NATIONAL OAT RESEARCH STRATEGY 2025 – 2030

2024

Prepared for the Oat Industry with financial support from
The Prairie Oat Growers Association

POGA
Prairie Oat Growers Association

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Overview

Oats are a vital part of the Canadian cropping rotation. Canada is the largest exporter of oats in the world and has a premier reputation for quality production. This success is underpinned by good research, so a National Research Strategy for Oats has been developed with all parts of the value chain involved. POGA has assembled this document through a forum where ideas and direction were collected from producers, processors, breeders, and seed distributors. While POGA funded this research discussion the action items are for the entire oat industry, not specifically for POGA.

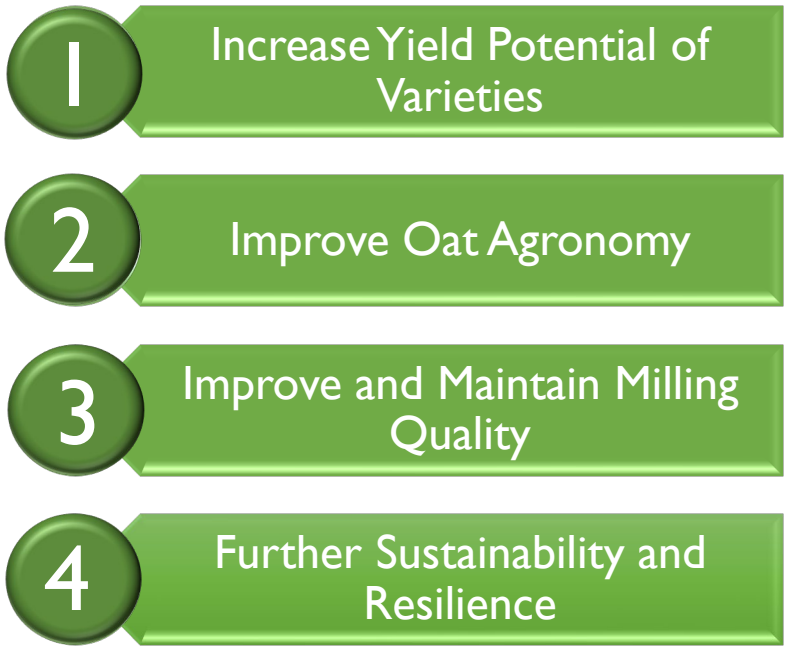
This builds on the strategy that was prepared for 2018-2023. Many aspects of the strategy remain consistent with the biggest challenge remaining that oats are not always competitive with other cropping options.

Support for varietal development of oats as well as research into best crop practices are important. Getting vital information into the hands of farmers on growing oats, is part of the success in keeping oats in the crop rotation on the Prairies. This in turn leads to getting consumers the quality products they want.

Crop acreage has remained relatively steady , however to improve stability of the entire value chain, oats must be placed into the crop rotation more often. Limited research illustrates oats can be an important crop for reducing GHG emissions and improving soil health. Market stability, large variance of profitability, weed pressure and storage concerns are also key issues causing oats to easily fall out of crop rotations, when compared to canola, lentils and soy. Higher yields can help bridge the gap between low market values in comparison to other crops. The broader oat community agrees that yield gains have been made; However, the need to invest in plant breeding for better yields and was by far, the highest priority of the pre-survey.

The action plan emphasizes the need to support the entire production cycle of oats from breeding to end use. It was also noted that any efforts to increase demand must walk hand-in-hand with efforts to increase productivity. It's also important to note that while disease and weed management and well as end use and product development were listed as important in the survey they did not come into the conversation with strong concerns during the working session like market access and profitability thus they were not included in this document.

The priorities in research were grouped into four pillars:



The action plan developed surrounding these research priorities will be used to guide research, mobilize activities, and steward funds with integrated long-term solutions in mind. The last strategy had many successes, but specific measurables, though set, were not reported on by those who committed to do so in the first National Oat Strategy meeting. Therefore, the reporting of successes and gaps was unaddressed over the previous five-year period. A new method is needed to sustain momentum. Goals, targets, and measures were once again set for each pillar. Under this strategy, specific measurables will be developed. Furthermore, successes and gaps will be reported on to those who participated in the development of this research strategy at an annual conference or call of the organisations (see Appendix A).

1 Increase Yield Potential of Varieties

2025 to 2030	GOAL	TARGET	MEASURE
	Continuous and coordinated investment in breeding programs to improve yield potential per year	Increase yields of new varieties by ≥1% per year, while maintaining quality and desired agronomic characteristics.	Consolidated rolling 5-year average based on registration data (co-op performance trials)

Area of Focus	Action
YIELDS	• Request researchers examine how to bring increased yield stability and milling quality to new varieties.
SUSTAINABILITY	• Work with breeders to develop new varieties that can perform in all types of weather (drought, excess moisture, heat, cool, etc.)
SHATTERING	• Develop a baseline for current variety shatterability to test future varieties against
DETERMINANCY	• Minimize green straw at the time of harvesting • Breed for shorter varieties
WEATHER TOLERANCE	• Breed varieties that are drought tolerant • Breed varieties that handle excess moisture
NEW APPROACHES FOR DATA AND TRIALING	• Field scale data and or regional data at all levels including POGA and industry with shared results by all.

2 Improve Oat Agronomy

2025 to 2030

GOAL	TARGET	MEASURE
Increase reliability of oat yield and quality through agronomic best management practices	>3% a year increase in yield until 2030	Consolidated rolling 5-year average based on Stats Canada total yield by province.

Area of Focus	Action
FERTILITY	Macronutrient • Continue to fund research looking at nutrient requirements of oats from all willing within the oats industry, including POGA.
	Micronutrient • Develop recommendations for micronutrient efficacy in oats where positive research is available.
HARVESTABILITY	• Share information with farmers on best measures to harvest oats, without Pre-harvest application • Set baseline for Lodging resistance and encourage breeders to meet or exceed that • Study root system and how it affects Lodging
	Forward approaches to Research • Farmer-led research • Field-scale

Improve and Maintain Milling Quality

2025 to 2030	GOAL	TARGET	MEASURE
	Improve and maintain milling quality based on PRCOB parameters.	Ensure all quality measures are being met with a focus on increasing groat to 75%.	Crop meets the following specifications year after year: 04.8% ß-glucan, minimum 75.0% Groat 13.0% Protein, minimum 07.5% Oil content, maximum 10.0% Total dietary fibre, minimum

Area of Focus	Action
GROAT IMPROVEMENT	Increase groat size to 75%

4 Sustainability and Resilience

2025 to 2030	GOAL	TARGET	MEASURE
	Increase frequency of oats in crop rotations Continuing to produce high quality oats within market demand barriers and options	Develop adaptable varieties to be stable with climate change Improve best management practices	Drought and excess moisture tolerant varieties included in Breeder Goals Per objective 1, establish shattering goals after a metric is determined to measure shatterability Look for projects specific to addressing excessive green straw or what factors lead to this.

Area of Focus	Action
ENHANCE STABILITY	• Continue consumer communication, education, and awareness creation • Deploy new and existing tools and resources in an effort to identify gaps and not duplicate research
GHG MEASUREMENT AND MANAGEMENT	• Understand the GHG footprint comparative studies with other crops • Obtain emission factor information from studies • Individual companies in the oat industry explore potential to plug into scope 3 emissions reporting as needed for their goals and needs
BIODIVERSITY AND SOIL HEALTH	• Research to quantify the benefits of the return of organic material to the soil by both POGA and the industry

Other Frontiers

New and improved uses of oats in food, nutrition, and health was identified as a novel frontier for producer funded research. However, goals, targets, and measures were not identified under this strategic plan. Therefore, research in this area will be considered as they arise, with progress to be made in identifying new opportunities in this new frontier for oat producers.

Fostering Collaboration

Encouraging more engagement and collaboration along with alignment of goals and targets amongst the whole value chain is imperative to the successful advances made by the Oat Research Strategy.

It was agreed that the prior strategy had not implemented a monitoring and touch point system to allow all actors to collaborate more successfully. Progress was still made, particularly in milling quality, but the consensus was many actions need to shift to farmers' needs as well. Regular communication and meetings were key points discussed and agreed to by the group in order to improve upon the previous strategy. It was suggested that existing industry meetings, such as PGDC or POGA AGMs, be used to capture a wide range of value chain participants while minimizing time investment. These regular communications and meetings will be used to discuss progress of action times and identify any resource requirements. An in-person strategic planning session every 5-7 years should be planned to review and edit goals and see results.

Creating workgroups will help foster sustainability and partnerships as it allows for a "deeper dive" into tops and allows for more detailed workplans in these areas. Specifically, an agronomy working group of all industry players is worthwhile to avoid duplication of research amongst seed companies, agronomists, and millers. It was suggested that Researchers should work with millers to arrange larger field scale trials, in more areas, to scale up results identified in small plot trials. Finally, data mining of crop insurance data for agronomic recommendations for oats were suggested. POGA did reach out to each provincial insurance provider but the data received was not consistent among each province in terms of what is available or how they align their zones. To cross reference this information would take significant time and an expert at data analysis.

As well, understanding the differences in agronomics per variety and region was a top priority. Morgan remains a consistent performer for farmers and millers but new varieties exist. Finding ways to make newer varieties with strong quality traits more successful for farmers was seen as key for furthering the sustainability of oats in prairie crop rotations.

C. Facilitating Knowledge Transfer

Knowledge Transfer was a theme that arose multiple times in the discussion of priorities. In particular, the ability to transfer research knowledge to the field is seen as a limiting factor. It was also suggested a network could be created to showcase knowledge, potentially even using POGA AGMs and information sharing processes such as Ag in the Classroom, Farm and Foodcare Saskatchewan and Canadian Food Focus. "Tales from the field" may help farmers improve their strategies to increase yields, quality and resilience

Background on the Process

A strategic planning process was convened in 2017 to develop a National Oat Research Strategy until 2023 encompassing the needs of the entire oat value chain. It is informed by research priorities developed by the Canadian Field Crop Research Alliance (CFCRA) at the CFCRA Research Summit held in November 2016 in Gatineau, QC. The CFCRA Research Summit brought together industry representatives, government officials, and members of the scientific research community in Canada to determine to what extent Canada has the capacity to address research needs, and what research approaches could be taken to meet them with the best outcomes. The CFCRA assessed how to best set meaningful, measurable targets for research projects in this sector and measure performance against those targets, taking into account the risks inherent in scientific research as well as the need for return on investment. A report summarizing the 2016 CFCRA Research Summit can be found at www.fieldcropresearch.ca/cfcra-research-summit.html.

In preparation for the National Oat Strategic Planning Session a survey was prepared to gather input from potential attendees on topics of discussion and items that they felt were a priority. On October 26, 2017, a National Research Strategy Planning Session was held in Saskatchewan to develop a 5-year National Oat Research Strategy. A draft strategy was compiled based on the workshop outcomes. The draft strategy underwent a peer review and the review comments were discussed and amalgamated on a conference call in December 2017.

In 2024, the Prairie Oat Growers Association initiated the development of a new research strategy. A survey was prepared for actors across the value chain, from farmers to scientists to millers and end users. The input from the survey framed the discussion which occurred on December 3, 2024, in a workshop format. The conclusions from that workshop were then the basis for the final strategy.

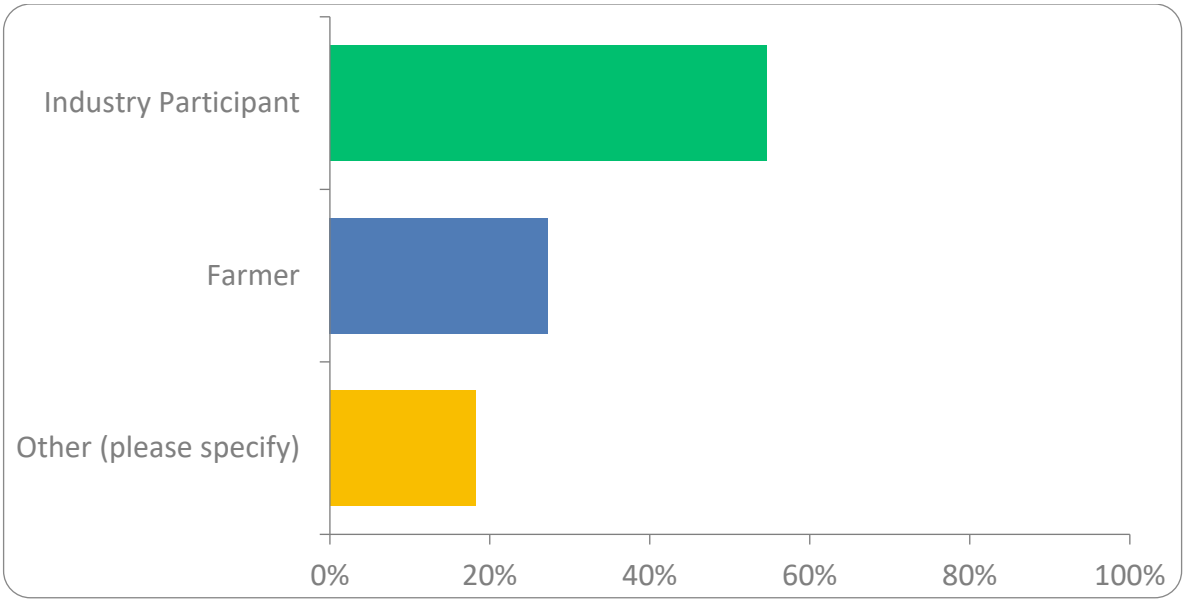
In particular, it was agreed that an ongoing monitoring process is needed.

A complete list of participants and contributors to the National Oat Research Strategy can be seen in Appendix A to this report.

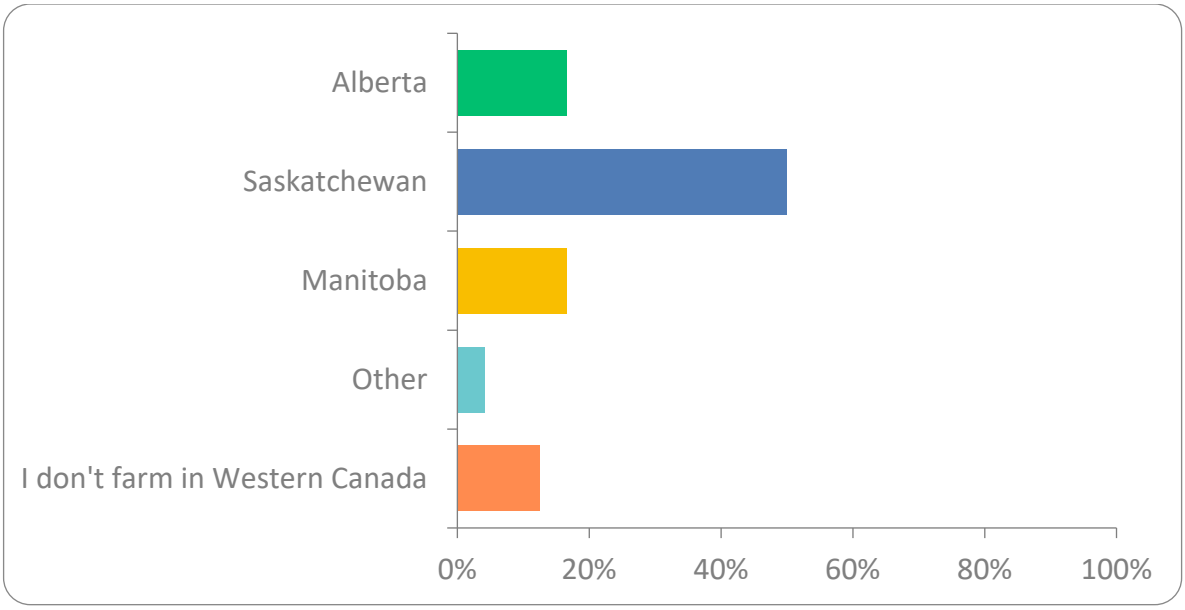
Appendix – List of Forum Attendees – December 3, 2024

Name	Organization
Anmoldeep Singh Matharu	AgriArm
Brianne McInnes	AgriArm
Jessica Enns	AgriArm
Weikai Yan	Agriculture and Agri-Food Canada
Raymond Phillips	Alberta Producer
Jodee Karlowsky	Alliance Seed
Mike Gallais	Avena Foods
Cosmin Badea	Canterra Seeds
Lindsey Boyd	Cereals Canada
Robynne Anderson	Emerging ag inc
Waiganjo Njoroge	Emerging ag inc
Sara Cohen	Emerging ag inc
Jenneth Johansen	Farmer
Chris Churko	FP Genetics
Michelle Beaith	FP Genetics
Susan Sobieck	General Mills
Tom Rabaey	General Mills
Eric DeBlieck	Grain Millers Inc.
Scott Shiels	Grain Millers Inc.
Kabal Singh	GRO
Ryan Potts	MGM Seed & Grain
Tracy Bush	MGM Seed & Grain
Jim Dyck	Oat Advantage
Lorne Boundy	Paterson Grain
Shawna Mathieson	POGA
Ambrely Ralph	POGA Board of Directors
Brad Boettger	POGA Board of Directors
Dylan Robinson	POGA Board of Directors
Darwin Trenholm	POGA Board of Directors
Emily Laudin	POGA Board of Directors
Greg Bott	POGA Board of Directors
Jessica Slowski	POGA Board of Directors
Edgar Scheurer	POGA Board of Directors
Lingyun Chen	University of Alberta
Aaron Beattie	University of Saskatchewan
Alejandra Oviedo Ludena	University of Saskatchewan

B Appendix – Survey Participants

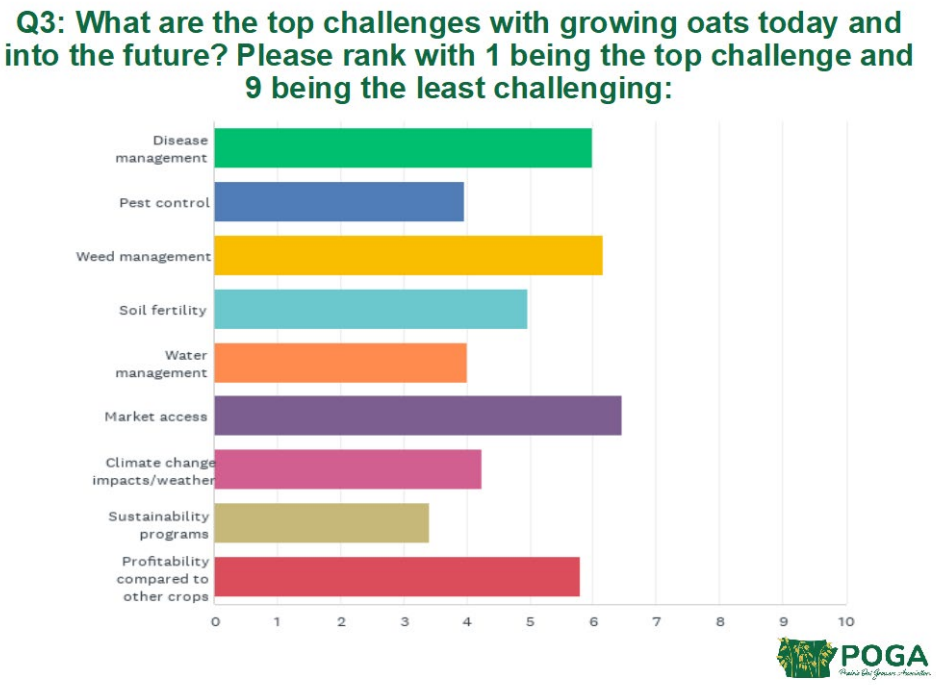


ANSWER CHOICES	RESPONSES	
Industry Participant	54.55%	12
Farmer	27.27%	6
Other (please specify)	18.18%	4
TOTAL		22



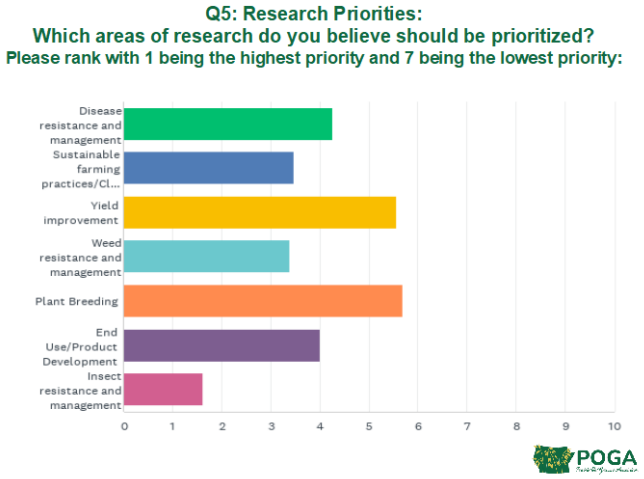
ANSWER CHOICES	RESPONSES	
Alberta	16.67%	4
Saskatchewan	50.00%	12
Manitoba	16.67%	4
Other	4.17%	1
I don't farm in Western Canada	12.50%	3
TOTAL		24

Survey Results



Sustainability is a major push by the federal government but ranked last
Question on where logistics would come in as large farmers are opting not to grow oats

Research priorities



Overall – yields increase through breeding

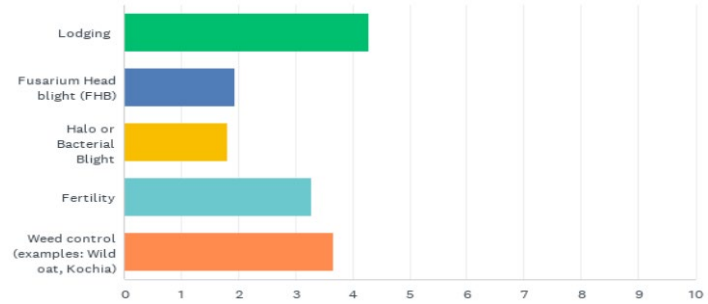
Breeding priorities

Q6: Breeding priorities.
Please rank with 1 being the highest priority and 6 being the lowest priority:

	1	2	3	4	5	6	TOTAL	SCORE
Breeding a better variety than current check variety for your province	63.64% 14	18.18% 4	4.55% 1	9.09% 2	0.00% 0	4.55% 1	22	5.23
Breeding trials with low agronomic input practices	0.00% 0	13.64% 3	4.55% 1	13.64% 3	40.91% 9	27.27% 6	22	2.36
Breeding trials with high agronomic input practices	9.09% 2	13.64% 3	31.82% 7	18.18% 4	22.73% 5	4.55% 1	22	3.55
Breeding trials with average agronomic input practices for the area	9.09% 2	18.18% 4	22.73% 5	22.73% 5	18.18% 4	9.09% 2	22	3.50
Breeding using new tools like gene editing	4.55% 1	22.73% 5	18.18% 4	13.64% 3	0.00% 0	40.91% 9	22	2.95
Developing varieties with regional adaptations to mitigate climate change	13.64% 3	13.64% 3	18.18% 4	22.73% 5	18.18% 4	13.64% 3	22	3.41

Agronomic issues

Q7: Agronomic issues in oats.
Please rank with 1 being the most important and 5 being the least important:



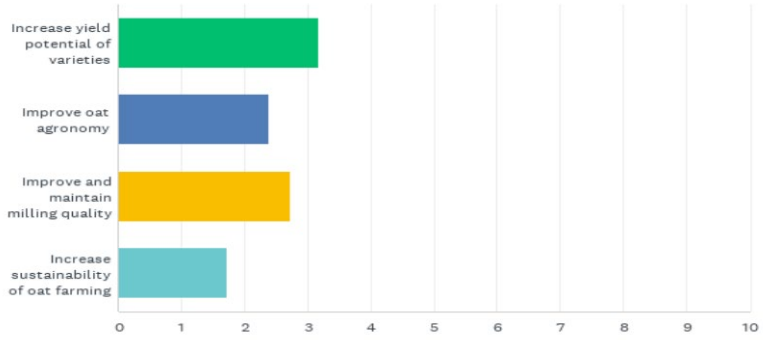
Primary end use concerns at farm level

Q9: What are your primary end use concerns at the farm level?
Please rank with 1 being the most important and 4 being the least important:

	1	2	3	4	TOTAL	SCORE
Oat variety meeting specifications for delivery (beta glucan, thins, FHB, etc)	55.00% 11	30.00% 6	15.00% 3	0.00% 0	20	3.40
Storage moisture/long-term storage	20.00% 4	25.00% 5	45.00% 9	10.00% 2	20	2.55
Storage and insects	5.00% 1	20.00% 4	30.00% 6	45.00% 9	20	1.85
Innovative new products for new market opportunities	20.00% 4	25.00% 5	10.00% 2	45.00% 9	20	2.20

Pillars in order of priority

Q10: Please rank these pillars in order of importance, with 1 being the most important and 4 being the least important:



Other issues

Q8: Are there any other agronomic issues in oats not mentioned in Q6? Please specify them here:

#	RESPONSES
1	Breakdown/shattering
2	Maintaining quality under environmental variability. Rusts.
3	No
4	No
5	Shatter losses Harvest management
6	Crown rust
7	No
8	Green straw
9	No
10	Crown rust
11	straw can cause challenges combining
12	Shattering
13	Shatter resistance
14	Green straw at harvest.

Working together

Normalize the reporting in every POGA meeting
Convening vs working groups : Every year a smaller group of volunteers
Annual update from POGA or the smaller group
Grain companies to standardize the sustainability requirements – grain company collaboration on sustainability
Annual report and biannual conversation
Sub-groups per theme with Chair and vice chair