

# THE FACES OF AVENA PURITY PROTOCOL

## AVENA FOODS ‘START SAFE, STAY SAFE’ GLUTEN-FREE OATS

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In 2008, a group of pedigreed seed growers, who understood the dietary challenges that people with celiac disease face and the benefit which they might receive from eating pure, whole grain oats, set up Avena Foods Limited. The system they developed was based on a ‘Start Safe, Stay Safe’ philosophy where pure oats were seeded, and their purity maintained as much as possible throughout the growing, harvesting, transporting, and milling of the crop. These oats and oat ingredients were fully traceable, right back to the farmers and their fields.

Fast forward ten years. Avena Foods maintains strong partnerships with farmers and operates a dedicated gluten-free facility with state-of-the-art equipment, and exemplary food safety and quality management programs. We have come to know this ‘Start Safe, Stay Safe’ approach as Avena Purity Protocol.

**T**he gluten-free market is now mainstream in the US and expected to be worth \$7.6 billion in 2020 (Statista, 2018). In 2017, 14.5% of food and beverage launches included a gluten-free claim (Innova, 2018).

Just over 7% of the US population avoids gluten for medical reasons. They include the 1% who have celiac disease, the 6% who have non-celiac sensitivity, and the 0.1% who are allergic to wheat (Hensel, 2015). Others, especially millennials, favor gluten-free products as a lifestyle choice (Mintel, 2016).

Gluten-free diets are typically based on starches. This can lead to deficiencies in fiber, iron, B vitamins, calcium and zinc. It is recommended that alternative whole grains be included in gluten-free diets to reduce the risk of nutritional deficiencies (Cureton, 2015).

Whole grain oats are one such grain. They contain 4% beta-glucans, other soluble fiber and insoluble fiber, easily digested proteins with the amino acids lysine, cysteine, and methionine, high levels of phosphorus, iron, zinc, and magnesium, and antioxidants including vitamin E, phytic acid, phenolics, and avenanthramides (Peterson, 2011; Welch, 2011).

The nutrition of oats has been shown to have a positive impact on many health-related conditions including hypertension, diabetes, coronary heart disease, obesity, and gastrointestinal illnesses (Smulders et al, 2018).

Though naturally gluten-free, oats are often contaminated by gluten-containing grains and grain dust. The shape and a size of oats makes it challenging to clean out these contaminants.



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## WHAT IS PURITY PROTOCOL?

In reviewing rates of gluten contamination in commercially available flours and starches, Smulders and colleagues (2018) concluded that the cultivation and processing of gluten-free ingredients should be restricted to gluten-free certified farms and production facilities, and that an essential element of this is a strong food safety and quality system that encompasses thorough detection of gluten (Fritz et al, 2017; Gilissen et al, 2014).

The Gluten Intolerance Group of North America (GIG) in consultation with the

four North American Purity Protocol oat processors, has determined the minimum processing requirements that must be met in order to satisfy the definition of Purity Protocol for 'pure' gluten-free oat production (Allred et al, 2017). The Gluten-Free Certification Organization (GFCO) is the certifying arm of GIG. The GFCO definition of gluten-free includes processing and manufacturing processes, and it stipulates that the final product must contain less than 10 ppm of gluten. However, the agreed definition of Purity Protocol does not cover gluten sampling protocols.

## HOW IS AVENA PURITY PROTOCOL DIFFERENT?



Over the last ten years Avena Purity Protocol has developed as an integrated approach to preventing contamination throughout the

entire value chain. This multi-layered strategy is grounded in the knowledge that no single control step is adequate to control gluten-contamination. Rather, success lies in multiple controls.

Avena Purity Protocol includes extensive visual inspection and laboratory testing. Gluten-contamination requires management as both a physical and chemical hazard. If it is only approached as a physical risk, by removing the visible gluten-containing grains, the risk associated with grain dust, the non-visual component of gluten-contamination, remains.

It is common for grain dust to cause gluten-contamination and this needs to be controlled throughout the manufacturing process (Ramachandran et al, 2018). Analytical testing is currently the only method that identifies gluten dust contamination on equipment or in products.

Avena Foods has developed in-house

sampling protocols that dictate sampling size, frequency, and final product lot size. Proper sample preparation, in terms of grinding and shaking, is critical to ensuring homogenized samples. The R5-ELISA method used by Avena Foods for gluten testing is the industry standard, recognized for its sensitivity and accuracy.

Avena Purity Protocol also ensure that oats are free of all labeled allergens, heavy metals, pesticide residues, including glyphosate, and mycotoxins.

At the heart of Avena Purity Protocol are the people throughout the supply chain who are committed to providing pure, safe oats and oat ingredients to our customers and, in turn, to their customers. This is key to our 'Start Safe, Stay Safe' Avena Purity Protocol philosophy.

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## Celebrating 10 Years of Avena Purity Protocol



## CELIAC DISEASE, GLUTEN AND OATS

Celiac disease is an autoimmune disease that develops in predisposed individuals (Leonard et al, 2017). It is triggered by gluten-containing grains such as wheat, rye, barley and triticale (Allred, 2018), as well as grain dust. Avoiding grain dust can be as problematic as excluding the grains themselves (Fritz et al, 2017; Ramachandran et al, 2018).

The CODEX standard for gluten-free ingredients and foods is less than 20 parts per million (ppm). This corresponds to a daily gluten consumption of 6 mg (Akobeng et al, 2008). However, some people with celiac disease have an incomplete response to the gluten-free diet so they may be unable to tolerate even trace amounts (Hollon et al, 2013).

When determining 'safe' levels of gluten, it is critical to take into account total gluten ingested, and not just the gluten levels in individual food products. 'Gluten load' has been found to correlate with pathology in the small intestine (Akobeng et al, 2008).

Research suggests that people with celiac disease can consume up to 100 g per day of uncontaminated oats without any harm (Hardy et al, 2015).

## OUR FARMERS

Avena Purity Protocol is anchored in long-term partnerships with select farmers. A mandatory three-year gluten-free rotation is required prior to the seeding of pure, 'true to type' pedigreed oat seeds. Also required is a three-meter isolation strip around the field.

During the growing season the crop is inspected for cross-contamination by third-party Canadian Food Inspection Agency (CFIA) accredited inspectors. All farm equipment used to handle and process Avena Purity Protocol oats, such as seed drills, combines and trucks, must be dedicated gluten-free,

or else verified as clean before use. Any other potential allergens, for example soy or mustard, grown on the farm in the previous two years must be declared. In such cases, additional visual and analytical testing is put in place for pre and post-harvest samples.

Once harvest is complete, farmers must provide two 2 kg samples from each field of both pre-cleaned and post-cleaned oats for visual inspection at Avena Foods. A third sample is sent to a third-party laboratory to be tested for gluten, and screened for the entire spectrum of mycotoxins.

Avena Purity Protocol is anchored in **long-term partnerships** with select farmers.



Above: AMY PANASIUK, KELLY PANASIUK, COLE JENSEN, LARAMIE SLADE, DEAN PANASIUK, DILLON PANASIUK, and LOGAN PANASIUK during a farm visit.

Left: Throughout the growing season, the crop is inspected for cross-contamination by third-party Canadian Food Inspection Agency (CFIA) accredited inspectors.

## OUR GRAIN BUYERS

COLE JENSEN, Grain Buyer, is a member of the Avena procurement team. He is focused on building relationships with farmers and negotiating mutually beneficial contracts. Cole is also active in planning the annual Grower School.



## LIKE OATS, THE AGRONOMY PRACTICES OF AVENA PURITY PROTOCOL ARE INHERENTLY SUSTAINABLE

The North American Millers Association (2018) has listed the potential environmental benefits of growing oats

- **Improves soil health**  
As part of a crop rotation system, oats can boost soil conservation practices (Zetner et al, 2004). Crop yields are typically higher in soils that are 'alive' with a diverse population of soil microorganisms (Gan et al, 2002). Naturally occurring soil microorganisms also 'crowd out' disease-causing bacteria and fungi (Lupwayi et al, 2007).
- **Reduces soil erosion**  
Oats, when grown using minimum or zero-tillage, help to prevent soil erosion and the resulting release of carbon from the soil into the atmosphere.
- **Reduces the need for chemical pesticides**  
A yearly rotation that includes oats helps prevent the buildup of destructive microorganisms that can reduce yields and increase the need for chemical pesticides.
- **Reduces the need for herbicides**  
Oats are a dense cover crop which suppresses weeds and reduces the need for herbicides.
- **Reduces the need for fertilizers**  
Oats extract less nitrogen and other nutrients from the soil compared to some other crops, requiring less fertilizers.
- **Requires no irrigation**  
Oats require less water than other crops.

## OUR GRAIN RECEIVERS

Each new crop year, the initial loads delivered to Avena by a farmer are treated as 'high risk', with additional sampling and testing put in place to rule out contamination. Trucks must be thoroughly cleaned and verified prior to loading.



**LARAMIE SLADE, Grain Supply Coordinator, oversees the monitoring and testing of oat shipments arriving at the Avena Purity Protocol receiving dock. Prior to transportation, she ensures that Avena Purity Protocol farmers, as well as their oats, have met all the pre-delivery requirements. Laramie helps Avena's farmers navigate the challenges they face in meeting the demands of Avena Purity Protocol.**

In addition, farmers and trucking companies are advised against from hauling a gluten or allergen containing crop immediately prior to loading Avena Purity Protocol oats.

On arrival at the Avena Purity Protocol oat facility, all trucks are visually inspected. After that, a checklist of stringent quality and food safety requirements must be met. Testing parameters include milling quality, size, moisture, purity and cleanliness. If at any point the oats are found to contain an allergen risk or other contaminant, the load is rejected.

More than one gluten-containing grains in a composite sample results in a rejection, and the grower is flagged as 'high risk'. Even a small amount of contamination (a few kernels per kilogram) can raise gluten levels above 20 ppm (Smulders, 2018).

After the initial successful load inspections, crop deliveries from a farmer are managed as 'low risk'. Nonetheless, all loads still undergo rigorous inspection and testing.

## OUR MILLERS

Over the last decade, Avena Foods millers have developed a production system that safely produces pure, uncontaminated oat ingredients. Essential to this system are protocols for cleaning and inspecting equipment. Avena Purity Protocol in-house systems control not only for gluten contamination but for the presence of other contaminants.

A recent investment in state-of-the-art pasteurizing equipment ensures that Avena Purity Protocol oats and oat ingredients are RTE (ready-to-eat) with an extended shelf life. This equipment has a 5-log reduction validated kill step, guaranteeing clean, safe oats and oat ingredients.



**JAMES DEL FRARI, Plant Manager, and TEDDY GARING, Miller, are part of the team that works to improve operational efficiencies, while at the same time complying with ever-changing food safety and quality requirements.**

## OUR FOOD SAFETY AND QUALITY ASSURANCE TEAM

With more than a decade of experience in oat and oat ingredient testing, Avena's food safety and quality management team has developed a system to verify that Avena Purity Protocol Oats contain less than 5 ppm of gluten. The team has a sound understanding of where gluten contamination can happen, and the level of testing required to guarantee pure, safe oats and oat ingredients.

Avena's in-house analytical laboratory allows the team to test every tote quickly, and, if necessary, to retest with minimum delay. The required frequency of gluten testing, with several hundred tests run every week, would be economically prohibitive without our in-house laboratory.

Significant reductions in gluten-findings year over year attest to the rigor of Avena Purity Protocol food safety and quality management programs.



**Above Left: MARICEL LACDAN, Laboratory Coordinator, is responsible for the quality and safety of Avena's finished oat ingredients. She oversees six in-house laboratory staff, who undertake both visual inspections and laboratory analysis. She works with Avena's grain receivers and millers to ensure that Avena Purity Protocol standards are met, and that testing protocols are continuously improved.**

**Above Right: JASMIN HERNANDEZ, Food Safety Coordinator, is responsible for the maintenance and continuous improvement of the Food Safety Management System (FSMS). Her duties include overseeing the plant sanitation team.**

## OUR SALES AND MARKETING TEAM

The Avena Foods sales and marketing team has a wealth of experience in food ingredients, applications, and formulations. They help customers identify the best ingredients for a specific application,

as well as providing ongoing technical support. They also provide their clients with regular food marketing updates and intelligence, helping them to anticipate future trends.



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## OUR CUSTOMER SERVICE TEAM

Customers are at the core of everything that Avena Foods does. Our goal is to provide 'Start Safe, Stay Safe' ingredients to customers, delivered on time, of the quality, and in the amount ordered.



**AANCHAL SINGH, Customer Service Representative,** is responsible for receiving orders and shepherding them through the Avena Foods system.



**DENNIS VILLANUEVA, Logistics Manager,** works with approved carriers to make sure that orders are delivered on time and in good condition.

## AVENA PURITY PROTOCOL OAT INGREDIENTS

### Groats

#### Steel Cut Oats

#### Hefty Oats (thickest #3)

#### Granola Oats (thicker #4)

#### Rolled Oats (standard thickness #5)

#### Thin Oat Flakes

#### Quick Cooking Oats/Baby Oats (#24)

#### Fine Whole Oat Flour 3/64

(US mesh #35 ≤15%)

#### Whole Oat Flour 5/64

(US mesh #35 ≤50%)

All ingredients are RTE (ready-to-eat) with a 5-log reduction validated kill step. They come packaged in 50lb bags or totes, with a shelf life of 18 months. Gluten-free certified, and gluten-free certified-organic (COS) are available.

Avena Foods Purity Protocol Certified Gluten-Free Oat Ingredients are milled from dehulled, cleaned oats in a state-of-the-art, dedicated gluten-free facility. This facility is

FSSC 22000 certified and operates in accordance with Good Manufacturing Practices and the requirements of the Canadian Food Inspection Agency (CFIA). It surpasses the gluten-free standards of the Gluten-Free Certification Organization (GFCO), a program of the Gluten Intolerance Group of North America, the US Food and Drug Administration (FDA), and Health Canada, as well as meeting those of the European Food Safety Authority (EFSA).



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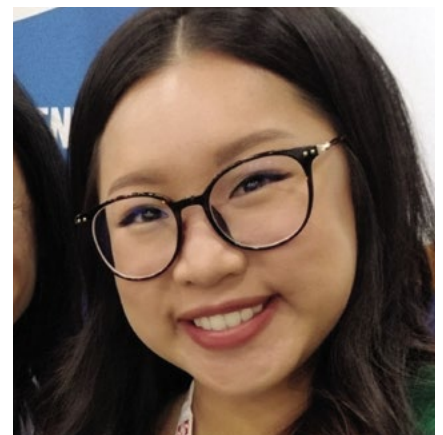
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## OUR PROMISE TO YOU

For over a decade, Avena Foods has focused on providing customers with pure, safe gluten-free oats and oat ingredients. Our protocols are anchored in an understanding of the need to minimize gluten contamination as well as rigorous testing throughout the supply chain. A gluten-free dedicated facility and strong relationships with farmers and our transport partners are vital to this goal.

**'Start Safe, Stay Safe'...  
For Healthy Diets and  
a Sustainable World.**

## YOUR CONTACT



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