $20/t and green pea farmgate prices rose $35/t. This is largely due to stronger world demand resulting from the COVID-19 pandemic.

- **For 2020-21**, producers intend to leave seeded area in Canada relatively unchanged at 1.73 million hectares (Mha), marginally lower than 2019-20. This would be the second largest Canadian dry pea area on record and is largely due to good returns relative to other crops and the continued recognition of the benefits of dry peas as part of crop rotation plan. By province, Saskatchewan is expected to account for 53% of the dry pea area, Alberta 41%, with the remainder seeded across Canada.

- Production is forecast to rise marginally to nearly 4.3 Mt due to average yields but lower area seeded. Supply is forecast to be relatively unchanged at 4.6 Mt due to similar carry-in stocks. Exports are expected to be lower than 2019-20 at 3.4 Mt and carry-out stocks are forecast to increase. The average price is expected to be similar to slightly lower in 2019-20 due to increased domestic and world supply.

- In the US, area seeded to dry peas for 2020-21 is forecast by the USDA to fall by 12% to 0.97 million acres (Mac). This is largely due to a decrease in expected area in North Dakota.

Source: Agriculture and Agri-Food Canada. (2020-05-22) Canada: Outlook for Principal Field Crops

Dry Pea and Bean Farming in Canada (cont)

Canada: Outlook for Principal Field Crops (cont)

- [a] Crop year is August-July.
- [b] Imports and exports exclude products.
- [c] Total domestic use equals Food and industrial use plus Feed waste and dockage plus Seed use plus Loss in handling. Total domestic use is calculated residually.
- [d] Producer price, Free-on-board (FOB) plant, average over all types, grades and markets.
- kha: kilohectares
- t/ha: tonnes per hectare
- kt: kilotonnes
- $/t: dollars per tonne
- f: forecasts by AAFC. For 2019-2020[f] and the years before 2019-2020[f], area, yield and production are from STC. For the years before 2019-2020[f], imports, exports, seed requirements and carry-out stocks are from STC.
- Source: Statistics Canada (STC) and Agriculture and Agri-Food Canada (AAFC)

Dry Peas [a]: May 22, 2020

	2018-2019	2019-2020[f]	2020-2021[f]
Area seeded (kha)	1,463	1,753	1,732
Area harvested (kha)	1,431	1,711	1,700
Yield (t/ha)	2.50	2.48	2.51
Production (kt)	3,581	4,237	4,275
Imports (kt) [b]	62	72	60
Total supply (kt)	4,291	4,621	4,635
Exports (b)	3,270	3,650	3,400
Total Domestic Use (c)	708	671	760
Carry-out Stocks (kt)	312	300	475
Stocks-to-Use Ratio	8	7	11
Average Price (d)	270	255-285	250-280

Source: Agriculture and Agri-Food Canada. (2020-05-22) Canada: Outlook for Principal Field Crops

A3

Wheat, Canola, Barley / Oat Stats & Trends

Wheat, Canola, Barley / Oat Stats & Trends

Wheat, Canola Down, Oats Growing due to Low Supply, Higher Prices

- Looking at seeded crops in BC, we see canola, oats, and barley as stable year to year, while wheat is showing some increases, particularly for winter wheat. The next slide will cover some trends, and pricing shifts due to domestic and international factors.

	British Columbia (map)				
	Seeded area (acres)				
Type of crop	2016	2017	2018	2019	2020
Barley [5] [6]	57,000	42,000	50,000	62,600	62,600
Canola (rapeseed) [5] [7]	95,000	112,000[r]	137,000	85,800	85,800
Oats [5] [6]	68,000	70,000	75,000	67,700	67,700
Wheat, all including winter wheat remaining [5]	101,000	44,000	69,600	78,500	82,000
Wheat, durum [5]	..	..	900	F	F
Wheat, spring [5]	101,000	44,000	59,500	68,500	68,500
Wheat, winter remaining [5] [8] [9]	..	..	9,200	9,800	13,300
Wheat, winter seeded in fall	..	..	16,000	17,000	23,000

Symbol legend:

.. not available for a specific reference period
r revised
F too unreliable to be published

Source: Various sources

Wheat, Canola, Barley / Oat Stats & Trends (continued)

Wheat, Canola Down, Oats Growing due to Low Supply, Higher Prices

Wheat

- Nationally, **farmers reported planting 24.6 million acres of wheat in 2019, down 0.6% from 2018**. Lower wheat area was led by durum wheat which declined 20.9% to 4.9 million acres, likely due to lower demand. In comparison, spring wheat area rose 8.4% to 18.8 million acres. Farmers in Saskatchewan reported that wheat area edged down 0.4% to 12.9 million acres. While spring wheat increased 11.1% to 8.7 million acres, this increase was offset by durum, which declined 17.8% to 4.1 million acres.

- Alberta farmers reported planting 7.4 million acres of wheat, 1.0% less than in 2018. Spring wheat area increased, from 6.3 million acres in 2018 to 6.6 million acres in 2019. This was offset by a 34.6% decrease in durum wheat to 775,000 acres. Farmers in Manitoba reported that total wheat planting was up 8.8% to 3.2 million acres.

Canola

- Nationally, **Canadian farmers reported planting 21.0 million acres of canola in 2019, down 8.2% from 2018.** While the seeded area in 2019 was the lowest since 2016, it still represented the fourth highest canola area on record. The decrease in canola seeded area was likely influenced by lower prices compared with the previous year. **Lower prices may be attributable to limited access to Chinese export markets as well as high global supply of oilseeds.**

- Saskatchewan farmers reported planting 11.6 million acres of canola in 2019, down 6.5% from 2018. In Alberta, producers reported that seeded canola area was down 12.9% from 2018 to 5.9 million acres. Farmers in Manitoba reported that canola area was down 3.2% to 3.3 million acres.

Barley and oats

- Across Canada, farmers report planting 14.0% more acres of barley to 7.4 million acres. Barley area increased in all three Prairie provinces, which together accounted for 95.2% of barley area in Canada. The larger seeded area may be due to higher prices resulting from low global stocks and the higher anticipated need for livestock feed. Higher barley prices may also have influenced some farmers to plant barley instead of canola, given ongoing trade issues. **Farmers reported planting 3.6 million acres of oats in 2019, up 18.1% from a year earlier. Like barley, low supplies have resulted in higher prices, which may have producers opting to plant a larger area compared with a year earlier. The increase in oat area was concentrated primarily in Saskatchewan (+390,900 acres).**

Source: Various sources

A4

Yellow vs. Green Peas for Processing to Proteins / Flours

Yellow vs. Green Peas for Processing to Proteins / Flours

The yellow split pea segment is projected to be the fastest-growing market during the forecast period due to colour profile, palatability, and cooked protein content

- **The yellow split peas segment is projected to grow at the highest CAGR between 2020 and 2025, with a CAGR of approximately 20% and increasing for processing into protein and flour products.**
- The high protein content and ideal amino-acid profiles make yellow split peas an ideal source of pea protein in the industry. Yellow split peas have the highest protein content in the legume family and are adopted by a wide array of applications in the food & beverage industry. Yellow split peas are also among the key constituents for pea protein isolates. They are adopted for use in multiple food formats, including plant-based burgers and pea milk. Due to these factors, the yellow split pea segment is projected to be the fastest-growing market during the forecast period.
- **Green peas will have significantly lower growth potential for these applications in the years ahead. This is primarily due to two factors – first and foremost, the colour of the peas is less desirable for consumer foods. The second factor ties back to nutritional characteristics – while both are nearly identical in their unprocessed forms, cooking and baking of processed green pea products reduces the protein content, while doing the same with yellow peas increases protein content.**

Source: Various sources

A5

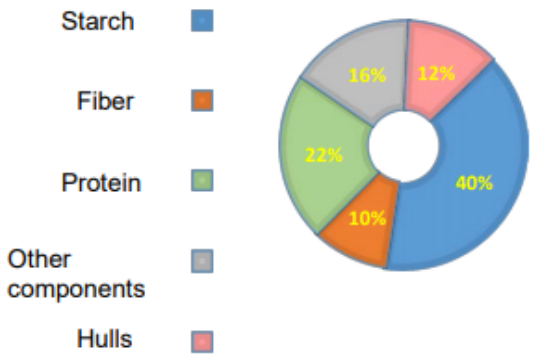
Pulse Protein Value Chain & Pricing

Pea Protein Processed Product Pricing

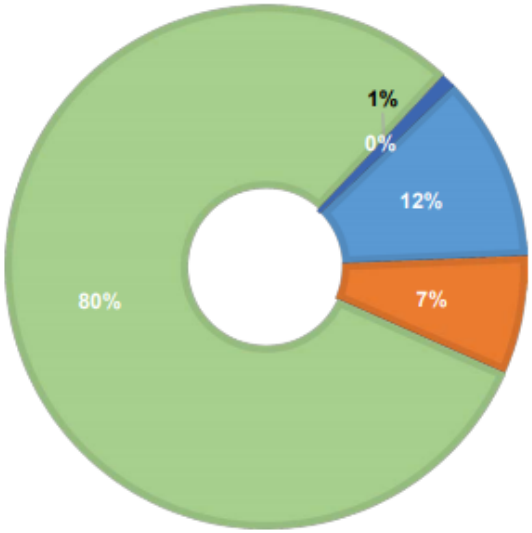
Processing Peas Significantly Increases Overall MT Value

- Based on recent data, the value of processed pea components is approximately $1400 CDN per MT, compared to $340 for dry unprocessed product, with protein, and fiber having the highest overall yield ($5000 MT, $1000 MT respectively).

% Pea composition



% Value of each pea fraction



Based on (estimated):

$100/MT fiber
$400/ MT starch
$1000/MT fiber (dietary)
$5000/MT protein

Example: 1MT peas worth **~$340**

Estimated value of components from 1MT: **$1400**
80% of the value of peas is in the protein.

Source: Government of Alberta

Retail Prices for Plant-Based Proteins (continued)

Significant Value Created Compared to Commodity Crop Sales

➔ The most recent available price ranges for plant-based proteins in Canada highlight the benefit of processing vs. commodity crop sales.

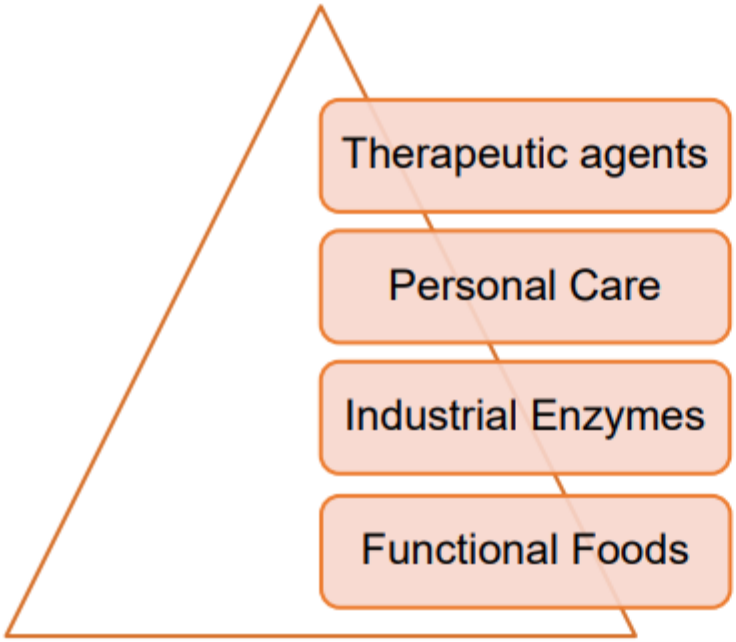
Source	CAD$/kg
Soy protein	$30-38
Pea protein	$34-38
Hemp (50-85%)	$17-50
Pumpkin protein (50%)	$50
Whey protein	$20-45
Faba bean protein (50%)	$12

Source: Government of Alberta

Retail Prices for Plant-Based Proteins (continued)

Moving up the Protein Value Chain – New Applications for Plant-based Proteins

➔ New applications for plant-based protein are emerging at an accelerating rate, with industrial enzymes, personal care, and therapeutic agents leading the way beyond traditional applications for functional foods.



- Protein and derived peptides as ingredients for Cosmetics and Personal Care products.
- Protein and derived peptides for Natural and Non-Prescription Health Products (NNHPs)

Protein sources investigated

- Legumes (yellow/green peas, faba beans, lentils, chickpeas)
- Soy, Oats, Barley, Canola, Rice, Corn, Guar, Lupines, Algae, and more.

Source: Government of Alberta

A6

Best Markets for Pea Processing By-Products

Best Markets for Pea Processing By-Products

Pea Hull Fiber

- Pea hull fiber is dry-milled from the seed coats of hulls of dried peas without the use of enzymes or buffers. It differs from pea cell fiber in terms of both chemical composition and functionality. Pea **hull fibers are derived from the hulls of non-GMO, organic whole peas and are a health-conscious, clean-label addition to a wide variety of finished foods for humans, pets, and livestock.**

- Pea hull fiber is sought after by health-conscious consumers because of its high fiber content. A fact that a recent Health Focus International Global Trend Study confirmed. They concluded that 79% of consumers are interested in more fiber, while 36% recognize 'high in fiber' as an important product claim. It's no wonder that the research from Markets and Markets, projects the global dietary fiber market to reach US$4.3 billion by 2020, based on an annual growth rate of 13%.

- **The Canadian Health Food Association dubbed fiber as the "new protein." They identified pea fiber as one of the Top Five Natural Health Trends.**

- One of the more significant studies was published by W.J.Dahl, Food Science and Human Nutrition Department, University of Florida, in a recent article entitled Pea Hull Fiber: A Dietary Fiber to Modulate Gastrointestinal Function and Gut Microbiota. The article concluded that "Higher fiber intakes are strongly associated with a reduced risk and progression of chronic disease. Complex dietary fiber ingredients, such as pea hull fiber, may have health effects beyond the improvement in gastrointestinal function, as their modulation of the gut microbiota and products of fermentation may impact health and disease risk. Further research, specifically through appropriately powered randomized trials, is needed to explore the effects of pea hull fiber and other complex dietary fiber ingredients on human gut microbiota, particularly when used as intended—as high-fiber ingredients in a variety of food products. Of particular interest may be the effects of dietary fiber ingredients on health "indicator" organisms, the products offer mentative activity, and host health."

Source: Various sources

Best Markets for Pea Processing By-Products (continued)

Pea Hull Fiber

- A unique functional food ingredient, pea hull fiber offers nutritional and functional advantages such as dietary fiber enrichment and fat and caloric reduction. Combined with the product advantages of texture improvement, moisture migration, and reduced weight loss, pea hull fiber offers food manufacturers a means of dietary improvement.
- Pea hull fiber easily fits into today's trends for consumers who seek health conscious, nutritious, ready-to-eat products. Its high fiber characteristics, neutral taste, and color make it well suited for a wide range of food applications ranging from baked treats, breads, energy and health bars, pancakes, meat products, snack cakes, muffins and cookies.

BENEFITS INCLUDE:

- High Dietary Fiber Content (90%)
- Improves Digestive Health
- Calorie Reduction
- Neutral in Taste & Color
- Extends Shelf Life
- Texture & Binding
- All Natural, Non-GMO
- Kosher and Halal
- Gluten-Free
- Clean Label

Source: Various sources

Best Markets for Pea Processing By-Products (continued)

Pea Cell Wall Fiber

- **Pea fiber is extremely well-suited for enhancing both texture and yield in formed meat and poultry products for humans, pets, and livestock**. It forms a matrix within the meat or poultry paste and acts as a shape retention agent. It controls cooking losses and keeps the product tender, juicy and in its original form through the cooking process. In addition, pea fiber functions as a meat extender, thus increasing product yield without sacrificing texture and quality.

- Pea fiber from yellow peas is extracted without the use of organic solvents or chemicals. Thus, the product has a clean label. This type of pea fiber binds water much like a sponge and releases it under strong mechanical actions such as chewing, thereby providing excellent juiciness to a multitude of foods. This pea fiber can bind 10 parts of water by capillary uptake in cold conditions and acts as a terrific emulsifier to bind fats. Additionally, gelatinization of the linked starch granules provides a supplementary buffer to the water binding capacity during heating.

BENEFITS INCLUDE:

- Increase in product stability reduces cooking losses
- Value-added alternative for protein in meats— 50-100% replacement
- Reduces variations in meat quality by acting as a buffer for meat inconsistencies
- Improves juiciness and stability while reducing cooking losses

Source: Various sources

Best Markets for Pea Processing By-Products (continued)

Pea Starch

Pea Starch Characteristics:

- Native pea starch is derived from yellow peas and is processed differently from pea flour, which is the more common ingredient derived from pea. Peas contain 40% starch and the native starch form is a white powder that is neutral in taste and color. This starch is a non-GMO, non-allergenic/gluten-free ingredient.
- Pea starch is differentiated from other native starches because of the high amylose content in the pea starch granules. AKFP's native pea starch has an amylose content of +/- 35% and this property gives it strong gelling properties. It can form a gel in water at a much lower dosage than other starches, making it the best gelling native starch. Pea starch is thus an ideal ingredient for food products that require short, elastic texture such as glass noodles or gummy confectionaries.
- Pea starch granules are a third of the size of potato starch granules and approximate the size of tapioca starch granules. It is characterized by medium viscosity and gelatinized at a higher temperature compared to other native starches. Because of its high amylose content and restricted swelling power, native pea starch attains greater stability under high heat, shear and acid conditions than is typical of native starches. This is a property more common to crosslinked starches, making native pea starch a good clean label ingredient.
- Native pea starch has neutral taste and color. Because of its higher amylose content and higher gelatinization temperature relative to corn, tapioca and potato native starches, it shows excellent stability in high temperature cooking and under variances in pH levels. It also manifests good resistance to shearing. These are characteristics normally associated with chemically modified starches.

Source: Various sources

Best Markets for Pea Processing By-Products (continued)

Pea Starch (continued)

Food Applications for Native Pea Starch:

Recommended human applications for pea starch include the following:

- Meat Products: improving texture and mouthfeel for high yield pork hams, poultry rolls and hams, patés, and vegetarian products
- Canned products: stable in process conditions for sausages and other processed meats
- Soups/sauces: gives pulpy texture as thickener in instant soups and high viscosity dressings
- Bakery Products: stable in process conditions for baked snacks, breakfast cereals, fruit fillings
- Dairy Products: superior gelling fit for chocolate mousse and custard cream
- The pea starch can also be used in numerous gluten-free and grain-free pet food applications.
- For other byproducts, information is limited, and it is recommended to work with wholesalers / distributors / product manufacturers / feed mills, to determine best fit.

Source: Various sources

A7

Buy BC Logo Requirements

Buy BC Logo Requirements

Authorized Use Agreement for Certification

- The Authorized Use Agreement for Certification enables BC primary agriculture and seafood producers and cooperatives; and agriculture, food and beverage, and seafood processors that meet the Buy BC logo certification requirements to use a strong Buy BC brand identifier (i.e. Buy BC logo) on their product/packaging labels and marketing/promotional materials that will help consumers recognize and seek out BC products.
- Certified "**Buy BC**" products provide the public with confidence that those products meet specific criteria regarding their connection to BC as the place of origin or manufacture of the products themselves or their ingredients.
- Please note that producers, processors and cooperatives are only eligible to apply for the certification license. The Buy BC logo must not be used on product/packaging labels and marketing/promotional materials for products that have not received approval for certification.
- Applications must meet the following Buy BC Logo Licensing certification requirements to use the Buy BC logo.
- **Primary Agriculture and/or Seafood Producers or Cooperatives:**
  Producing fresh food, beverage, or agricultural and seafood products which are 100% grown, caught, or raised in B.C.
- **Agriculture, Food and Beverage and/or Seafood Processors:**
  Processing food, beverage, or agricultural and seafood products which are processed and packaged in B.C. with 51% or more of the direct cost of producing the product in its final form (i.e. sum of raw materials, direct labour, variable processing, and packaging) originating in B.C. *When the main raw materials are available in sufficient quantities from B.C. producers, they must be used.*
- **Agriculture, Food and Beverage and/or Seafood Processors must complete and upload this excel form with the Buy BC Licensing Certification Application: Calculating Direct Costs (.xls)**

  - Buy BC Logo Licensing Certification Application

Source: Grow BC

A8

Canadian Pulse Brokers, Buyers, Processors, Associations

SPG Pulse Companies Directory

Canadian Pulse Brokers, Buyers, Processors

- ➔ Saskatchewan Pulse Growers (SPG) does not buy or sell pulse crops. To purchase Saskatchewan-grown peas, lentils, chickpeas, and/or beans, please refer to the Pulse Companies List or contact the Canadian Special Crops Association.
- ➔ The Pulse Companies List is a complete list of Canadian pulse brokers, buyers, and processors who are licensed and bonded (unless indicated as exempt) through the Canadian Grain Commission.
- ➔ Note: For the purposes of this list:

- A *pulse broker* is a company that arranges transactions between buyers and sellers, usually without taking possession of the crop.
- A *pulse processor* is a company that handles and processes the crop; they may or may not be acting as agents for other companies.
- An *SPG buyer* is a company that has registered with SPG and that remits the pulse levy. The word "registered" does not imply endorsement.
- The *Canada Grain Act* requires some elevators and grain dealers to have a Canadian Grain Commission (CGC) license and post security to cover their liabilities (what they owe) to farmers. Grain dealers and operators of primary, terminal, and process elevators in Western Canada are licensed by the CGC. Seed cleaning plants which do not purchase grain and feed mills do not have to be licensed.
- SPG does not endorse any company over another and does not take responsibility for any transactions between these companies and their clients. It is the personal responsibility of individuals to satisfy themselves that any company they deal with is financially sound. Please take the time to ensure you are dealing with a reliable company. You can do this by asking the company questions, or for references. You can also contact the Canadian Grain Commission to check which companies are licensed.
- The directory can be accessed here: **https://saskpulse.com/buyer-seller-listing/**

Source: SaskPulse

Protein Industries Canada Supercluster

Key Industry Association

→ **Protein Industries Canada Supercluster.** PIC "is seeking to advance economic growth through innovation in plant-based proteins and co-products for export to the world. Supported by the largest funding boost in recent Canadian agriculture history, this industry-led consortium is expected to help generate an estimated $853 million in new commercial activity, add $15 billion to Canada 's GDP and create up to 50,000 new jobs." Unfortunately they do not list their members. We only found a brief mention of the following. **This association would be extremely beneficial to join based on our initial review.**

- AGT Food and Ingredients Inc.
- Maple Leaf Foods Inc.
- ISM Canada Inc.
- Dow DuPont Agriculture
- Farmers Edge Inc.
- Botaneco Inc.
- Dot Technology Corp. and SeedMaster Mfg.
- Enns Brothers
- Sightline Innovation Inc.
- Roquette Agri-Food Canada
- POS Bio-Sciences (NOTE: now **KeyLeaf**, which specializes in plant-based ingredient commercialization for food, nutraceuticals, cosmetics, and bio-products.)

Source: Various

Questions?

Thank you

BDC

BDC_ca

BDC

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