

# AVENA FOODS: COMMITTED TO SUSTAINABLE OAT AND PULSE INGREDIENTS FROM THE GROUND UP

**“We waste one third of the world’s food production, four times more than the amount needed to feed all of the malnourished around the world.”**

The Milan Protocol, Barilla Centre for Food and Nutrition, 2015

**“I would dare say we are close to 40% of [climate change] emissions if we really factor in everything that is related to food.”**

Martin Frick, senior director, United Nations Framework Convention on Climate Change, 2019

**“Meat, aquaculture, eggs, and dairy use 83% of the world’s farmland and contribute 56-58% of food’s different emissions, despite providing only 37% of our protein and 18% of our calories.”**

Poore and Nemecek, 2018

**“73% of global consumers now say that they would... change their consumption habits to reduce their impact on the environment.”**

International Food Information Council, 2019

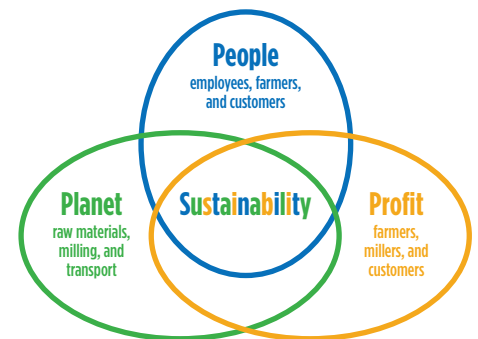
Avena Foods is committed to understanding the social, environmental and economic impact of our activities on the communities where we work and on the stakeholders in our value chain. The so-called ‘triple bottom line’ (Elkington, 1999), often summarized as ‘people, planet, profit’, helps us to identify the actions needed to maximise the positive and minimise the negative impacts of our business practices.

Sustainable development “meets the needs of the present without compromising the ability of future generations to meet their own needs” (Bruntland Commission, 1987). The American Public Health Association (2007) has adapted this definition for a sustainable food system: “One that provides healthy food to meet current food needs while maintaining healthy ecosystems that can also provide food for generations to come with minimal negative impact to the environment....”

A sustainable food system is the responsibility of everyone in the value chain. It encompasses the farmers who supply us with oats and pulses, our milling facilities, our transportation partners, and the manufacturers who formulate using Avena’s ingredients. The final link in the chain is the end consumer.

Avena is a world leader in the milling of Purity Protocol oat ingredients and gluten-free pulse ingredients. Our business is anchored in strong relationships with our farmers and our customers. We add value to oat and pulse crops through proprietary milling processes and stringent Food Safety and Quality Management Systems (FSQMS). Our sales team provides technical support that promotes customer innovation.

Avena operates three facilities in the Canadian prairies - Regina and Rowatt in Saskatchewan, and Portage la Prairie in Manitoba. Environmentally conscious practices are encouraged at Avena and shared throughout the company.



## PEOPLE

A key theme running through Avena's sustainability initiatives is the wellbeing of people. 'People' means the customers we serve, the farmers with whom we partner, and our own employees.

### CUSTOMERS AND CONSUMERS

Avena's whole oat and pulse ingredients are nutrient dense, offering the potential for better health. Oats have proven health benefits in terms of cardiovascular disease and diabetes (Butt, 2008). In addition to this oats contain beta glucan, a soluble fibre that has been linked to reduced LDL and total cholesterol, both of which are markers for improved heart health (Whitehead, 2014). Pulses have been shown to reduce risk factors for cardiovascular disease (Ha, 2014) and diabetes (Marinangeli, 2011), as well as assisting in weight loss (McCrory, 2010).

Avena's oat and pulse ingredients give food and beverage manufacturers the opportunity to develop new products for customers who are wheat or gluten

intolerant, for those with celiac disease, and for health-conscious customers who want to increase their consumption of plant-based foods.

Avena operates stringent Food Safety and Quality Management Systems (FSQMS) that have been developed to minimise allergen contamination (in particular gluten), and to monitor key microbiological indicators. Traceability is a key principle.

Avena's team of food safety specialists (approximately 20% of all Avena employees) is responsible for maintaining programs across Avena's three locations. Our in-house laboratory in Regina provides rapid, reliable testing for gluten and peroxidase.



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**AVENA FOODS IS SEDEX REGISTERED AND AUDITED.**

The Supplier Ethical Data Exchange (SEDEX) is a not-for-profit organisation for businesses that are committed to the continuous improvement of ethical performance within their supply chains. Founded in 2001 by a group of UK retailers to standardise social audit and monitoring practices, it provides auditing standards referred to as SMETA (SEDEX Members Ethical Trade Audit.)

**SMETA encompasses four pillars of responsible business practices:**

- Labour standards,
- Health and safety,
- The environment,
- Business ethics.



### AVENA BEST PRACTICE: IN-HOUSE LABORATORY

Avena's Food Quality and Safety Team provides in-house gluten testing for all three Avena facilities. In a typical week, the team will conduct more than 600 gluten tests using the R5 ELISA method, the industry gold standard.

Over the past decade, Avena's oat and pulse divisions have invested heavily in developing new ingredients for the food ingredient, pet food and nutraceutical markets. Research activities, both in-house and external, have focused on developing new



processing methods to create ingredients with novel functionality, enabling our customers to put exciting new products onto supermarket shelves.



### AVENA BEST PRACTICE: CUSTOMER COLLABORATION

Avena's sales team serves as an advocate for our customers. We provide technical support and marketing information, as well as connecting customers with new business partners – for example, co-manufacturers, researchers and equipment specialists.

Avena sales staff undergo regular technical training, often in partnership with customers. Training workshops provide an opportunity not only to learn, but also to build relationships and to develop innovative joint projects.





## FARMERS

Avena fosters long-term relationships with farmers, some of whom we have partnered with for several generations. Farm visits are a regular event for the Avena procurement team. These exchanges allow the team to learn from our farmers and to provide support. Additionally, scheduled field inspections take place each year prior to harvest.

Avena encourages dialogue between our farmers and our customers. Our 'Customer and Farmer Appreciation Days' help to strengthen these partnerships.



## AVENA PURITY PROTOCOL GROWER SCHOOL, FEBRUARY 2020

Avena's Purity Protocol oat farmers attend 'Grower School' when first contracting with us, and every two years after that. These seminars are an opportunity to share best practices among progressive farmers and to communicate any new food safety or quality requirements.

Avena Foods provides premium payments to certified-organic pulse farmers and Avena Purity Protocol oat farmers over successive years, in order to maintain adherence to organic certification and Avena Purity Protocol requirements.



## EMPLOYEES

Avena is committed to employee welfare. We provide health, vision and dental insurance, as well as paid sick days. Parental leave is integral to our family-based philosophy. We offer in-house training as well as funding for external courses. Avena also makes matched retirement savings contributions.

Avena hosts 'town hall' meetings throughout the year to keep employees abreast of developments and successes. Service awards are presented during these events.

### Avena's Employee Handbook sets out four core values:

1. 'Do the right thing when no one is looking.' Our staff are empowered to take responsibility, even when management is not involved.
2. 'Dive in, speak up and leave a mark.' Everyone has a voice and knows that they can make an impact on how Avena operates.
3. 'Welcome challenges with a smile.' A positive attitude is key to success.
4. 'Collaborate to do great things with customers, growers and colleagues.' Teamwork is key to Avena's success.



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## PLANET

### CROPS AND FARMING PRACTICES

Nearly half of the calories consumed globally come from just three crops – rice, wheat and maize (Food and Agricultural Organization of the United Nations, 2018). Shifting to oats and pulses brings much-needed diversification to world farming.

Energy use and greenhouse gas emissions arising from the transportation of crops are dwarfed by field emissions, even when products are crossing oceans. Typically, 90% of a food product's 'footprint' comes from crop production itself (Pulse Canada, 2016).

A life-cycle analysis of common proteins revealed that beans and lentils create less than 10% of the greenhouse gas emissions associated with beef and lamb production (Figure 1. Lifecycle Greenhouse Gas Emissions from Common Proteins and Vegetables).

The inclusion of dry peas or lentils in an oilseed cereal crop rotation significantly reduces greenhouse gas emissions and consumption of natural resources (Zentner, 2001, 2004). MacWilliam's (2014) life cycle analysis of replacing a spring wheat crop with dry peas or lentils in a canola – spring wheat – spring wheat – spring wheat rotation, identified additional improvements in ecosystem quality and human health.

Natural microbes in the soil break down and cycle nutrients, feeding the crops as they grow. Oat and pulse crops produce

chemical compounds that nourish soil microbes and create a more diverse 'microbiome'.

Naturally occurring soil organisms also help to fight disease-causing bacteria and fungi, reducing the need for chemical pesticides.

Oats and peas develop an early, dense cover that crowds out weeds and acts as a natural herbicide.

Up to 70% of the non-renewable energy used in crop production arises from the use of inorganic fertilizers, particularly nitrogen. Pulses require little or no nitrogen fertiliser thanks to a biochemical process that provides nearly all of the energy required for their growth (Pulse Canada, 2016). Less chemical input translates into less greenhouse gas emissions. A 15% reduction in nitrogen inputs reduces greenhouse gas emissions by 4% (Nation Farmers Union, 2019).

Additionally, pulse crops contribute to nitrogen stores in the soil through 'nitrogen fixing', providing extra nutrition for a cereal crop the following year.

Oats, meanwhile, extract less nitrogen from the soil than other cereal crops. Less fertiliser is required, leading to less groundwater nitrate contamination.

Oats and pulses do not require irrigation, so they help to protect aquifers.

Additionally, pulse crops extract water from a shallower depth than other crops, leaving more water deep in the soil.

## PULSE FLOURS FOR PEOPLE AND PLANET

Incorporating yellow pea flour – rich in nutrients, low in fertiliser requirements – into daily food items can improve the nutritional and sustainability profile of diets.

In one study, partially replacing refined wheat flour with yellow pea flour increased the nutrient balance score of pan bread, breakfast cereal and pasta by 11%, 70% and 18% respectively, while decreasing the carbon footprint by 4%, 11% and 13%.

The data were then combined into a 'nutrition carbon footprint score', a novel indicator that reflects nutritional quality per unit of environmental impact. Adding yellow pea flour increased the score by 15% for pan bread, 35% for pasta, and a staggering 90% for breakfast cereal.

(Chaudhary, 2018)



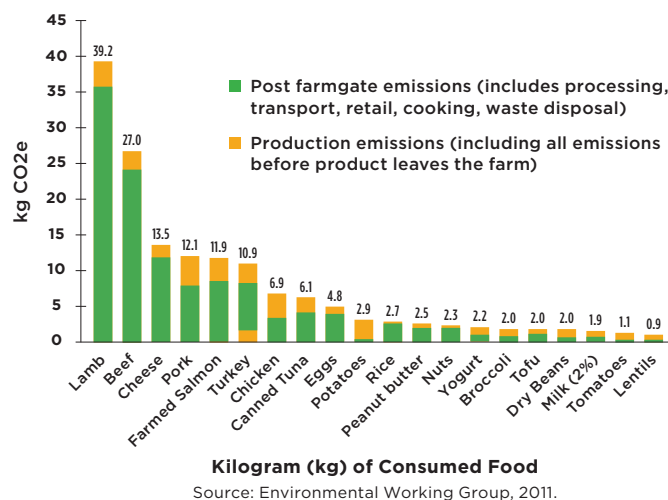
### AVENA BEST PRACTICE: PRECISION AGRICULTURE

Many oat and pulse farmers in western Canada use 'precision agriculture', a farm management concept that is based on observing, measuring and responding to the inter- and intra-field variability of crops. The goal of precision agriculture is to optimise returns while preserving resources. For example, GPS-equipped farm machinery is used to identify and apply the optimal amount of fertilizer for each individual plant based on soil tests and previous years' crop yield data.



**Shifting to oats and pulses brings much-needed diversification to world farming.**

**Figure 1. Lifecycle Greenhouse Gas Emissions from Common Proteins and Vegetables**



## ENERGY USE

Pulse Canada's 'Sustainable Business Guide' identifies two energy consumption 'hotspots' in the life cycle of pulse crops: first, the cultivation stage, and second, electricity consumption during the manufacturing process.

Research has shown that adding pulses to a four-year crop rotation with wheat and canola can decrease non-renewable energy use by more than 20% (Watts, 2011).

Recent innovations in western Canadian oat and pulse production that lower energy usage on the farm include yield improvements, reduced tillage, more efficient crop rotations, precision agriculture (see panel on page 4) and improved nutrient management (Pulse Canada, 2016).



**Our flour and fibre milling facility is located in Manitoba, where 99% of electricity comes from renewable sources.**

**All Avena milling processes – whether splitting peas, cleaning whole pulses or processing flours and fibres – are zero-waste.**

**Avena has reduced its reliance on paper by using online software for accounting, and other tasks.**

### AVENA BEST PRACTICE: RENEWABLE ENERGY

Avena Portage la Prairie, our flour and fibre milling facility, is located in Manitoba, where 99% of electricity comes from renewable sources (97% hydroelectricity, 2% wind). Meanwhile, neighbouring Saskatchewan has set a goal of 50% renewable electricity by 2030.



## MILLING PROCESSES

Avena Foods uses dry milling processes. During the tempering of the oats or the pasteurisation of flours, a small amount of steam is used. However, the quantity is much less than the water and the energy required for wet milling, as used in the fractionation of pulse and oat protein isolates (Thakur, 2019).

### AVENA BEST PRACTICE: ZERO-WASTE

All Avena milling processes - whether splitting peas, cleaning whole pulses or processing oat and pulse flours and fibres - are zero-waste. Our by-products are either upcycled into other ingredients or sold into animal feed.

### AVENA BEST PRACTICE: PAPERLESS INITIATIVE

Avena has reduced its reliance on paper by using online software for accounting, ERP (Enterprise Resource Planning), inventory management, CRM (Customer Relationship Management) and other tasks.

## TRANSPORTATION

To address energy use and emissions from transportation, Avena's sales and marketing team has developed a 'Mindful Travel' policy:

- To reduce daily commuting and work travel, sales representatives are encouraged to work from home and to make use of phone, email, and video conferencing.
- Team meetings are held via video conferencing.
- Direct flights are prioritised.
- Customer meetings are scheduled around trade shows.
- Customer visits are 'bundled' to maximise customer contact per trip.
- Public transport and ridesharing are used whenever possible.
- When renting a car, the most energy-efficient option is selected.



## PROFIT

Consuming oats and pulses has benefits for everyone. Chronic disease represents a colossal cost to the public purse. Oat and pulse ingredients, when incorporated into food and beverages, improve health and lower healthcare costs.

## CUSTOMERS

Avena Foods is committed to continuous improvement, our goal being to share efficiencies and cost savings with our customers.

Food and beverage manufacturers know that consumers care about, and are willing to pay a premium for, products that promote sustainable development. Certifications, messaging on packaging and social media can all help to spread awareness, to boost sales, and ultimately to generate profit.

## FARMERS

Farmers who operate Avena Purity Protocol, organic certification, and other environmentally friendly practices, are paid a premium by

Avena Foods. These premiums take into account crop quality and yield, not just season-to-season but over successive years, helping to stabilise farm incomes.

Farmers with pulse-containing rotations are able to reduce fertiliser costs while achieving higher cereal yields (MacWilliam, 2014).

Consumers and manufacturers understand that sustainable development adds value to food and beverage production. However, they are often wary about the cost involved. These costs need to be acknowledged and accounted for throughout the value chain. An additional consideration is variability in crop quality and yields over successive years. For this reason, costing structures need to be multi-year.

## EMPLOYEES

Avena pays above-market wages and strives to provide an environment that fosters employee retention. We operate an annual bonus program based on financial performance.

## IN CONCLUSION

Avena Foods is constantly striving to identify actions that will reduce the negative social, environmental and economic impacts of our business, both in the communities where we operate and for our stakeholders. By doing so, we are helping to protect healthy ecosystems for today, as well as working to ensure that future generations will be able to meet their needs.

**Avena Foods... 'for safe, healthy diets and a sustainable world'.**

## AVENA CERTIFICATIONS



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