

POGA—Representing Oat Growers' Interests for 25 Years Celebration at the 2022 December POGA AGM



POGA Past and Present Directors and Staff

Front row: Jack Dawes (original POGA manager), Bob Anderson (original MB/POGA director), Lorne Floyd (original MB/POGA director and founding MOGA member), Jack Shymko (original SK/POGA director), Shawna Mathieson (current POGA Executive Director), Michael Spilchuk (original SK/POGA director), Willie Zuchkan (original SK/POGA director and founding SASKOATS member), Gordon Pope (original AB/POGA director and founding AOGC member), Bill Wilton (original MB/POGA and founding MOGA member)

Middle Row (all current POGA Board/staff): Yves Lapointe (MOGA Chair), Elwood White (SaskOats), Jessica Slowski (SaskOats), Greg Bott (AOGC), Ray Mazinke (MOGA), Brad Boettger (AOGC), Jenneth Johanson (MOGA Board and POGA President), Jason Wiese (AOGC), Ambrely Ralph (SASKOATS Chair), Cyndee Holdnick (MB and POGA staff), Anthony Van Rootselaar (AOGC Board and founding member)

Back Row (all current POGA Board): Dawn Popescul (SK and POGA staff), Chris Rundel (SaskOats), Ryan Zuchkan (SaskOats), Edgar Scheurer (MOGA Board and MOGA founding member), Darwin Trenholm (AOGC), Landon Kuschak (SaskOats), Dylan Robinson (AOGC Chair)

In 1998, a group of Alberta, Saskatchewan and Manitoba producers gathered with a goal in mind—to create an organization to represent each province's oat producers and advocate for more oat research and development.

That story was commemorated during a celebratory dinner at the 25th POGA AGM, held in Saskatoon, SK. The 'talk-show-format' event was hosted by Jack Dawes—agricultural journalist, past broadcaster, and first POGA General Manager (2003-2011). On the stage, Dawes 'interviewed' (reminisced with) two POGA charter Board members: Jack Shymko (from SK and the first POGA President) and Bill Wilton (from MB; 2005-2013 POGA President). These three took the audience on an historical, 25-year journey.

Anyone who has started a not-for-profit organization knows the amount of volunteer time and personal money that goes into getting it off the ground. First, SK, MB and AB producers met and decided to collect membership fees to support a Prairie-wide commodity organization (POGA). Later, each province formed a commission and check-off levies replaced membership fees. They remain a unified voice under POGA: the oat organization that collectively represents producers from all three Prairie Provinces and shares resources and board expertise.

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...Continued from page 1 **POGA 25th Celebration**

Jack Shymko, who still farms, stated, “It has been very gratifying to watch our vision of a producer-led association become a reality. POGA is a farmer-led organization with one voice that has remained true to its roots of advancing the interests of Western Canadian oat growers. I’m very proud that POGA has not lost sight of the original objectives.”

Shawna Mathieson, POGA Executive Director, came on board almost 12 years ago. She explained that the organization’s reach has grown substantially over this time. Research and other projects have increased from six to thirty, including the international campaigns. The Alberta check-off system was approved and established. POGA is also asked to attend more government and agency meetings which greatly benefits oat growers. Mathieson states, “POGA is well respected within the agriculture community and this helps oat growers in many ways—such as receiving invitations to events and consultations, and our ability to attain project funding. This respect is directly correlated to the dedication and commitment of POGA directors—past and present.”

Jenneth Johanson, current POGA President from Manitoba, commented, “Through the three provincial associations, Prairie oat growers have supported over 55 projects and turned \$3.9 million levy dollars into \$28.1 million, which means growers in Western Canada have contributed less than 15 cents of every dollar spent on research and marketing. This is a remarkable return on investment for producers.”

Randy Strychar, president of Oatinformation and an oat industry trader and commodity researcher for over 40 years, said, “The Canadian oat market has seen phenomenal growth since POGA was formed in 1998. As of 2022, value-added Canadian oat processing has increased over 130% and Canadian raw-oat exports have also shown outstanding growth of 58%, resulting in Canada becoming the largest global oat and oat product exporter.”

The night was a true ‘walk down memory lane’ and a valuable lesson in the hard work, cooperation and commitment that goes into a truly successful 25-year-old organization. POGA thanks everyone who had the vision and fortitude to make it all happen!

To read the POGA Media Release, which includes a bit of history, a list of original (charter) board members, and some ‘oat facts’, go to: <https://poga.ca/communication-advocacy/poga-latest-news/>.



Bill Wilton presents Jack Dawes with a photo from Jack’s recent induction to the Saskatchewan Agricultural Hall of Fame while Jack Shymko looks on.

Your POGA Board at Work

- Jenneth Johanson, POGA President, and Dylan Robinson, AOGC Chair, attended the February 2023 meeting of the Prairie Grain Development Recommending Committee for Oat and Barley in Alberta. The Committee is responsible for making recommendations to the Canadian Food Inspection Agency (CFIA) for oat and barley registration in Western Canada.
- POGA Board members met with representatives of the Saskatchewan Seed Growers’ Association (SSGA) and the Canadian Seed Growers’ Association (CSGA) in December 2022 to discuss the current seed regulatory modernization process. This is a comprehensive review of the Seeds Act and the Seeds Regulations being led by the CFIA—the entity responsible for administration and enforcement.
- POGA worked with the Governments of Saskatchewan and Alberta to conduct an in-person, oat-cooking demonstration in Japan, targeting amateur Japanese food influencers. POGA also worked with both governments on the 2022 October Hi Japan Tradeshow, where the Alberta Japan office hosted a booth to demonstrate Canadian oats and its role as a delicious and nutritious food ingredient.
- POGA, in association with the Mexican Diabetes Association, hosted two virtual workshops for the Mexican market via the Avena Canadiense Facebook platform:
 - World Diabetes Day celebration (November 14, 2022); the Cooking With Oats workshop video reached >49.7K, and achieved >8.4K video views and >200 engagements.
 - Healthy Eating Into the New Year workshop (January 24 2023) included 130 virtual guests and 57 live Facebook guests; the video reached 36.8K and generated >5K views and >6.3K engagements. POGA was very fortunate to receive funding assistance from the Saskatchewan Ministry of Trade and Export Development for this event.

Fertilizer Markets and How Producers Will Be Affected In the Upcoming Growing Season

2022 December POGA AGM Presentation

Josh Linville, Stone X Vice President, provided producers with a detailed overview of what is happening in the world of agricultural fertilizer. He stressed that it is not possible to make absolute predictions. His company attempts to look back a few years to identify world-wide events that have affected the market to date and tries to forecast what might happen in the future based on past and current events.

Linville stated, "There has been unprecedented volatility in the fertilizer market over the past 2.5 years." He listed many factors that now influence this unpredictability. Interested readers can go to <https://poga.ca/about-poga/poga-agm-and-conference/> to access Linville's presentation overheads for data, charts and graphs.

As of December, Linville noted that the price of major fertilizers has been decreasing recently; however Linville identifies recent over-arching current issues that can influence and affect the future market either way:

- logistics in North America—low river levels (e.g., in the Mississippi River, rain and snow are needed), and North American railway systems' capacity must be maintained and increased;
- EU natural gas prices have been decreasing recently, but are still fluctuating; and,
- Russian fertilizer export duties (as of December 2020 still in the proposed stages) and possible energy exports.

Potential market as relates to urea:

Global nitrogen markets generally trade in the same direction. While there will be instances where one region or another will get out of line, global free markets bring them back to the fold.

China (the largest producer) decided in 2021 fall to stop 2022 exports to protect supply for their own farms. Export numbers did climb somewhat during the months following, but the ban is expected to be re-imposed—possibly early 2023. In a post-presentation chat, Linville mentioned: "While this is relatively 'new' news, it no longer looks like we need to fear another Chinese fertilizer export lock down. Exports continue to rise."

Russia is a large global supplier of urea (most significantly to Latin America, the EU and US). Russia has stated a guarantee to continue to export supplies. Says Linville, "A question is whether the proposed duty rate will reduce exports; the current thinking is that it won't."

As at the presentation date, Canada had imported more urea in 2022 than the same time in past years, and this puts the country in a good position to provide urea supplies to Canadian producers for 2023. Canada imposed duties on Russian urea imports, and so lessened the volumes imported compared to other years. But, that was offset by increased imports from the other global suppliers.

Urea NOLA market prices are falling into line with crop prices (higher when grain (and particularly corn) prices increase and vice versa).

Factors that might affect the market either way:

- EU production remains low through the 2022/3 winter or continues to outpace expectations;

- urea remains low-priced versus UAN/NH₃;
- North American logistics continue to struggle;
- Chinese/Russian exports continue to pick up; and
- world demand points to more fertilizer purchased than was expected and this can affect prices.

Potential market as relates to Urea Ammonium Nitrate (UAN):

UAN is a small market within the urea market, and there is a high correlation between the two in the production and export numbers. The EU accounts for 20% of world production of UAN (but EU exports are mostly imported by other countries within the EU).

As of December, nitrogen (N) fertilizer was 32¢/pound higher than urea, which results in a large overall cost differential. This price spread could result in an increase in UAN demand, EU UAN production, Russia's approach to exports, and CF Industries' approach to sales.

CF Industries controls half the markets for fertilizer manufacturing and distribution, and these factors may greatly affect how CF proceeds with business. If the EU production picks up, there will be less export options available to CF. The large carryover from spring will mean less domestic storage will be available. It is possible they will move toward more urea and/or UAN production. Whatever CF does, they typically affect the entire market because of their size.

Factors that might affect the market either way:

- EU production falters again or restarts reduced/stopped export options;
- strong North American export opportunities to EU;
- strong N demand for 2023 crops;
- UAN moves to a sizeable premium and becomes more expensive than urea; and,
- a large 2021 spring UAN inventory carryover may affect future UAN sales.

Potential market as relates to Anhydrous Ammonia (NH₃):

The price of NH₃ has risen significantly compared to past prices. The EU substantially cut production in 2022; the international market is currently improving, but Linville shares that they are closely watching the situation. If there is a recession (there are signs that indicate it may happen), industrial demand for NH₃ could drop.

Factors that might affect the market either way:

- EU production falters again or continues to rise;
- North American fall demand is better than expected (excess inventories are cleared);
- very little new capacity is expected near-term while demand climbs;
- industrial demand is lower than expected due to a recession; and,
- high price/poor weather equate to lower fall application.

Potential market as relates to Nitrogen:

Supply capacity is very close to current demand (which continues to rise). Linville states, "North America should seriously look at producing more, but building the capacity to do so will be expensive and it would be three years before new production was ready to sell. Other countries

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are increasing their capacity, but on a small scale compared to future demand.”

This situation is keeping costs up for nitrogen fertilizer.

Potential market as relates to Phosphates:

Prices were at an all-time high in early 2022, but have continued to fall ever since (but not lower than past averages). China had closed their phosphate export programs. Demand is at a global historical high and may be higher during the 2023 growing year. The cost of US production has been dropping and may result in the market struggling to trade below the cost of product. Linville shares, “Producers will not make product at a loss and will slow/stop production until margins reappear. We believe NOLA DAP cost of production to be around \$430 (give or take \$10) in January. This does not mean the market will fall to that value but for those thinking the price will drop hundreds of dollars in the coming days/weeks—this would put the value below production cost and cause production to stop.”

Almost two thirds of the world’s phosphate trade is led by Morocco, Russia and China. China, by far the largest producer and in the past one of the largest exporters, has stopped exports. Duties have been applied to Moroccan and Russian imports to Canada. In fact, 85-90% of phosphates produced in other countries cannot be imported into Canada (Mosaic controls the majority of trade).

Phosphate is still historically high-priced. Many producers are not currently purchasing a lot of phosphate, as they have been applying it to fields for years and are ‘mining’ the residual in the soil. Canada currently has enough supply for the demand.

Factors that might affect the market either way:

- Chinese exports stop again or return to normal;
- fall/overall demand is better than expected or demand is poor as farmers ‘push back’ against prices;
- production levels decrease; and,
- North American production values fall.

Potential market as relates to Potash:

Prices were at historical highs (beginning in mid-2020), but are currently falling. Things may change due to Lithuania-Belarus relations (Belarus ships via Lithuania, which is not happening right now). Russian export flows will also affect potash markets (Russian exports continuously dropped throughout 2022).

Canada and Russia may begin to increase production, but because demand is inconsistent, there is no certainty. Canada, by far, is the largest producer of potash.

Factors that might affect the market either way:

- Belarus exports remain low;
- demand returns with improving ratios-to-grain production;
- lower application rate and/or fall application delayed until spring;
- Lithuania allows shipments to assist EU demand; and,

- new Canadian/Russian capacity ramps up (which is expected).

With all that was included in Linville’s presentation, he wrapped up with a positive message: “Everyone recognizes that inputs costs will be up this year. Be prepared and do not make emotional decisions. Things are volatile right now and you may lose some, but just ensure you secure a profit—then carry on and don’t worry!”

Meet Your Director: Elwood White

SaskOats and POGA Board member **Elwood White** and his wife Joy operate CS White Farms Inc. (the ‘CS’ in the name denotes their children—Caleb and Skylar).

The third-generation farm is located at Pangman, SK, about 100 km south of Regina. It is a mixed grain and cattle operation. Elwood shares, “We farm using a combination of approaches—conventional and also a bit organic.”

Crops grown include oats, durum wheat, canola, lentils, peas, flax and barley. As to why he chooses to grow oats, he explains, “Oats have always been an important part of our farm. My father, Lewis, always knew the importance of seeding oats to be used as a cash crop, livestock feed source, greenfeed and swath grazing.”

The farm is in the Palliser Triangle Area of Saskatchewan, which is often hot and short of rainfall. Elwood states, “This year we are seeding CDC Endure, a new, high-yielding, milling oat.”

Elwood holds a degree in economics and also has significant board experience. He was an elected school trustee (2012-2020), and also sat on boards with Co-op, R.M. of Norton, Pangman School Council and Pangman Daycare.

He decided to run for a seat on the SaskOats board for several reasons. Elwood shares, “I want to help promote oats in the marketplace and the health benefits of oats for human consumption. I also appreciate the association's ability to directly fund research projects.”

When they are not farming, Elwood and his family enjoy hunting, camping and downhill skiing.



Elwood feeding oats to a cow and calf on his farm

Shawna Mathieson, Your Executive Director, at Work

- Was quoted in the January 2023 World Grain magazine article *Oats in High Demand for Milk Production*. You can read the story at: <https://poga.ca/poga-agm-oat-milk-story/>.
- Attended two recent meetings hosted by the Saskatchewan Ministry of Agriculture on the Sustainable Canadian Agriculture Partnership (SCAP) (the next five-year federal/provincial agricultural policy agreement) to provide input on business risk management and environmental programming.
- Led a meeting, along with trade offices from Alberta and Saskatchewan, with 15 representatives from Canadian oat exporters interested in investigating the possibility of shipping to Japan and other countries in the Indo-Pacific region.
- Met with the Canadian Grain Commission as part of their Stakeholder Engagement and brought concerns forward regarding the limited options producers have available to them during contract negotiations with grain companies.
- Participated in a session on the Indo-Pacific Strategy with the Government of Canada and provided information on the countries with the most potential for Canadian oat export opportunities.
 - Met with Saskatchewan Minister of Environment Dana Skoropad on behalf of SaskCrops and SaskOats.
- Met with Osteoporosis Canada to discuss future opportunities to promote the role of calcium in oats for osteoporosis prevention.

Do Oats Respond to Higher Levels of Macronutrients?

Final Report Results (Plus Bonus Research Information— 2023 SaskOats AGM)

POGA introduced producers to a one-year ADOPT* project led by Mike Hall (Research Coordinator for Parkland College and the East Central Research Foundation (ECRF) in Yorkton, SK) in the 2021 June Oat Scoop. However, due to 2021 drought conditions which affected the quantity and quality of data collected, a request was made to extend the project another year (to include 2022).

Principal Investigators for the 2022 trial were: Mike Hall (Lead); Heather Sorestad (ECRF); Chris Holzapfel (Indian

Head Research Foundation, Indian Head SK); Brianne McInnes (Northeast Agriculture Research Foundation, Melfort, SK); and, Lana Shaw (South East Research Farm, Redvers, SK).

The project objectives remained the same:

- To demonstrate the response of a modern oat variety to the historically recommended rate of 60 lb N/ac against the more recent recommendation of 90 lb N/ac.
- To determine the relative importance of combining phosphorus (P), potassium (K) and sulphur (S) with these different nitrogen (N) recommendations in eastern Saskatchewan. The influence of treatment on oat yield, lodging and test weight were determined.

For the initial plans and other preliminary information, please go to: <https://poga.ca/communication-advocacy/oat-scoop-newsletter/> and choose Oat Scoop June 2021. For the final results report (including the previous study results; tables of treatment list, dates of 2022 operations and 2022 soil test results; and all other results tables), please go to: <https://poga.ca/research-projects/are-oats-responding-to-higher-levels-of-macronutrients/>.

The summary conclusions and recommendations from this study read as follows:

Some economic responses to added P, K and S were observed in this study but they weren't large, consistent or would have been predicted by soil test results. Despite a lack of response to P, it is still important to maintain or build soil test levels towards 15 ppm, as deficiency cannot be compensated for by seed-placed P alone. Test weights were not significantly or consistently affected by P, K or S. In contrast, test weights were consistently reduced with added N. Increasing N did push test weights into the discount range at two locations but test weights were still well above the rejection mark for milling oats. If background soil N is low or yield potential is very high then 90 lb N/ac is likely to be more economical than 60 lb N/ac. However, these conditions are not always present. Soil testing for N will help to determine proper rates. In this study, lodging was never a significant issue, even with high rates of soil + fertilizer N. These trials are not typically seeded in low-lying areas of the field which are more prone to lodging. Therefore, the risk of lodging to the producer with higher rates of N is likely greater. However, it may be possible to manage this risk in the field with variable rate N.

Hall also presented at the 2023 SaskOats AGM in Saskatoon where he provided detailed information on this ADOPT trial -plus- additional information on work he has been conducting at ECRF.

To entice readers to access his very informative overhead presentation (at poga.ca click on SaskOats then on the right-hand side click on Annual General Meeting and Conference) here are just a few tidbits from the valuable material he presented.

When Hall and other researchers poll farmers, they learn that many are applying ~60 lb of N/ac (due to concerns with lodging, maturity and low test-weights). Hall shares, "These are all valid concerns and producers must judge risks based on their own field experience. However, recent research suggests that 90 lb N/ac might be better unless

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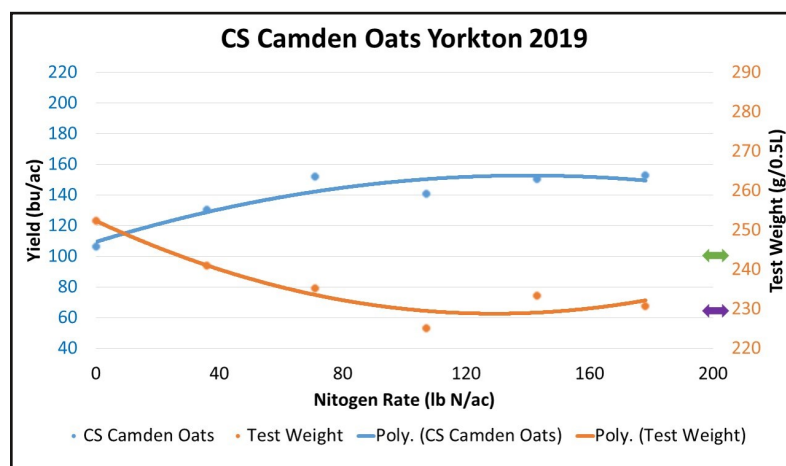
...Continued from page 5 Levels of Macronutrients

growing conditions are poor or the field has high residual levels of soil N. Our current suggestion assumes soil N is close to 30 lb N/ac or less.”

To support this recommendation, Hall provided several graphs such as the one to the right.

Hall also applies some of his findings to ‘economic scenarios’ based on current prices, etc.

For the ADOPT trial, he presents 2021 and 2022 tables (one for each site year) that illustrate tested oat yield and oat test weight, accompanied by: thresholds for the discount and rejection level for oat test weight; the main effects for the level of PKS; and, the main effects for rate of N. Included in the charts are the soil test results for each site.



When basing economic returns on \$6/bu oat and \$1.33/lb N, the most economic rate of N was at 90 lb N/ac. Note: Poly' stands for polynomial response curve (non-linear).

Table A. Additional income generated (\$/ac) by increasing N above 17 lb/ac 2022¹

Lb N/ac	Indian Head	Melfort	Redvers	Yorkton
17	\$0	\$0	\$0	\$0
60	\$123	\$43	\$109	-\$75
90	\$152	\$53	\$47	-\$80
Background N	14 lb/ac	104 lb/ac	62 lb/ac	104 lb/ac
Highest Yield	161 bu/ac	198 bu/ac	171 bu/ac	144 bu/ac

¹Values assume \$6/bu of oats; \$1.33/lb N; no discounts due to low test weight. Values in green would have received an additional discount due to low test weight.

The table to the left is a sample from his graphics.

It is well worth readers' time to access the final report and presentation to benefit from the wealth of information to be discovered there.

This project was supported through the Saskatchewan Oat Development Commission (SaskOats) and funded by the *Agricultural Demonstration of Practices and Technologies (ADOPT) initiative under the Canadian Agricultural Partnership, a federal, provincial, territorial initiative.

AGT Foods and Ingredients—Expanding the Canadian Oat Market

2022 December POGA AGM Presentation

Murad Al-Katib, President and CEO of AGT Foods and Ingredients Inc., started the company in Saskatchewan in 2001 and it soon became a global leader in plant-based foods, including pulses, grains, staple foods and food ingredient processing and distribution. AGT processes, produces and distributes food products under several leading brand names, including Saskcan, CLIC, Tamam and Veggipasta (among others). With a head office located in Regina, SK., over 45 facilities around the world and a successful reach to customers and markets across the globe, AGT is turning back to invest in Saskatchewan again.

The company is expanding its Aberdeen processing plant (photo at bottom) to include oats—a natural pairing with its expertise and focus on pulse-based foods. Both oats and pulses are gluten-free and enjoy a reputation for sustainability throughout the food chain.

The converted plant will have a capacity to process up to 60,000 tonnes of oats per year. The commissioning target date for the new plant is late 2023.

Al-Katib decided long ago that he wanted to target consumers who were interested in health, taste, affordability and sustainability, and this consumer base continues to grow today.

At the new facility, oat groats will be processed and future plans are to expand the lines into rolled, flakes, flours and specialty-feed ingredients. The company plans to direct oat hulls

for animal feed and baking. In addition, AGT's Micronutrient Biomass Fertilizer project shows that pulses and oat fibre are a natural biomass which can be used to deliver micronutrients to crop, fruit and vegetable production. AGT will also process oats in another of its plants specializing in fine milling, which will be used to create blended food products which contain a complete protein profile.

Sustainability is high on AGT's priority list. Al-Katib sees this as a positive business approach, especially in Canada, which has a good reputation for sustainable agriculture and food industries. He targets crops that can achieve plant-based, high-protein food production goals—such as oats.

Al-Katib's talk was packed with information about AGT, including statistics and facts regarding trends, Canada's role in crop and food production, sustainability and much more. To read the entire presentation, access the overheads at <https://poga.ca/about-poga/poga-agm-and-conference/>.



Project Update: Intercropping

Do Peas Grown with Oats or Canola Affect Each Other?

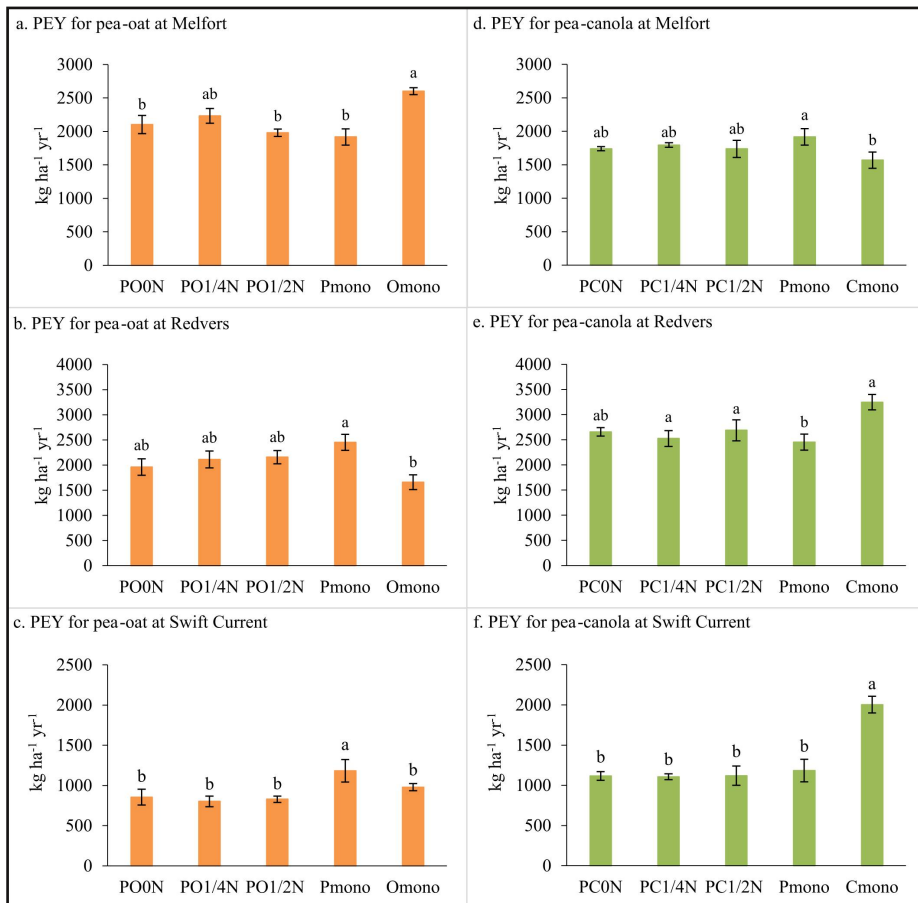
The Oat Scoop introduced readers to this project in the March 2021 issue: *Intercropping pea with canola or oat: impact on nitrogen, disease and economics* (go to poga.ca/Communication and Advocacy to access the newsletter and read the front-page, detailed explanation of the project). Dr. Kui Liu, Agriculture and Agri-Food Canada Research Scientist at the Swift Current Research and Development Centre, is the lead researcher for this project.

The project objectives are to:

1. Determine effects of intercropping pea with oat or canola on grain yield, quality and soil health.
2. Quantify N transfer from pea to oat (mycorrhizal¹ crop) or canola (non-mycorrhizal crop) and N recovery at different N rates. ¹*Mycorrhizal crops' root systems have a mutually beneficial, symbiotic relationship with fungus.*
3. Assess effects of intercropping on disease.
4. Evaluate economic returns of intercropping.

Here is a summary of the interim conclusions from the preliminary results:

- The impact of intercropping on grain yield, grain quality and straw biomass varied among the three Saskatchewan ecozones (Melfort and Redvers were moist with high-yielding potential and Swift Current was semi-arid with low-yielding potential).
- The land equivalent ratio (LER) and pea equivalent yield (PEY—calculated based on grain yield and price) were used to examine the effect of intercropping on grain yield.
- The LER results (compared to monocrops) showed that intercrops slightly increased grain yield (per unit—by 1% at Melfort and 3% at Redvers) but decreased the yield by up to 17% at Swift Current. This decrease may be due to the extreme drought conditions, but the team will attempt to verify this with more data collected in the next two years.
- The PEY did not differ between intercrops and pea monocrops at Melfort and Redvers; however, PEY at Swift Current was significantly lower in pea-oat intercrops than in pea monocrops. Increased N rates in intercrops from 0 to .5 of the recommended rate for the companion non-pea monocrops had no effects on PEY for both pea-oat and pea-canola intercrops. No N fertilizer rate effects may be related to the low yield and fertilizer-use efficiency under extremely dry conditions across all three experimental sites.
- Straw biomass was not increased for pea-oat intercrops, but did rise for pea-canola intercrops at only the Swift Current location. Increased biomass containing high quality pea straw might help escalate soil carbon sequestration and improve soil health.
- Increasing N rate had no effect on PEY for either intercrop, nor did it have an effect on oat grain quality (percentage of plump or beta-glucan and protein content) in pea-oat intercrops.
- Compared with the oat monocrops, intercropping oat with pea increased the percentage of plump seed by 44% at Melfort, 8% at Redvers, and 19% at Swift Current. It reduced the protein content of oat by 9% at Melfort, 4% at Redvers, and 8% at Swift Current.
- Disease pressure was low at all locations because of the dry conditions.
- Biological N fixation and N transfer from pea to oat (or canola) will be reported once the data from the chemical lab becomes available.
- Economic analysis will be performed in Year Three, using data from all years.



Pea equivalent yield (PEY) for (a-c) pea-oat and (d-f) pea-canola intercropping at Melfort, Redvers and Swift Current in 2021. The error bars correspond to standard errors. Different letters indicate significant differences among treatments ($P < 0.05$). PO0N = pea and oat intercrop without N fertilizer, PO1/4N = pea and oat intercrop with 1/4 of recommended N rate for oat monocrop, PO1/2N = pea and oat intercrop with 1/2 of recommended N rate for oat monocrop, PC0N = pea and canola intercrop without N fertilizer, PC1/4N = pea and canola intercrop with 1/4 of recommended N rate for oat monocrop, PC1/2N = pea and canola intercrop with 1/2 of recommended N rate for oat monocrop, Pmono = pea monocrop, Omono = oat monocrop, and Cmono = canola monocrop.

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...Continued from page 7 **Intercropping**

Dr. Liu states, "We are pleased to have the first year's data collected and analysis done. Readers should keep in mind that the conditions were extremely dry in 2021. We will require at least several more years before our team can arrive at any sort of significant conclusions."

This project is funded by the Agriculture Development Fund (ADF) of Saskatchewan under the Canadian Agricultural Partnership, a federal, provincial, territorial initiative, and co-funded by Saskatchewan Oat Development Commission (SaskOats).

Your MOGA Board at Work

- Bob Lepischak, MOGA Audit Chair, and Ray Mazinke, MOGA Vice Chair, attended a meeting of the Canadian Roundtable for Sustainable Crops (CRSC) to provide input on the voluntary Code of Practice being developed for the production of cereals, oilseeds and special crops in Canada. Shawna Mathieson attended three additional meetings hosted by the CRSC which focused on drafting the Code (and included soil and nutrient management, and seed use).
- MOGA directors met with Keystone Agricultural Producers (KAP) and Grain Growers of Canada to discuss upcoming goals and concerns.
- Bob Lepischak, MOGA Audit Chair, attended the KAP Annual General Meeting in Winnipeg.
- The MOGA Board attended Brandon Ag Days and connected with local oat growers. While there, Ray Mazinke, MOGA Vice-Chair, and Bob Lepischak, MOGA Audit Chair, met with the Honourable Derek Johnson, Manitoba Minister of Agriculture, and Brenda DeSerranno, the new Deputy Minister of Manitoba Agriculture.

Meet Your Director: Ryan Zuchkan

New SaskOats and POGA Board member Ryan Zuchkan, his wife Teagan, and two young boys (Jhett and Kase), farm in the region south of Foam Lake/Sheho, SK.

Zuchkan Farms Land and Livestock is a mixed farm with grain, cow/calf and feedlot operations. Ryan farms with his father (Willie), uncle (John), and two cousins (Jordan and Nathan). Ryan shares, "We are currently working towards a generational transition as my dad and uncle plan their well-deserved retirement."

The operation grows wheat, barley, canola, oats and green-feed silage. Ryan explains, "Oats is an important part of our farm's crop rotation and we like seeding oats on our newly broke, pasture-grass land with low weed pressure."

Zuchkan Farms is located in rolling hill topography with heavier clay soil. Generally the climate is quite suitable for cereals and canola with fairly good moisture conditions. Ryan says, "Due to the lay of the land we can sometimes get a fair bit of moisture collecting in the low spots. Oats tends to be one of the crops that can handle those higher moisture levels. We currently grow ORe 3542M variety and have for the last few years."

Ryan decided to accept nomination for election to the SaskOats Board because he felt the timing was right for his personal position in life. "As many farms across the prairies start transitioning from one generation to the next, younger farmers need to be involved with as many business components as possible to keep the agricultural industry successful as things evolve. I believe SaskOats/POGA is an organization that provides producers with a voice on a national and global scale," states Ryan.

As a relatively new board member, public outreach and advocacy for food production education is a topic of interest to Ryan. He shares, "I'm interested in connecting the public consumer to the producer. I believe that many consumers are unaware of how the various food items they purchase at the grocery store end up on the shelf."

When not on farm duty, Ryan likes to spend time with his family. Favourite pastimes are snowmobiling and hunting.



Ryan, Teagan, Jhett and Kase Zuchkan during 2022 oat seeding on Zuchkan Farms

Producer Consent Form

POGA has received requests from international oat buyers to source oats directly from producers. If you are an oat producer in Alberta, Manitoba or Saskatchewan and are interested in being contacted by these companies for potential direct oat sales, head over to the main page at <https://poga.ca/>, click on and fill out the Producer Consent Form. Your contact info will be included in a list provided to companies inquiring about direct-from-producer sales.

Insect Response to Climate Change and Ag Inputs Across the Prairies Current POGA-supported ADF Project renewed for another five-year term (2023-2028)

Principal Investigator: Meghan Vankosky, Agriculture and Agri-Food Canada

Objectives:

- Understand insect pest population dynamics and forecast pest populations.
- Assess the current status of insecticide resistance in western Canada.
- Develop new insect information resources.

This project is co-funded with the Agriculture Development Fund (ADF) of Saskatchewan under the Canadian Agricultural Partnership, a federal, provincial, territorial initiative, and by Alberta Wheat Development Commission, Alberta Canola Producers Commission, Manitoba Crop Alliance, Manitoba Canola Growers Association, Saskatchewan Canola Development Commission, Prairie Oat Growers Association, Saskatchewan Pulse Growers, Saskatchewan Wheat Development Commission, and Western Grains Research Foundation.

Dylan Robinson, AOGC Chair, shares, “Through this project, Dr. Vankosky and a vast network of experts keep producers informed of current insect activity throughout western Canada, and provide short- and long-term forecasts—through on-line information and maps and presentations to the industry. This is important information for producers to prepare them for crop-damage risks and also helps identify beneficial insect activity.”

Annual pest distribution/risk maps, Weekly Updates and other information are posted to the website: <https://prairiepest.ca>. People can also subscribe on the site to receive the Weekly Updates and other posts by email.

For information on the 2018-2023 project, go to: <https://poga.ca/research-projects/coordinated-monitoring-of-field-crop-insect-pests-in-the-prairie-ecosystem/>.

POGA will update producers as annual reports are received.

The Prairie Crop Disease Monitoring Network (PCDMN): Fostering Further Network Development New five-year project (2023-2028) to build on current POGA-supported project

Principal Investigator: Kelly Turkington, Agriculture and Agri-Food Canada

Objectives:

- Further development and formalization of the PCDMN including annual in-person and/or online meetings.
- Further development and refinement of survey protocols as well as continued work on disease information and awareness initiatives.
- PCDMN Quick Disease Reporter Tool refinement, and development of disease assessment/risk tools and blackleg pathogen mapping.
- Technology transfer (field days, crop tours, fall/winter meetings, PCDMN webinars, etc.).

The next phase represents a substantial expansion of project collaborators and the field crops and diseases that will be covered. Specific focus on oat will be included through the existing wheat rust (stripe, leaf and stem rust) risk forecasts for the Prairies to include rust issues of oat. In addition, background information, recommended scouting protocols, and disease management practices will be included for key Prairie oat diseases.

Ambrely Ralph, SaskOats Chair, explains, “It is important for the industry to support the experts who are working to expand protocols to track movement of crop diseases and keep producers informed of the most current findings.”

Updates will be posted on the Prairie Crop Disease Monitoring Network blogspot and Twitter feed:

- <https://prairiecropdisease.blogspot.com/>
- <https://prairiecropdisease.blogspot.com/p/cereal-rust-risk-report.html>
- <https://twitter.com/pcdmn>

This project will be funded in part by the Agriculture Development Fund (ADF) of Saskatchewan under the Canadian Agricultural Partnership, a federal, provincial, territorial initiative, and by Manitoba Crop Alliance, Manitoba Canola Growers Association, Saskatchewan Canola Development Commission, Prairie Oat Growers Association, Saskatchewan Pulse Growers, Saskatchewan Wheat Development Commission, and Western Grains Research Foundation.

**The 2022 information on Alberta Oat Variety trials conducted by
Gateway Research Organization is now available at
<https://poga.ca/research-projects/alberta-variety-trial/>
Watch for a full update on the trials in the June 2023 Oat Scoop.**

Wow, How a Stats Can Report Influences the Market!

The Oat Carryout Number Changed Significantly in the December 2022 Stats Can Report

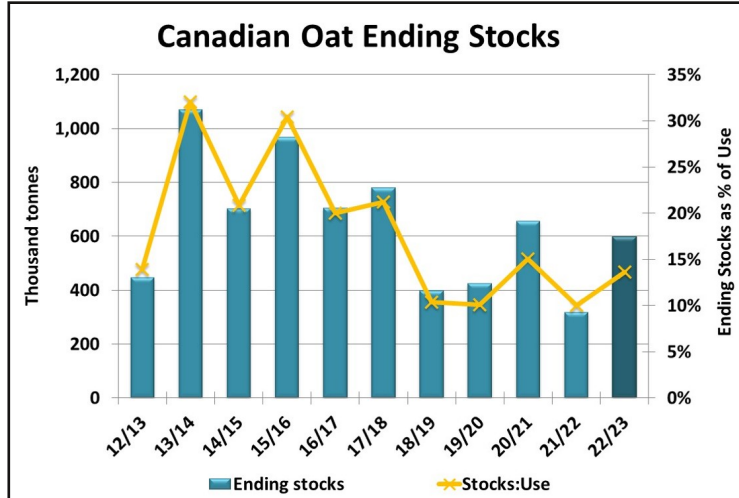
Oh how things change in a few short weeks! The December Statistics Canada report showed the 2022 oat harvest produced over 5MMT, the highest amount since the early 1970s. As you can imagine, that has changed the market outlook significantly. All you need to do is look at the Canadian Oat Ending stock charts from December (before the Stats Can report) to January (after) to see the big change. Both are provided below (in the Driedger and Nielsen Oat Market presentations).

Jonathon Driedger - POGA AGM (December 1, 2022, before Stats Can December report)

Jonathon Driedger, Leftfield Commodity Research Vice-President, opened his presentation with the following remark: "The oat market is an island unto itself, but is influenced by what is happening around it."

Oat inventory was extremely tight in 2021, but there was a large crop grown in 2022 and there is no shortage in supply. The highest price is on the decline, but is still good compared to historical pricing. Says Driedger, "I don't see a big downside; I think prices will remain firm to moderately high into the up-coming year assuming there is no large change in the Stats Can report to come out later this week."

The average feed grain price has come down from its mid-2022 high and is settling into the 'moderately high' range (similar to the trend in oat prices).



The oat supply has transitioned from extreme shortages to abundance with the 2022 harvest. Oat usage will rebound and, if oat prices are relatively affordable compared to other grain, this may encourage extra demand. Feed oats will never experience the same demand that they had in the past but when they are at a competitive price point, usage will increase from time to time.

As at presentation time, LeftField's 2022/3 oat production numbers were in line with Stats Can numbers, but Driedger mentioned they were waiting to see the updated numbers.

Oat product exports did not decline in 2021/2 and were at the same level as at December for the 2022/3 year (which indicated that the demand for oat products is consistent and healthy).

Oat milling continues to steadily increase, even when prices are high.

Oat deliveries are behind the average for 2022/3. There are several possibilities for this: farmers may be holding some oats back and/or movement of oats may be slower-paced. Canadian Grain Commission data indicates exports were off to a slow start and these factors may be linked.

At presentation time, LeftField chanced the following predictions:

- that Canadian oat acres will drop to 3.3M seeded acres in 2022/3 (the lowest in five years), unless prices climb again (which may increase prices in the future);
- the average yield may drop (~1M tonnes) due to weather and other factors;
- oat prices should remain fairly steady for the near future because of other crop prices; US oat prices are higher than Canada's; long-term oat futures are still higher than average; corn prices are currently much higher than oats; and prairie oat bids are currently cheaper than barley; and
- LeftField believes usage levels will hit their forecast for 2022/3.

To read Driedger's entire presentation which contains more detailed information and data, go to <https://poga.ca/about-poga/poga-agm-and-conference/>.

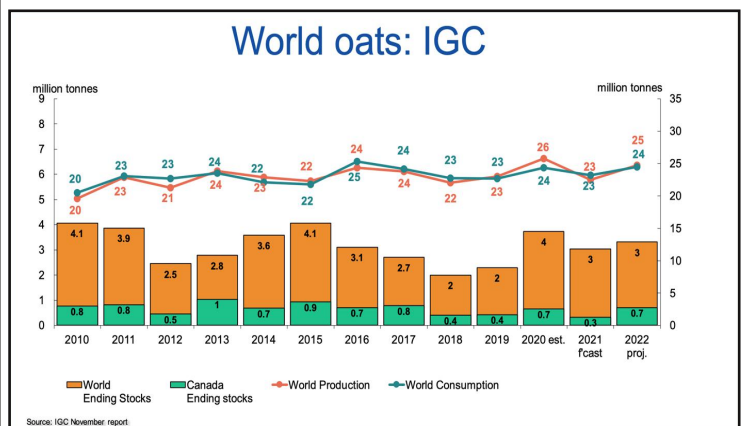
Marlene Boersch, Mercantile Consulting Venture (MCV) (SaskOats AGM, January 11, 2023)

More than ever, political events and not just normal supply/demand issues are affecting markets. Some examples of the 2022 world events include:

- Russian invasion of Ukraine (affected oil and gas and all other markets);
- post-Covid effects (influenced cost inflation, including energy, supplies, and transportation);
- refugee movements affected consumption patterns; and
- weather in the US and EU affected food production and transportation.

Canada experienced a larger oat production increase than the EU, Australia or USA (a 64% increase in 2022 and a 22% increase over the five-year average). However, Boersch did mention that there is a range of opinions on the actual size of the 2022 Canadian oat crop.

The EU is a large oat producer, but it also consumes a lot of its product. According to the International Grain Council, world production of oats closely matches annual consumption.



The following table illustrates five years of North American oat production by country:

North American Oat Production	2018	2019	2020	2021	2022
Canada	3,436	4,227	4,573	2,808	4,715
USA	815	773	954	578	837
Mexico	103	99	63	93	85
Total	4,354	5,099	5,590	3,479	5,637

Canadian oat milling usage has been experiencing a 6% growth rate since 1996/7.

Boersch explained that commercial milling-oat use relative to total oat supply has been, and still is, steadily increasing. Increasing demand for oat-based food and burgeoning interest in oat milk products have set the stage for long-term price volatility. Two new oat mills (OFoods and AGT Foods) will increase competition for oat buyers when these two facilities come online (expected in 2023).

The common drivers of oat prices are:

- oat mill demand in Canada and the USA;
- demand for US horse feed;
- wheat, corn and barley prices;
- US\$ exchange rates; and
- freight costs.

Marlene's concluding thoughts: Stats Can oat production estimate came in significantly higher than expected. The milling oat market seems to be filled into Jan/Feb; and bids are for deferred shipping windows at ~\$4.50/bu. Feed oat bids faded to ~\$3.50/bu, but vary greatly between companies. Oat prices need to improve to provide incentive to plant oats compared to wheat. She thinks oat prices will stabilize (perhaps a \$0.50 rise in current prices) and not go down much more, but prices will have to go up to improve seeded oat acres.

To read Boersch's entire presentation which contains more detailed information and data, go to <https://poga.ca>, click on Saskatchewan Oat Development Commission then, on the right, click on 'SaskOats Annual General Meetings and Conference'.

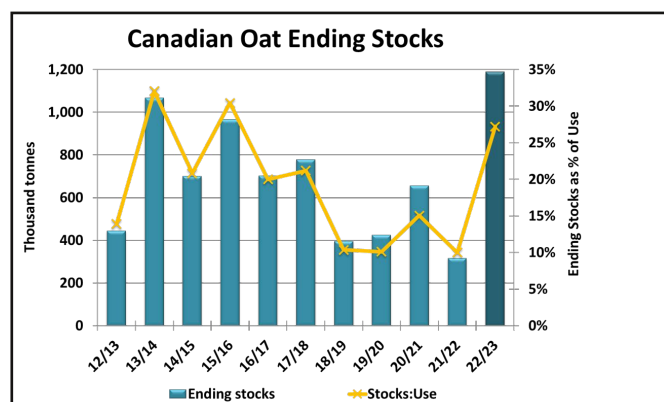
Brittany Nielsen, Farmers Business Network Canada (AOGC AGM January 23, 2023)

Current local old crop offers vary from 'starting in the \$3's' to \$4.50 per bushel—down from double this price a year ago, demonstrating that supply and demand are still hard at work.

2023/4 acreage/production FBN forecast:

- Acreage projected to be down 20-22% at ~2.9 million acres
 - o Due to low forward pricing offers
 - o Significant increase in old crop supplies
- o Strong competition from other crops
 - New crop feed barley \$7.00 to \$7.80
 - Previously CWRS was \$13.00 and CPSR was \$12.00. As of early February 2023, they were closer to \$11.00 for CWRS and \$10.50 for CPSR
 - Yellow peas \$11.00

- Production is forecast to be down 31% at ~3.6 MMT
- Total supply is projected at 4.8 MMT due to high carry-in stocks
- Demand and feed use is projected to be lower than 2022/23 but still above average



The chart at the bottom of the page illustrates FSN ranking of crop profitability and, not surprisingly, oats is coming in last out of 16 crops. This is expected to cause farmers to quickly move away from planting oats to other, more profitable, crops.

Key Take-Aways:

- Sell your old-crop oats
- Sit patient on forward-pricing new-crop oats
 - o \$5.00-\$5.50 new crop bids in Manitoba
 - o Consider selling if at \$5.00 or more in Alberta
 - o Oat buyers are likely to bid up a bit to secure supplies, but are not expected to be \$6.00+ due to large carry-in stocks/supplies
- Forward price new crop barley, CWRS, canola

To read Nielsen's entire presentation, go to <https://poga.ca>, click on Alberta Oat Growers Commission then, on the right, click on 'AOGC Annual General Meeting and Conference'.

Shawna Mathieson, POGA Executive Director, concludes, "Oat prices and margins are certainly concerning for producers and there are many factors to consider when making seeding plans. Producers will make decisions that make the most sense for their farm. I am hopeful that this year will bring more stable oat pricing, giving producers more confidence in a return on investment comparable to other crops, no matter when they choose to sell."

	SOFT WHITE	DURUM	CPSR	CWRS 13.5%	CWRS 12.0%	MALT BARLEY	FEED BARLEY	CANOLA
YIELD	85	60	80	70	70	70	80	50
PRICE	\$9.00	\$10.00	\$10.50	\$11.00	\$10.50	\$8.50	\$7.25	\$18.50
Total Revenue	\$765.00	\$600.00	\$840.00	\$770.00	\$735.00	\$595.00	\$580.00	\$925.00
SEED	\$50.00	\$60.00	\$42.00	\$50.00	\$50.00	\$60.00	\$40.00	\$75.00
FERT	\$145.00	\$120.00	\$175.00	\$175.00	\$175.00	\$160.00	\$175.00	\$200.00
CHEM	\$60.00	\$60.00	\$44.00	\$60.00	\$60.00	\$50.00	\$60.00	\$45.00
INS.	\$20.00	\$24.00	\$22.00	\$22.00	\$22.00	\$28.00	\$20.00	\$35.00
Total Fixed	\$275.00	\$264.00	\$283.00	\$307.00	\$307.00	\$298.00	\$295.00	\$355.00
Gross Margin	\$490.00	\$336.00	\$557.00	\$463.00	\$428.00	\$297.00	\$285.00	\$570.00
Ranking	4	9	3	5	7	11	13	2
	SPEC. CANOLA	GREEN PEAS	YELLOW PEAS	OATS	FABA	FLAX	SOYBEANS	MAPLE
YIELD	47	40	50	110	60	30	35	48
PRICE	\$19.50	\$12.00	\$11.00	\$4.50	\$9.00	\$18.00	\$12.00	\$12.00
Total Revenue	\$916.50	\$480.00	\$550.00	\$495.00	\$540.00	\$540.00	\$420.00	\$576.00
SEED	\$84.00	\$75.00	\$75.00	\$40.00	\$48.00	\$55.00	\$100.00	\$45.00
FERT	\$160.00	\$50.00	\$50.00	\$140.00	\$18.00	\$120.00	\$35.00	\$18.00
CHEM	\$45.00	\$70.00	\$70.00	\$44.00	\$39.00	\$50.00	\$22.00	\$55.00
INS.	\$40.00	\$28.00	\$28.00	\$22.00	\$11.00	\$20.00	\$10.00	\$18.00
Total Fixed	\$329.00	\$223.00	\$223.00	\$246.00	\$116.00	\$245.00	\$167.00	\$136.00
Gross Margin	\$587.50	\$257.00	\$327.00	\$249.00	\$424.00	\$295.00	\$253.00	\$440.00
Ranking	1	14	10	16	8	12	15	6



SaskOats directors at the 2023 January SaskOats AGM with The Honourable David Marit, Saskatchewan Minister of Agriculture and Minister Responsible for Saskatchewan Crop Insurance Corporation. From left to right: Ryan Zuchkan, Executive Director Shawna Mathieson, Minister Marit, Jessica Slowski, Chair Ambrely Ralph, Audit Chair Elwood White. Not able to attend: Vice-Chair Landon Kuschak and Director Chris Rundel.

AOGC directors met with The Honourable Nate Horner, Alberta Minister of Agriculture and Irrigation in January 2023. From left to right: Executive Director Shawna Mathieson, Darwin Trenholm, Audit Chair Greg Bott, Minister Horner, Brad Boettger, Chair Dylan Robinson, Vice-Chair Jason Wiese



MOGA directors met with The Honourable Derek Johnson, Manitoba Minister of Agriculture in December 2022. From left to right: Executive Director Shawna Mathieson, Chair Yves LaPointe, Minister Johnson, Audit Chair Bob Lepischak, Vice-Chair Ray Mazinke, Jenneth Johanson, Edgar Scheurer, MOGA/POGA staff Cyndee Holdnick

Can Different Age Groups Work in Harmony? Tips for Farm Families and Working Relationships

Matt Havens, Generational Expert, knows that working in a multi-generation situation can affect farm families and he shared his recommendations at the 2022 POGA AGM in Saskatoon.

Some experts break down each generation into many age and trait categories. Havens believes that defining differences between specific generations can muddy the waters and aren't always helpful. He claims—in an entertaining and slightly sarcastic way—that a simpler system is to acknowledge that a person is either older or younger.

Based on their life experience, older people are generally more concerned with 'the basic' requirements to achieve a comfortable and successful life. Younger folks' experience is based on 'access to information' provided by the internet and social media, which encourages change at all times to keep thriving.

This is not to say that one age group can't swing over and operate in the other side's approach to things. In fact, it is encouraged. Havens recommended, "No one person is all one thing. If a disagreement appears to be due to age-different view-points, then you have to ask 'why' someone else might feel differently and make an attempt to meet in the middle."

When people find themselves making snap judgements about someone on the other side of the age fence, they should take time to reconsider. Examples of unhealthy assessments that are sometimes made by each age group:

- Older people think that youth are lazy, have no work ethic and are only interested in social media.
- Younger people believe old folks are terrified of change and are technologically incompetent.

The best way forward is for each side to recognize the value and experience of the other. Then, it's possible to take the best from both 'worlds' and hammer out solutions that make the most sense for each situation.

Older generations can help a younger person who may be feeling disconnected in an over-whelming technical world and who may have less meaningful face-to-face interactions. They can treat them like a valuable part of the group by truly listening to and considering their thoughts and ideas (which provides a sense of value and community).

Younger people should consider respecting their elders' life experience before deciding that a reaction is nothing more than an unwillingness to change. Havens stated, "Experience is an asset. It helps to remember that advancement is a process, not a right. Take the time to learn from those who came before you."

Another common stereotype about young people is they have many ideas and move quickly from one to the next. Havens shared, "Not every new idea is a good one, but older people need to remember all the mistakes and omissions they made during their life that helped them become 'wise' today. Things are changing at an unprecedented pace and older people must learn to deal with that—the young, tech-savvy generations can help them with this."

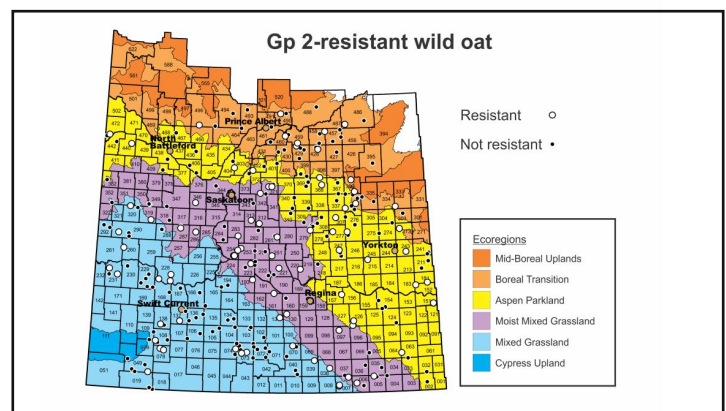
The older generations' part to play might be to allow a mistake or two to be made. That's how young people gain experience—and who knows, a 'bad' idea might actually turn out to be a good one.

Why Would Anyone Want to Encourage Wild Oat to Grow?

2022 December POGA AGM Presentation

Wild oat in the field can cause a lot of problems for producers throughout the seeding, growing and harvest season. Dr. Shaun Sharpe, Saskatoon Research and Development Centre, Agriculture and Agri-Food Canada, presented findings from his recent research project *Stimulating Wild Oat Germination* at the POGA AGM in Saskatoon.

One of the primary challenges to wild oat control is its evolving herbicide resistance. The Weed Science Society of America and the Herbicide Resistance Action Committee assigns group identification numbers to herbicides in order to classify their mode of action. The map (by Beckie et al. 2017) illustrates Saskatchewan locations where wild oats are resistant to Group 2 herbicides, which accounts for 65% of provincial land base. The resistance percentage for Alberta is 69% (as of 2019) and for Manitoba is 80% (as of 2018).



Other factors that make wild oat difficult to manage are:

- its complex seed dormancy trait;
- a long emergence window (affected by three specific genes, but also by weather and location [by populations/fields and not just province/region]);
- seedbank persistence (seeds may remain viable for an average of 4-5 years and up to 7-9 years); and,
- seed shatter during harvest (which expands patches each year).

A good mitigation control strategy is to reduce seedbanks so there are fewer plants that must be killed and less plants left to select for resistance. The best way to do that is to find a way to stimulate wild oat seeds to germinate early; then, commonly timed herbicide application can be most effective for producers.

Two previously identified stimulants with potential to induce germination were used in the tests: pyroligneous acid (PA) (also known as wood vinegar or smoke water) and potassium nitrate (PN). Only one type of dormancy was considered—after-ripening (seeds which have not sprouted immediately after they form). For optimum control, the study was conducted in a laboratory using Petri dishes for germination and pots for emergence. (See the research report for doses, timing, etc.)

Germination and emergence rates for wild oats were compared to oat, barley and wheat (all received the same treatments).

A few key results (some dependant on solution strength) from the research were:

Continued on page 14...

...Continued from page 13 **Wild Oats**

- PN—no germination or emergence stimulation with any species (in spite of previous research results showing a different response for wild oat);
- PA—some dormancy was induced in all species (5%-100%), and those seeds were swollen by watering, but did not germinate in Petri dishes (note: it is not known whether these swollen seeds will remain viable for germination in the future); and,
- Wild oat plant emergence was stimulated by PA; 28-day wild oat emergence rate was 66% for untreated and 77% for treated; oat, barley and wheat were not responsive to the PA dose. Sharpe notes, “The wild oat biotype we used had a higher emergence rate when stimulated with PA than anticipated. It may be that this line is not as subject to dormancy than other lines previously studied and future studies need to compare all available biotypes to confirm this.”

Sharpe states his future research plans for wild oat control: “The response to PN in this trial was concerning, but there are other factors where it may be effective, such as overcoming other types of dormancy (e.g., cold-induced). While PA responses were good in the lab, we want to take additional experiments to the field and compare similar treatments with both stimulants there. We need to determine how different heat and moisture conditions might affect responses. I’m also wanting to test herbicidal effects for post-emergence control of vegetation at these same stimulant concentrations.”

Dr. Sharpe’s final project report summary was published in the November 2022 Oat Scoop. Interested readers can access that report at <https://poga.ca/communication-advocacy/oat-scoop-newsletter/>, and the full research report at <https://poga.ca/research-projects/stimulating-germination-in-wild-oats-and-volunteer-cereals/>.

Reference: Beckie HJ, Shirriff SW, Leeson JY. 2017. Saskatchewan Weed Survey Herbicide-Resistant Weeds 2014-2015. Weed Survey Series Publication 17-1. Published by Agriculture and Agri-Food Canada, Saskatoon Research & Development Centre, 107 Science Place, Saskatoon, SK, S7N 0X2.

This project was funded by Saskatchewan Oat Development Commission (SaskOats), Saskatchewan Wheat Development Commission, and Manitoba Crop Alliance.

Does Expanding Diversified Cropping Systems Make Economic Sense?

POGA Co-Funded a Study Examining Just That

In the November 2020 Oat Scoop, POGA published an introduction article (including results from the first two years) for a project by Principal Investigators Dr. Elwin Smith, Adjunct Professor and Dr. Danny LeRoy, Professor (University of Lethbridge) entitled: *Economic Value of Diversified Cropping Systems*.

The final report for this comprehensive, four-year project has been released.

Producers have long been using crop rotation as a means to control herbicide resistance and disease/insect damage with an aim to lower input costs overall. However, this study incorporated many more factors for consideration when determining the actual cost benefits of short- versus long-term crop rotation plans. (For more details of the project, please see November 2020 Oat Scoop

<https://poga.ca/communication-advocacy/oat-scoop-newsletter/>.)

Smith explains, “Producers need to know: (1) the profitability of different cropping systems, including diversified crop rotations and pest control practices; (2) the benefit of diversified cropping systems in preventing a decline in long-term productivity and profitability; and, (3) the business risk associated with different cropping systems.”

The summary conclusions from the final report read:

- A consistent conclusion is growers can realize further yield gains in the presence of disease by deliberate sequencing of crops over a longer planning horizon. When clubroot is evident, a break of at least two years was required to lower disease severity and yield loss. At high disease levels, canola production could be less profitable than all other cropping options, even with high canola prices relative to other crops.
- With *Aphanomyces euteiches* (root disease) in a field, even at low levels, it was more profitable in the long-term to have six years between pulse crops. As with clubroot in canola, a break of several years without any susceptible pulse crop will reduce the potential disease severity and yield damage of the pulse crop.
- Finally, we conclude the impacts of business risk management programs are mixed. The canola analysis found it tended to favour the shorter crop rotations with more frequent canola cropping. The pulse crop analysis found rotation length was not favoured by crop insurance. Both analyses showed that the programs reduced the risk and variability of returns.

Smith would encourage producers in certain regions to consider adding oats to their rotation: “In prime oat-growing locations, oats can have a beneficial role to play as a rotation crop in breaking canola or pulse crop disease cycles and helping to reduce the likelihood of clubroot and root diseases.”

Interested readers can access the final report (which thoroughly explains the methodology and results) at: <https://poga.ca/research-projects/economic-value-of-diversified-cropping-systems/>. In addition, overheads from several presentations made by the research team across the country are posted on the POGA website.

The project team also completed a report dealing specifically with lentil- and pea-based crop rotations in the presence of *A. euteiches*. In the past, producers favoured crop rotations with frequent pulse cropping because it was profitable. However, *A. euteiches* is becoming more prevalent throughout the Prairies. The report provides producers with yield damage percentages for various crop rotations, which informs producers when to consider switching from short- to long-term pulse rotations in order to maximize profits and reduce disease severity in fields. The report is accompanied by the dynamic processing model report which details the financial and other analysis methods used (both can be accessed at the link above).

This project is co-funded by: Alberta Pulse Growers Commission, Alberta Wheat Commission, Barley and Malting Barley Research Institute, Manitoba Pulse & Soybean Growers, Prairie Oat Growers Association, Saskatchewan Wheat Development Commission, and Western Grains Research Foundation.

Oat and Pulse Flours Are a Nutritious Part of a Healthy Diet

But—Does Flour Particle Size Play a Part?

To help answer this question, POGA committed project funds to Principal Investigator Dr. Yongfeng Ai, University of Saskatchewan Department of Food and Bioproduct Sciences: *Understanding the Impact of Particle Size on Physicochemical¹ Properties and Nutritional Benefits of Pulse and Oat Flours*. Project Co-Investigators are Dr. Harvey Anderson, University of Toronto Department of Nutritional Sciences and Physiology, and Dr. Mehmet Tulbek, President of Saskatchewan Food Industry Development Centre. The project will end in August 2023; POGA will share results of the report when received.

¹*Physicochemical: related to physics and chemistry, or physical chemistry.*

Oats continue to be recognized for their diversity in many food applications (flour for baking and other applications, milk for beverages and other food ingredients, etc.). Oat Scoop readers are familiar with some of the functional properties of oat fractions² from various past project articles. ²*Divisions of whole seeds which have been separated for other ingredient applications, based on a certain characteristic of the fraction.*

However, some fractionation processes (e.g., to derive beta-glucan and protein ingredients of a high purity) can be expensive. Dr. Ai explains, “Milling is one of the most efficient methods for the value-added processing of pulses and cereal grains. Oat bran or oat flour fractions are used by food manufacturers to create a broad range of products (e.g., snacks, breakfast cereals, porridges and pasta products) and this is an effective way to expand their commercial use.”

Dr. Ai continues, “Functional potential of oats and pulses in food systems is two-fold: their physicochemical properties (e.g., to act as a gelling agent, thickener, binder and stabilizer in various food systems) and their favourable macro- and micro-nutrient profiles and ability to deliver health benefits (such as improved blood glucose control after a meal).” (*Note: oats have been found to aid in stabilizing blood sugar levels*).

The research team is focusing on the effects of milling on oat and pulse flours. “To our knowledge, no studies have systematically examined the effect(s) of milling on the physicochemical properties of different particle sizes while simultaneously determining and comparing the human health outcomes. The latter is particularly important as diet choices and the ability to manage existing health concerns such as cardiovascular diseases and type-2 diabetes are critical for good health,” states Dr. Ai.

Three grind sizes are being used to create the test food products: whole, coarse, and fine. Sixty participants are taking part in the on-going clinical study. Their blood glucose is being measured for two hours after food consumption. They are also surveyed for their sensory experience of the new foods developed for the study.

Dr. Ai also presented at the 2022 POGA AGM in Saskatoon to explain the project and preliminary results to producers.

Whole oats are dehulled and kilned to inactivate enzymes which cause rancidity during storage and wipe out beta-glucan. In the food development world, various refining

and separating processes are employed to create specific ingredients. For Ai’s application, the dehulled and kilned oat kernels are simply put through a grinding/milling process to produce whole oat flour (the product his project is focusing on).

The whole oat flour is then separated into grind size through a 0.15 mm sieve. Flour passing through the sieve is considered fine-grind; flour remaining in the sieve is coarse-grind. The following table illustrates the chemical composition comparisons of oat, pea and lentil flour (each has three streams). Dr. Ai shares, “Columns four and five contain the most important information from this study. Simple sieving substantially concentrates dietary fiber and beta-glucan in coarse oat flour, which will be favorable for reducing blood cholesterol and sugar levels in consumers.”

Flour	Starch (%)	Damaged starch (%)	Dietary fiber (%)	β-glucan (%)	Protein (%)
Oats					
Whole	59.9	1.91	15.1	5.6	15.5
Coarse	42.8	1.56	21.2	11.0	19.8
Fine	67.0	2.25	8.8	2.3	13.7
Pea					
Whole	49.8	0.77	27.7	< 0.1	21.4
Coarse	40.1	0.29	36.5	< 0.1	21.8
Fine	53.1	1.29	16.7	< 0.1	22.7
Lentil					
Whole	49.5	0.81	23.0	< 0.1	24.5
Coarse	43.5	0.25	27.8	< 0.1	24.7
Fine	51.5	1.48	19.1	< 0.1	25.1

The three different oat flour streams also show different glycemic responses³ in human subjects (³*changes in blood glucose*). The coarse grind is the best option for glycemic control due to the highest percentages of oat dietary fiber, beta-glucan and protein, and the lowest percentage of starch—as reported in the table above.

Dr. Ai also directed people to an ongoing study at the University of Toronto (Drs. G. Harvey Anderson and Hrvoje Fabek and MSc Candidate Zi Chen Zhou: *Impact of oat and pulse flour particle sizes on glycemic responses in healthy adults*).

Dr. Ai mentioned that a paper on this study has been published in Food Research International. To read the abstract, go to: <https://www.sciencedirect.com/science/article/abs/pii/S0963996922012819>.

The project is co-funded by the Agriculture Development Fund (ADF) of Saskatchewan under the Canadian Agricultural Partnership, a federal, provincial, territorial initiative, and the Prairie Oat Growers Association.

Your SaskOats Board at Work

SaskOats sent a representative to the Saskatchewan Soil Conservation Association Annual General Meeting in Regina.



Oatmeal Burger

For this and other great oat recipes, go to oatseveryday.com

Servings: One very large or two regular-sized burgers

Ingredients

- 175 grams of ground beef
- 1/4 cup plain, whole oats
- 1/4 cup grated carrot
- 1/4 tablespoon mustard
- 1/8 cup finely chopped onion
- 1 egg
- salt and black pepper

Instructions

1. Mix all the ingredients in a bowl until they are well incorporated, prepare the burger of the desired size and place waxed paper between each one to prevent them from sticking.
2. Cook in a pan with a little olive oil over low heat until slightly golden on both sides.
3. Serve on hamburger bun with lettuce, tomato, onion and preferred toppings.



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Your AOGC Board at Work

- Greg Bott, Audit Chair, and Jason Wiese, Vice-Chair, attended governance training presented by the Government of Alberta.
- Dylan Robinson, AOGC Chair, attended the Results Driven Agriculture Research (RDAR) Annual General Meeting in Edmonton. Several RDAR-funded projects were presented by researchers.
- Dylan Robinson, AOGC Chair; Jason Wiese, Vice-Chair; Greg Bott, Audit Chair; Brad Boettger, AOGC Director and former AOGC Chair; Anthony VanRootselaar, AOGC Director; and Cyndee Holdnick, POGA/AOGC staff member, attended the December 2022 Chops and Crops in Edmonton. This event brings together elected officials, agriculture stakeholders and producers to discuss issues of importance to the sector.
- The AOGC Board met with Alberta on the Plate to discuss future opportunities to promote oats to Albertans—see <https://www.albertaontheplate.com/>.

POGA AGM 2023 Save the Date!

Wednesday, December 6 at the Delta Hotel, Winnipeg, MB.
The June 2023 Oat Scoop will contain more information and a preliminary agenda.

The Oat Scoop
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