



MAY 2015

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Getting Grain South

Movement to our neighbours needs priority

By Art Enns, President
Prairie Oat Growers Association



Making our morning oatmeal is a North American endeavour. Canadian oats supply companies in Canada, US and Mexico with great product. Indeed many Canadian crops are integrated into the milling, malting and processing businesses right across the continent. Surprisingly then, for a country so heavily dependent on trade with the United States, our grain transportation system continues to struggle to make our only neighbour a priority. Despite the demand from both America and Mexico, resources have been focused on getting grain to ports.

All shippers know well the struggles of getting your hands on a rail car, but as other movement has recovered from the grain transportation crisis last year, American traffic continues to lag well behind the other corridors. The de-prioritization of American orders is a long-standing issue. Long turnaround times are a major issues facing shippers moving their

product to the United States, and the smaller size of shipments to this market mean they need special attention.

To put it in perspective, most commodities saw their total movement levels eventually keep pace with or exceed the 5 year averages. We didn't get to move all of the great crop farmers grew in 2013/14, but in the case of oats, rail movement fell against the five year average, even though our crop production was up by almost 40%. That's because most of our product moves in smaller shipments to the US.

Farmers were forced to turn elsewhere, as oat exports to the United States by truck went up 69%, adding strain to an already overworked trucking system. Producer car orders soared. Meanwhile, our American customers turned elsewhere to fill the gap. Oats were brought to the American Midwest from Sweden because that was more viable than getting them from Western Canada. Australia has made massive gains in the Mexican market.

Even now, nearly every corridor has seen over 90% of their 2014/15 orders fulfilled¹. However, the USA/Mexico corridor has only had 78% of orders fulfilled. This is not a lingering effect of the 2014/15 crisis, but a systemic issue faced by shippers reliant on southern traffic.

Analyzing the problem is a challenge because public information regarding movement to the United States is woefully insufficient. We have anecdotal stories about turnaround times for cars that head south, but no concrete figures. A hopper car that travels from Winnipeg to Minneapolis is reported in the same column as one that travels from Peace River to Guadalajara. It seems Saskatchewan was hardest hit. Understanding the complexities of southern traffic would allow for a more open and

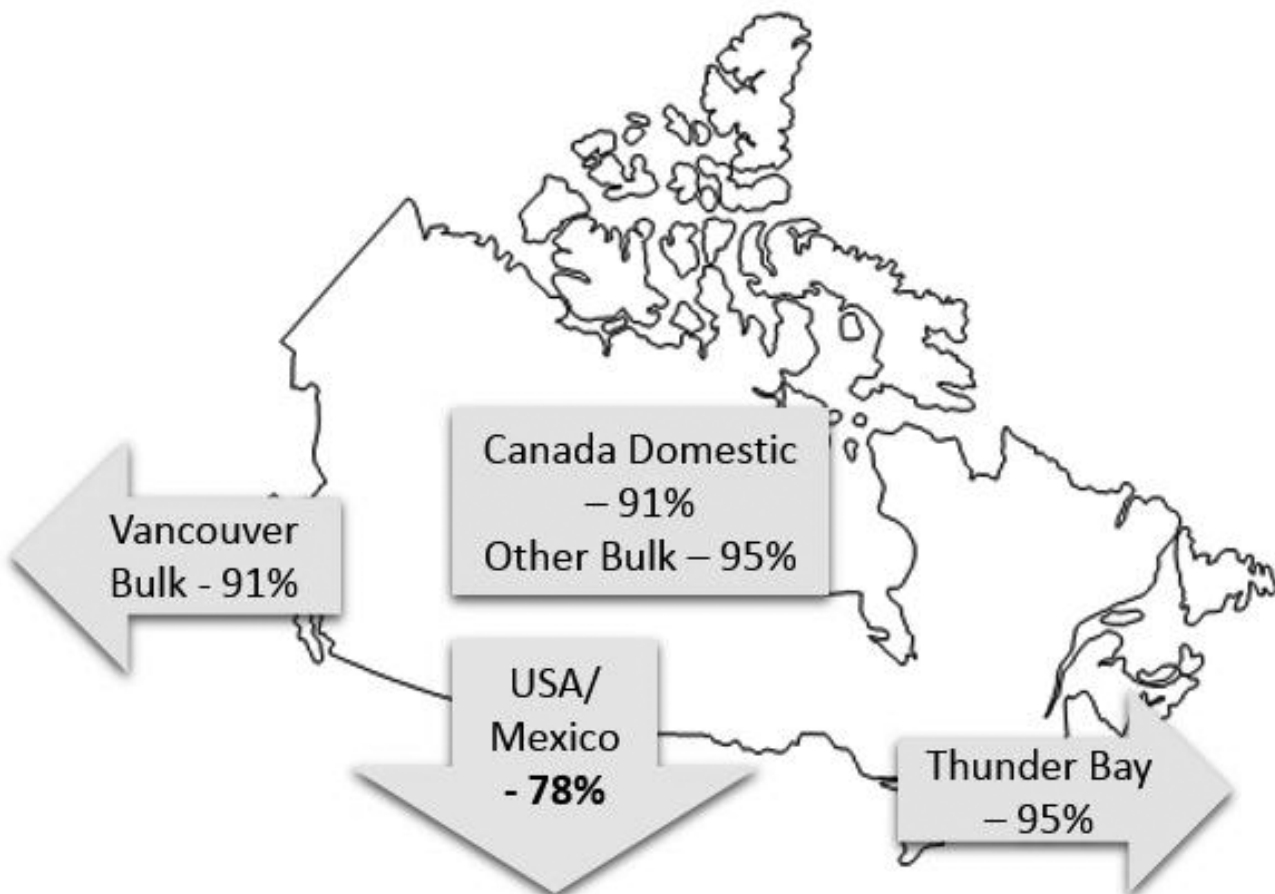
¹ Excluding Vancouver Transloading. All figures from Ag Transport Coalition Week 33 Report.

productive discussion about deficiencies, as well as allow for potential solutions to be discussed.

We have seen innovative ideas proposed by the railways, particularly the Commercial Fleet Integration Program, which could help improve regular movement, however issues remain. We hope to see shippers, railways, and policy makers share an open discussion about problems and solutions. The CTA Review is a perfect opportunity for such a discussion.

Our reputation as a reliable exporter has been damaged, and American customers must now consider regularizing non-Canadian shipments to hedge against the unreliability of our system. When American customers ask Canadian shippers if they can rely on getting that order of oats or barley or other crops on time, it's hard to answer with anything but a "maybe". We need a better answer.

Fulfilled Hopper Car Orders by Corridor Through Week 33



Shipping south to the USA and Mexico continue to lag behind shipments in all other directions. Our most important trading partners are underserved.

Oats Meet Ottawa (and railways)

Parliamentarians reacted positively to a Prairie Oat Grower delegation to Ottawa in February 2015. POGA transportation consultant Robynne Anderson says the group was able to meet with the three federal party representatives as well as the office of Agriculture Minister Gerry Ritz, a representative of the CTA review commission (review under way now) and Vice Presidents of each CN and CP Rail.

Ms. Anderson says the importance of oats as a crop commodity and its place in rotations and diversification appears to be well understood and accepted in Ottawa. "The trip" she says, "was the beginning of what is expected to be at least an 18 month review (and hopefully, decision-making) process."

She says POGA's proposal of a "tiered response" ** to the levels of rail service was seen by the CTA review team as a "progressive idea".

POGA director Elroy Trithardt of Kipling, SK agrees that in Ottawa directors found an earnest regard for the oat industry, oat-specific transportation issues and oats as

a health-related commodity. "Most visitors to Parliament Hill would be received with courtesy", Trithardt tells The Scoop, " and the railway representatives were anxious that the farmers understand their world is not one of daily derailments and danger to the public but I was impressed with the fact that all the elected representatives and officials that we met with seemed to be reasonably well aware of the oat transportation issue. We got a very respectful 'ear' at every meeting." He then adds that "They know there are problems and they know things are going to have to change!"

POGA's submission to the CTA review makes recommendations on provision of adequate producer car spotting and power unit supply. Trithardt confirms there were also discussions around "leased-car" possibilities.

Alberta Director William Winsnes noted he was pleasantly surprised at the reception POGA received in Ottawa, coming away with new understanding of several issues. Winsnes said by meeting with CN and CP Vice Presidents he better understood the differing railway



POGA Transportation Lobby

POGA's brief to the transportation industry and the federal government was headed up by directors from three Prairie Provinces as well as prairie oat milling interests. From left to right are: William Winsnes (AOGC), Real Tetrault (Emerson Milling), Art Enns (POGA), Bob Lepischak (MOGA), Shelanne Longley (POGA), Jarrod Firlotte (Emerson Milling), Robynne Anderson (Emerging Ag), Elroy Trithardt (SODC)

challenges in the US as opposed to Canada. For example, learning that Chicago's rail yards can be a virtual "black hole" for missing (and potentially returning) rail cars was new to him.

However, Winsnes, who farms at Ryley, AB, said he could not agree with arguments that the rail rate cap or revenue entitlement regime should be removed,

"Farmers know what it is to find innovative ways to maximize the capital they do have. I'm thinking of the zero till movement which evolved to save fuel, time and money. Railways should adopt the same type of thinking."

The following excerpts are from "leave behind" materials which the POGA directors left with Ottawa.

Smaller volume crops like oats are pushed aside when things get tough. Total Canadian grain

exports in 2013-14 were up 9 million tonnes against both last year's figure and the 5 year average - yet oat farmers have had record carry-overs.

"Across the 5 years prior to 2013/14, an average of 38% of oats produced in Canada was exported. In 2013/14, only 26% of oats produced were exported.

During the 2013/14 crisis, oat producers had to heavily rely on trucking. Oat exports via truck rose 69% in 2014."

See www.POGA.ca. for a more complete summary of the Ottawa tour as well as the POGA presentation to the CTA transport review.

Editor's notes: As of late March/early April south-bound oat movement appears to be much improved, with US mills receiving adequate shipments for their daily milling needs.

The Work of 'many little hammers' in Oat Research

Wild oat remains the most problematic weed on the prairies (to oats and other crop types). Speaking to the Saskatchewan Oat Development Commission seminar sessions at Crop Week, 2015, researcher Chris Willenborg estimated annual crop losses from wild oat at about 500 million dollars annually. Surveys show wild oat occurs in one out of two fields and up to 40 per cent of those fields contain a biotype resistant to certain herbicides.

But because tame oats and wild oats are genetically similar there is no selective herbicide to use on commercial oat crops - and that is just one aspect of a five year study (2013-2018) sponsored by Saskatchewan oat growers via their check-off contributions.

Willenborg is an assistant professor at the University of Saskatchewan, heading up a team employing what he calls "the many hammers approach" to weed management. (Willenborg does not claim to have invented the term, but it fits this oat project!)

In other words, Willenborg says, the team is using a "multi-tactic approach" towards developing a "dynamic, robust weed management program" for oat growers. Their three-pronged approach includes integrated weed management, herbicide options and seed treatment (to influence the response of oat plants to their neighbours).



Puttin the Hammer Down!

It is clear that weeds create reduced plant stands (lower yield). Weeds, of course, also affect quality parameters like test weight and/or 1000 kernel weight (kw). Milling oat samples also are downgraded by weed content.

Kochia presents a separate set of challenges, but the kochia issue is also complicated by herbicide resistance. One of the alternatives is "integrated weed management" applied through the "many little hammers" model (combining several related strategies for weed management, creating "synergies" which combine the effects of multiple techniques.)

Within the process, Willenborg explained how 'functional diversity' is employed -managing

weeds by rotation – the Willenberg team is using low, medium and high diversity systems in its study (varying the length of rotations). They found lowering seeding rate 'exacerbates problems, creating more wild oat biomass.

Denser wild oat populations create even bigger problems

Operational diversity involves varying seed varieties. As well, row spacing analysis is included in the mix (the team calculates that wide row spacing may cost growers up to \$50 per acre). Increased seeding rates also has been shown to increase gross returns of \$25 to \$40 per acre in oats, and when the two are combined those "synergies" kick in (High seeding rate and narrow row spacing were shown to improve both yield and quality during the early part of this study.)

Confirming that no existing herbicide options work for removal of wild oat in oat fields, the team did discover some promise with certain herbicides for kochia control. A few had good crop tolerance as well as weed control.

"But sometimes you just need a new hammer!" Willenberg exclaims, "so we thought there may be some potential to try some new things to enhance the ability of crops to compete! One of "those things" was the use of seed treatment – but not just for insects and disease."

A New Way to Hammer Weeds?

The team drew on Ontario research, which showed by treating corn with thiamethoxam, the plants changed their response to "neighbours"- it even mitigated some of the effects of neighbours – known as "shade avoidance", whereby plants will try to grow above the crop canopy trying to get closer to the sun. "But they're actually trying to avoid being shaded", says Willenberg, "This phenomenon has something to do with light levels –known as far-red ratio".

High quality light contains higher levels of red light –low quality light has more far red elements, and plants reflect far red light. In a crop canopy – the base is almost devoid of red light but there is an abundance of far red light.

"So," explains Willenberg, "plants have evolved to take the high level of far red light as a signal that they have those pesky neighbours and as a signal that there's competition."

"That is where the plants change their morphology by putting resources into their

above-ground biomass. And there is the crunch factor. We never recover that as growers." Willenberg states. "It never goes back into the seed and there is lost yield. We've now come to understand that this is the mechanism governing early season weed control. Even though we've put all the nutrients there and the plants are small, they're recognizing the signal."

"As the plants adjust to the light they seek that apical dominance factor – they grow very tall, very rapidly, increase branching, and," says Willenberg, "they tend to have reduced 'root-to-shoot' ratios and then we see this as lost yield. That's yield we're never able to recover. It happens just as soon as the plants pop out of the ground."

Seeds even detect the abundant far red light signal while they are still under ground, before they have even germinated! The signal says, neighbours are present, competition is imminent.

That's where the Ontario work on corn comes to play. Applying thiamethoxam to the seed negated the shade avoidance reaction, or the avoidance factor was minimized (probably a reduced stress response by the plant?)

Clarence Swan at the University of Guelph found the seed treatment enhanced germination in the presence of neighbours and increased the anti-oxidant systems in the (corn) plant (one of the components that deal with things which attack cells)..It negated the "morphological shade avoidance response".

"The hope then," says Willenberg, "is that at some time in the future, seed treatment could mitigate competition between wild oat and tame oat. It's a sort of a 'wave of the future'- something we can do."

Follow up tests with the treated seed model, and employing the university's phytotron has been promising, (although the research team did not see as large an effect as expected). They studied seed size as well as the seed treatments, and observed growth with the presence of weeds and with no weeds present. More study is required. In follow up years, the seed treatment method will be applied in fields.

Besides the oat grower check-off funds, co-funding is from Western Grains Research Foundation, and the Saskatchewan Ministry of Agriculture's Agriculture Development Fund, plus Agriculture and Agri Food Canada.

Federal Grain Movement Moratorium Lifted

Agriculture Minister Gerry Ritz says the federal government lifting of railways' mandatory volume movement requirements was "a blunt instrument" designed to move large volumes of grain. In an interview following the end of the program, March 31, Mr. Ritz said, "...it moved volume, and this year it's about value. That's why the order in council was not continued on... that's why we are now focussing on much more data and a lot more knowledge about what's moving out there on these secondary lines...on corridor by corridor specificity."

The minister also repeated his contention that solutions will be found in a "whole supply-chain approach, not just the railways but certainly focussing on them, as they seem to be the ones out of step at the moment."

Ritz maintains that "the CTA review will provide a pretty good blueprint to all that will be required moving forward." On the Maximum Revenue Entitlement" (MRE - also known as the 'rate CAP') the minister says, "...I don't call it a CAP because it's certainly an entitlement. When it comes to the railways, they are entitled to a profit based on the costs they arbitrarily put forward."

Ritz says it would be worthwhile to "take a look at those costs. I don't see a reflection in there, in efficiencies gained by only running main lines now...we've got 10 per cent of the number of elevators now that we had...way back when... but I don't see those efficiencies reflected in those MRE costs." Ritz isn't prepared to say the MRE should be scrapped, at least not yet, but he would like to hear the discussion from the CTA review.

Of possible reader interest: - in a 2012 paper for the Winnipeg-based Frontier Centre, transportation analyst Mary-Jane Bennet wrote, "There is no historical imperative for continued grain/rail rate regulation. All the players are aware that policy developed in 1897 with the Crow rate cannot guide today's economy..." (italics added) The Bennet article is a full discussion of the rate CAP concept in the context of Canada's grain freight regulations. (www.fcpp.org) Ms. Bennet also argued for de-regulation in a recent financial post article.

(<http://business.financialpost.com/fp-comment/reduced-rail-regulation-would-benefit-farmers-along-with-all-canadians>)



No More Pre-Harvest Glyphosate for Oats?

The Prairie Oat Growers Association is aware of Grain Millers new policy regarding pre-harvest application of glyphosate on oats and oat products. Grain Millers is the only oat buyer that we are aware of that has made this decision. As stated by Grain Millers, their policy does not suggest any health concerns as reviewed or regulated by both CFIA/Health Canada and/or the US FDA.

POGA encourages any producer that uses glyphosate, or other products, to check with their local oat buyer prior to application and ensure proper timing and rates. If you have any questions contact your local dealer.

A Shipper's Worst Nightmare



Robynne Anderson of Emerging Ag Inc. left, moderated the transportation panel at POGA's 2014 Annual Meeting in Banff, AB; the first POGA AGM held in Alberta. To her right Bruce McFadden Quorum Corp., Lorne Boundy, Paterson Grain and Jim, McCarthy NAMA President

For oat growers, it was a version of "the winter of our discontent" - and a Winnipeg grain trader said oat exports to the US remain at the tipping point of not happening. That was early December of 2014 when Lorne Boundy of Paterson Grain told a Prairie Oat Grower panel discussion in Banff* that (because of rail car shortfalls) his company flew him overseas to procure oats in fulfillment of a customer commitment. Boundy says for him it was the worst day of the 2014 winter transportation crisis.

"Probably the toughest moment we reached was when you basically 'owed' oat cars to customers that are making a product, and your reputation from being in business for a number of years is gone because you couldn't provide that freight. It actually got to the point that we as a company decided because we had commitments into Minneapolis and other places, and we weren't getting oats out of Western Canada - to fly me half way across the world to buy a cargo that we brought to North America as insurance... we actually had to go to the 'ends of the earth' to go through on our commitments to our customers."

Boundy, who is also part of a family farm operation near Arborg, Manitoba, says eventually the off shore oats was not needed but the experience was the lowest ebb of a frustrating winter. Boundy said Paterson alone

could load 10 times as many US destination cars - "if we could get them." He mentioned cycle times and differences between US and Canadian operations practises as slow-down factors.

Evidence of shipping shortfalls to Canadian oat shipments was clear more than a year earlier. In August of 2013, less than 100,000 tonnes of oats shipped south, compared to over 250,000 in August of 2012.

By December of 2014, POGA was told the situation has improved "somewhat".

Bruce McFadden of the official grain monitoring agency - Quorum Corporation - confirmed to the panel that oat grower lobby efforts had helped persuade the federal government to include a "corridor" factor into the latest grain movement orders to the railways. This suggests the railways may be ordered to handle the outbound oat southbound cargoes even though they can't claim US shipments under what is known as the Rail Revenue Maximum Entitlement Plan (also known as CAP) which includes about 75 per cent of rail grain shipments in Canada.

McFadden did confirm a recent-month 100 thousand tonnes U.S-bound movement of oats - two thirds by CN - and a drastic improvement to previous performance.

The panel also included Jim McCarthy, President and CEO of NAMA (North American Millers Association).

Oat Market Expectations

What can growers expect in marketing oats this year? Here is just one reference point from Scott Shiels with - Grain Millers Canada Yorkton, SK:

April through August delivery holding firm at \$2.90 delivered to Yorkton. We would also buy some at that delivered to our Canora storage by the end of April.

Seeded acre reports are starting to come out and it appears as though there will be an increase in oat acres across the prairies. With oats doing well in wetter conditions than either wheat or barley, and the fact that it has been contributing well to the bottom line on most farms the past couple of years, the fact that more is going to be seeded should come as no surprise to most of you.

Organic oat bids remain unchanged at \$6.00 a bushel delivered to Yorkton, or into one of our offsite facilities. For new crop organic, we are also holding firm at the \$6.00 number.

For Alberta, we are \$6.00 loaded rail in producer cars, or \$6.25 delivered Morinville for June through August delivery.

New Oat Varieties

Two new oat varieties have been advanced for registration. OT6008 and OT6009 were submitted by independent plant breeder Jim Dyck of Saskatoon, and his company Oat Advantage. A third submitted Oat Advantage variety was not recommended by the Prairie Grain Development Committee (PGDC) which met February 25-26, 2015 in Banff, AB..

OT6008 and OT6009 are relatively shorter-strawed oats, described by Jim Dyck as medium maturing "high quality milling oats". Their shorter stature provides excellent lodging resistance. Dyck says they are classified as early heading with medium maturity, providing opportunity for grain filling and eventually profitable milling yield – obviously an important factor for millers.

A commentary from the PGDC website notes that oat lines like OT 6008/6009 provide value "in the combination of traits"-following is an excerpt:

"Yield and lodging resistance continue to be the major targets for breeding. However, disease resistance is equally important and can widen the area where an oat line can be grown. Grain quality drives the successful process from grower to end user. With yield values similar to the average of the checks and good disease

resistance, and good quality traits, the target growing area is Manitoba and Saskatchewan."

OT 6008 is rated as "resistant" to Crown Rust and Smut, moderately susceptible to BYVD (Barley Yellow Dwarf virus) and Susceptible to Stem Rust. It has average beta glucan levels, a high percentage of plump kernels and a low number of thins.

OT6009 is rated Resistant to crown Rust and Smut and Susceptible to Stem Rust and BYDV and has a low oil percentage rating.

A committee of experts examines submissions which have been tested through what are known as the Western Co-Operative Registration Trials and are generally referred to in the trade just as "the co-op trials"

Once a variety is "recommended", the trial data must be examined further by the Canadian Food Inspection Agency (CFIA). From that point, sales and distribution rights, and seed propagation matters are settled – all of which means it may take at least 10 years to bring an original cultivar to commercial seed production.

Jim Dyck may be contacted at [oatadvantage@gmail.com](mailto: oatadvantage@gmail.com).

Alberta Oat Growers AGM

The Alberta Oat Growers held their Annual General Meeting on March 12th in Grande Prairie, AB during the Peace Country Classic. The meeting kicked off with greetings from the AOGC president, Keith Gilchrist. He highlighted the current activities of the organization and future endeavours.

Joseph Aidoo then followed with a presentation on Optimizing Oat Yield, Quality and Standability in Central Alberta. Funded by the ACIDF and AOGC, this project is conducted through the University of Alberta and is focused on enhancing the yield and profitability of Alberta oat growers through the selection of varieties, nitrogen fertilizer and plant growth regulators (PGRs). Joseph is the grad student assigned to the project.

Transportation is a pressing issue with oat growers but particularly to those who live in the Peace Region. Connor Rosine, with Emerging Ag, wrapped the afternoon's events by presenting on the POGA transportation file. Fresh off the outreach trip to Ottawa, POGA's meetings with MP's on the hill was highlighted, as well as POGA's Canada Transportation Act Review. In recent weeks, oat export level has returned to the 5 year average, and the Government has lifted the grain movement minimums.

For more information on AOGC – it's AGM and activities please visit www.poga.ca or email info@poga.ca

Oat Research Website

For Oat Scoop readers who might like to follow some oat research professionals – Charlene Wight of Agriculture Canada in Ottawa sends news of interest: . . .The Oat Newsletter (<http://oatnews.org>) has been updated again, and this time there are three research reports. All three present summaries of peer-reviewed papers, for which there is precedent.

Charlene also writes: As for other types of news, congratulations to Sandy Cowan, Irene Griffiths, Catherine Howarth, Tim Langdon, and Athole Marshall of IBERS, Aberystwyth University, UK. They were recently granted funding of £2.76 million (US\$4.15 million)! More information,

including a press release from Chris Green of Senova, is in the Community section of the newsletter.

Our best wishes also go to Dave Gehl, who recently retired. Articles about Dave, Vern Burrows' recent CSEHF award, and the 2008 dedication of the Matt Moore Buckthorn Plots at UMN have been added to the Hall of Fame section.

There is a story about Chinese-Canadian relations, both scientific and cultural, in the Community section. Photos from IOC9 in Beijing and the post-IOC9 meetings in Baicheng, China, have also been added to the Photo Gallery.

Belly Up to the (Oat?) Bar

First We Take Manhattan!

So...will that be bacon or cheese with your oatmeal? If you live in lower Manhattan, New York City - you have that choice at what seems to be the world's first "oat bar". At Oat Meals New York, in fact, you may choose from over 100 toppings for your oatmeal and/or you may choose from 30 or more original oatmeal recipes.

Samantha Stephens says her oat meal dream first appeared while she was a university student (and likely was helped along by a

student's need to live and eat frugally!) But it took a 12-year journey through her schooling and a first career in the investment banking world finally to arrive as the owner of a specialty restaurant which has attracted interest literally from around the world. Samantha told her story to the North American Millers Association 2015 March conference in Florida.

While in school but looking to find ways to fight weight gain, Samantha says she eventually settled on oat meal as one of the healthiest



and most effective of "healthy life-style" foods, it also fit in with a student budget, she found. Eventually oatmeal became her regular breakfast-lunch-dinner rotation as she worked on ways to tweak it for "savory" or sweet etc. She found the choices were endless.

Later, While working in the banking arena, "Sam" toughed out nights and weekends in a culinary school, eventually becoming a pastry chef, "Because I knew eventually, probably a big proportion of my menu would be oat-based pastry. So today, OatMeals New York serves "every oat-based pastry you can imagine-cookie, muffin, scone, you name it," she told the Oat Scoop. (They also make a 'signature' granola!)

We don't know of any studies which could prove "steel cut" oats are any healthier than traditional rolled oats, but in keeping with customer demand and the popular notion that in oats, steel cut is best, Samantha markets her shop as "steel cut only".

While the traditional thinking about oatmeal is "mushy and boring", she says, steel cut oats have a "nice mouth feel" and people who may think they've tried it all with instant or rolled oats find that they like the texture of steel cut oats. (in her judgement, Samantha finds the steel cut also may offer a "hardier, nuttier flavour"). "Sometimes people are really surprised" (by the different texture) and she concludes, "it really doesn't matter how you get your oats into your diet. All oatmeal is great, even old fashioned rolled or whatever, and

you're still going to get the health benefits from any kind of oats!" (By the way, OatMeals NY uses rolled oats in their baking.)

As for some of her more "exotic" oatmeal bowls, Samantha says she constantly experiments with new offerings and will take a cue from customer preferences.

The "Elvis", with peanut butter, banana, bacon and sea salt is based on what was said to be The King's favourite sandwich! And then there's "Fig and Gorgonzola" - gorgonzola being a rather sharp blue cheese - and on top of the figs - a "rather sweet" balsamic vinegar glaze! (you gotta try it!)

Her Staff are Known as 'Oaties'

Patrons of the oatmeal bar may choose to have their oatmeal cooked in water or skim milk and then have either soyamilk, almond milk or coconut milk drizzled over the top.

"And Will That Be Delivery?"

And who are the customers? "It's such a mix touching people of every socio-economic background and age group." Being on the edge of New York University the oat bar draws student traffic but it's also part of "touristy" Greenwich Village, so it also attracts firemen, policemen and construction workers. And yes, they deliver, often to the eclectic mix of businesses one finds in city of over 7 million souls!

Running clubs and outdoor fitness groups also are among the regulars to line up for oatmeal - often overflowing the tiny shop. Some say they, "work out on their way to oatmeal."

And yes - OatMeals NY has had requests to franchise the concepts in many corners of the world - so who knows where you might next find your most favourite, even exotic oatmeal dish!

photos courtesy of OatMeals, New York



Band Aids for Oat Growers?

Plant growth regulators will be "stellar" for some crops but in oats - more study is needed. That, in part, was the take-home message from the early work on a three - year study of PGR's sponsored in part by POGA and carried out through the University of Alberta in Edmonton.

Sheri Strydhorst told oat growers at the POGA AGM in Banff plant growth regulators will be registered first in wheat. Other crops will come later when effective guidelines have been developed.

Although these products are called "regulators", for now their usefulness to cereal grain farmers is as a harvest aid, Strydhorst says. In 2013, she notes the harvest was "horrific for lodging" in North Central Alberta. "everything was flat - a headache to harvest, so if we can keep these crops standing through harvest..." and goes on to note, "if we have early lodging, that caused yield reductions and quality (issues), but whatever we can do to have a standing crop at harvest, the better to reduce headaches and improve quality and yield."

PGR's affect the plant's hormonal system. In agronomic terms, the growth hormones act on giberellan, a factor which affects the "tallness" factor. "And by blocking the activity of that particular hormone it makes them shorter, with stronger, thicker stems, so they stand better for harvest." (There are five major hormones which affect plant growth. Giberellans make cells expand, divide and grow taller. The goal of the PGR is to inhibit that particular growth activity.)

Strydhorst agrees there are claims "out there" which say PGRs increase yield (others which say they reduce yield). "But really their intent is truly as a harvest management, and that's what they are registered for.

For now, PGRs work well on hard red wheats, Strydhorst says, "...fantastic on spring wheats. in CPS wheats, not as much. And I guess it depends on the variety. If you've got a shorter variety to begin with, it doesn't lodge. It's not going to do the same things it does on a tall, lanky variety that tends to lodge."

In barley she says, "we're still playing with rates but we don't have that nearly figured out and in oats we're even further behind. (But



there is)...a funding proposal to really fine tune growth stages, even tank mixes of different 'actives' of plant growth regulators so that we can really tweak these and make them work for growers.

In regards to fertilizer, it's well known that lodging happens when you have high moisture combined with high rates of nitrogen fertilizer - providing the potential scenario for PGR application. But fertilizing oats also increases Beta Glucan content - desirable in "milling oats" for human consumption and for grower profitability.

"for example, one of our sites (in the Peace River region) had four inches of precipitation, providing "iffy growing conditions early on - you wouldn't use top-up nitrogen, you wouldn't use plant growth regulators in this situation, simply because it's not going to be the bumper crop..."

But in a potentially high-yielding crop, the PGR's may be a form of "insurance", she notes.

For some of the 2014 oat plots, there was a "bit of a yield reduction, depending on the location, between 5 to 11 per cent yield reduction. But what it just tells us is that we need to do more work with this. Maybe our timing isn't right. Maybe we had some stressful environmental conditions. We've got to get the right rate and give that information to growers."

With the product "regulator" these Alberta studies produce a 30 per cent height reduction in wheat, about 12 per cent of barley and on oats about a 9 per cent height reduction.

So are PGRs the "future" of variety development? Not so much, says this researcher!" I guess plant growth regulators are really a band-aid until the breeding gets there. When you have a semi-dwarf variety, PGRs aren't going work because the plant is naturally inhibiting this giberellan activity." In taller varieties then, the role of PGR is to hold back on the "tall and lanky" predisposition.

Several plant growth regulators have been registered for wheat in Canada. This PGR study is led by Dr. Linda Hall, at the U of A.

Ms. Strydhorst is a research scientist-working on agronomy with Alberta Agriculture and Rural Development. She is an adjunct professor with the University of Alberta.

With her family, Sheri Strydhorst is a "hands on" farmer. One of her goals is to help Alberta growers sell more into milling oat markets, increasing profitability. Currently Alberta oat growers plant 58% of oat acres to an industry standard variety - AC Morgan - while Derby (12%) and Mustang (11%) are the other leading varieties up to now. All three are being looked at in the PGR study, along with OT3066, Stride and CDC Morrison.

The trials took place at Barrhead, Edmonton and at Indian Head, Saskatchewan which will provide nine site-years of data over three years.

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