



The Oat Scoop

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Chew Your Oats!

Canadians and Americans alike may have been savouring their favourite turkey offering over the Christmas-New Year holiday season, but in the run up to Christmas they were also chowing down on more oatmeal – and not necessarily just porridge. That, says analyst Randy Strychar of OatInsight.com, is good news all round.

In one pre-Christmas offering Strychar told his news letter audience that Canada is “chewing through” the oat supply line at a faster pace. That, of course is a positive signal for oat growers who saw their commodity soar to record heights less than two years ago but then equally quickly saw prices decline drastically, slumping for months to \$1.60 a bushel or less in 2008/09.

Strychar quotes CGC data showing that Canadian oat disappearance, in early December, was “near the top end of the 12 year range.” In the same week, Oat Insight also reported that the second biggest cereal maker (and major oat buyer) – General Mills was also chalking up some encouraging consumption-of-oats numbers – possibly linked to people looking for “more value” in their meals, if not just plain cheaper food!

Last year in December only 22 per cent of oat supplies had been gobbled up, but this year we sat at 30 per cent consumption (The five-year average is 26% - the record for early December is 38%) Strychar notes that those numbers suggest we are “potentially” heading for even lower ending stocks at July 31, 2010 than currently forecast, which assumes the rate of consumption continues.

Right now the words “lower ending stocks” are sweet music to primary oat growers who have done their part in the price equation by drastically cutting back oat acres the last few years, only to have those efforts off set by some bigger yields, creating something of a clogging of the oat pipeline for a time.

Market Opportunities Ahead?

But speaking to producers at the Prairie Oat Growers Association annual conference in Brandon December 3, Strychar told growers if they could be patient until 2010 harvest rolls round there could be some better opportunities. Indeed those opportunities have shown up in a few places, with reports that some now are locking in good off-the-combine 2010 values for oats.



Market analyst Randy Strychar of OatInsight.com urged POGA to become the advocate for oats. Strychar is helping to co-ordinate a study which POGA hopes will regain market share in the U.S. equine feed industry. He was speaking at the POGA annual conference in Brandon MB in early December. More about the conference elsewhere in this newsletter. (Photo courtesy Western Producer.)

Depending on the type of spring we have, the current models indicate oat stocks will be down 50% from 08/09 levels and could nudge the 0.765MMT mark – “well below the five year average of 0.976.”

South of us, speculation was that “the General” had turned in close to a 50% increase to its quarterly income, at least partly on reports that American consumers were looking for cheaper meals. The scenario reads that cash-stressed families, in the midst of high unemployment, are looking to save time and cut spending all at once by bulking up on cereals, rather than relying on fast food items.

No doubt General Mills likes the rosier profit picture, but it comes at least in part because of the lower prices to oats and other commodities. Apparently General Mills CEO Ken Powell is not convinced that there has been a swing towards eating cereals for non-breakfast meals, pointing to the fact that less than 10 per cent of General Mills cereals are consumed outside of the breakfast hour.

Other industry leaders are not talking about a cereal “boom” but there are indicators of strong growth. Kellogs saw a 2% increase in their third quarter profits at the same time that the company was showing 7% growth for 2008.

“Go Humans Go!”

That’s according to a recent National Post article which highlighted, among other things, some new or updated approaches by Quaker Oats. The article highlighted Quaker’s new-look web-site which is titled “Go Humans Go” and notes that Quaker has gone well beyond the stereo type of “porridge in the morning” to include other uses for oatmeal such as cold cereals and its growing line of granola bars. (See www.Quakeroats.ca)

The National Post article (Nov 20, 2009) goes on to note:

“Sales of hot cereal grew 11% in the year ending Sept. 26, according to AC Nielsen, while sales of ‘nutritious portable foods’ such as cereal bars grew 5%. Sales of ready-to-eat breakfast cereal, which lagged in the middle of the decade, grew a healthy 6% to \$1.2-billion.

“Grocery giant Loblaw Cos. has also helped spur the trend, introducing a number of oat products under its healthier Blue Menu line of prepared foods two years ago, including Steel Cut Oats, Multi-Grain Instant Oatmeal and multiple varieties of granola.”

The article, under the byline of Cathie Shaw, suggests Quaker has taken a bold new approach to marketing. It asks the question:

“Do oats connote physical power, agility and strength? If the humble grain does not already have those associations, it probably will after an all-out turn by cereal giant Quaker Oats Co. to market oats as a crucial source of energy.

“Quaker has placed its entire oat product portfolio under one marketing umbrella for the first time instead of selling the lineup as lone products with discrete marketing platforms and attributes....

“The strategic shift comes as the division of PepsiCo Inc.



Terry Tyson of Grain Millers Canada in Yorkton, part of an industry panel at the POGA conference in Brandon MB in early December. (Photo courtesy Western Producer.)

tries to amplify its health and wellness image to an increasingly nutrition-conscious consumer. Oats have morphed from the comfort food associations of porridge into that of a high-fibre "power food" with multiple health benefits."

While farmers may be skeptical that such fresh-faced marketing tactics will ultimately alter their bottom line, and while no-one can predict what harvest time will bring, Randy Strychar told the Brandon farmer meeting he expects some of them will be holding out for \$3.00 a bushel when they take off the 2010 oat crop. That statement brought some raised eyebrows to processors in the room, but also brought a small smile to the faces of producers who were present.

The POGA AGM always draws a good crowd of farmers and that is matched by a big turn out from the milling and processing end. This year was no exception, with both Canadian and American processor/buyers on hand. Three companies, CanOat/Viterra, Grain Millers and Emerson Milling agreed to have some of their lead hands take turns answering producer questions from the floor – including the perennial discussion-starter, "What will oats sell for next year?" (The answer? Stay tuned!)

--Jack Dawes

(Editor's note: the above article and most of what is found in this newsletter is prepared and written by POGA Executive Director Jack Dawes, who takes no credit for any insights it may bring to our readers, but will take the full blame for any errors or inaccuracies!)

Of Fish Hooks, Road Maps and The Oat Genome (A Primer)

So why is it that oat yields have not taken the jumps that we have seen in corn? Can oats do some "catch-up"? These are questions for researchers like Nick Tinker, 14 years as an oat researcher with Agriculture Canada in Ottawa and whose job it was Dec 3, in Brandon, Manitoba, to explain the basics of a study which will in fact *map the oat genome*.

He was speaking at the *Prairie Oat Growers Association* 12th annual conference. Tinker will be one of a number of Canadian scientists and researchers, part of a world-wide network which will work on the four-year genome study project.

Most of the funding for this study already is committed, with General Mills, The North American Millers Association (NAMA), and the United States government (via USDA) each chipping in a little over \$400,000 (over four years). The Prairie Oat Growers Association has committed to the project and is seeking funds through the federal DIAP (Developing Innovative Agri Products) initiative.

To Strive

Nick Tinker describes his place in the universe as somewhere "between plant breeding and

hard core genetics and genomics". Tinker uses computers to interpret the knowledge "coming out of genetics" – in what he describes as a broad area of biology that also includes other cereals and fungal genomics. But for our purposes, his *favourite* is working with oat breeders and pathologists, literally on the trail of markers which identify desirable traits in oats.

To Seek

Markers as road-signs is a common analogy, but Tinker thinks the concept of "fishing" is a more explainable way to view the genomics/

marker scenario. That's because discovery of useful markers is more to him like fishing!

"Fishing in this great big pond...a gene pool that is full of all kinds of interesting, wild oat varieties and the genes that make those varieties do all sorts of things....resistance to disease, high fiber, and all of the things we would like to put into our current cultivars. So I'm thinking of that as a big pond full of fish, or maybe it's the ocean full of fish."

That ocean represents all of the collective genomes. Genes are "the fish". Tinker

explains further that the fish pond analogy loses a little in translation of the actual physical genome, but likely it's a useful tool for us, the laymen.

To give physical description, we think of a set of strings – 21 pairs of strings to be exact -- which are oat chromosomes. DNA found on those strings doesn't seem to “do anything”.

To Find

“But here and there,” says Tinker, “is a little piece of something that causes one plant to be different from another plant... be it that it causes one plant to produce more fibre, more protein, grow taller. Those are the genes we'd like to discover.”

It just could be that in a “more perfect world” – perhaps 20 years hence, science may develop a way to actually make the genes do something different, he notes. But for now the search is to find and find and map the genes that already exist in nature, and perhaps to find, “if not the genes themselves, a little knot in the string....something we can get a hold of, that's very closely attached to the genes that are making the oat plants different, something that we can use to move that gene around more efficiently than just making a random cross between two oat parents and hoping for the best.”

To Yield What?

Gene “marking”, then, is simply identifying an inheritable genetic difference. Great strides already have been made in how that is done. In earlier work, only one marker could be tracked at a time, but recent techniques allow tracking a thousand markers at a time. “So with one experiment we can extract the DNA from a hundred different oat plants, send them for analysis, and get back the plus or minus of whether those 100 oat plants have a DNA marker at a thousand different positions.”

In a recent interview, Tinker refers to a large spread sheet with columns of numbers, plus and minus and, some, colour-coded. To the trained eye, the numbers represent traits.



The Big Scoop is emblematic of industry support to POGA, and is auctioned each year as a fund-raiser at the annual conference. This year's top bidder was Jarrod Firlotte of Emerson Milling in Emerson, MB. POGA president Bill Wilton, left, is the presenter. Wilton expressed appreciation to all the corporate and industry sponsors for their support of the POGA conference.

Another step in the analysis will involve connecting the “pluses and minuses” represented by each marker to what is known about how the oat plant may perform. In our current example the plus and minus ratings relate to over 1000 marker genes in 350 diverse oat plants. For example, some of these plants may exhibit superior milling characteristics; others may be high (or low) in protein, some may be black in colour. (Bottom line being that no two plants are similar.)

The ‘Map’ Takes Shape

In a 350 plant sample, up to 60 traits have been identified so far, in each plant! But there are many, many more, and Tinker explains that by the end of the experiment they may measure two to three hundred traits in each.

So, by “marking” the genes associated with the individual trait, the *virtual road map* of traits is registered.

Tinker explains that the number 350 is simply a matter of what can be handled effectively in a field experiment, but it also represents a level at which “statistical confidence” can be obtained.

It goes without saying that while we often associate research with laboratory racks filled with beakers and test tubes, the computer screen is “like home” to Nick Tinker, a man

trained as a “statistical geneticist”. (Tinker cautions us that he has learned to trust the ‘simpler’ of tools, relying mostly on insight triggered by things that “almost leap out at you visually”.)

He pauses to reflect that a day-to-day tool such as email is a vital connection to other collaborators, both within the circle of 13 others who are part of the project at Ag Canada, but also linked to researchers in the U.S., Europe, and perhaps China.

Of interest is that with far fewer resources than, say, wheat, much less work has been done on the oat genome. But the good news, says Tinker, is that the oat workers do tend to know each other personally, often manage to meet every four years at an international conference, such as was held in Minneapolis during July 2008. (China hosts the next one, in 2012.)

“So we probably work more collaboratively, we duplicate less, and we learn from any ‘mistakes’ made in other species.”

The Irresistible Force?

To be sure, marker-assisted variety selection has been going on in the background for the past 15 years, but Tinker thinks we may well be at a threshold of a time when “genomics” is “unavoidable”. Plant breeders will not even be “in the game” without these marker selections tools, he suggests.

He believes marker technology will help us solve the question of more or less static oat yield curves. “But it’s not just for selection. It’s also for identifying new and useful germplasm, and for diagnostics and regulations, and all these things are going to be reality in the next decade.”

That corn has developed as a key “industrial” crop is evident. Marker technology appears to have played a large role in the development of those hybrids which account for large corn yield gains.

“The corn industry is very committed to marker technology,” Tinker notes. “If we knew everything that they are doing, we would be following their model, probably, in a lot more ways. But because the corn companies have very wide mandates... they are able to effectively use markers, because there is a much larger economy of scale (with corn).”

Corn, it seems, has moved into what Tinker refers to as “whole genome selection, where every line they select is not based on just how it looked in the field, but how it looked in the field plus an index of which markers their past experience predicted, are of value.” He predicts that very soon, oat research too, will be looking at the composite/aggregate value of all the markers in the oat genome, as corn has done.

One of the factors that may allow oats do to do some catch up is lowering the costs of test protocols. Example? “The markers I was just telling you about. If we can look at a thousand of them in 100 oat plants at once, the cost is about \$5000.00. So it’s still something you have to think twice about before spending that five thousand dollars, but that \$5,000 may soon be a thousand dollar cost to look at ten thousand markers, a hundred thousand markers, or very soon, a million markers in the oat genome.”

Moore’s Law of Oats?

Computer techies know about something called “Moore’s law” which states that cost decreases and capacity doubles every couple of years. With economies of scale, we’re going to be there in two or three years, in the oat genome, if we build on the work we are doing right now”.

In terms of a breeding program then, “We may be spending ten dollars per oat variety to get a complete genome picture, and then putting an index value on ten thousand or a hundred thousand markers, based on past experience, (that) will be essential to a breeding program.”

Should Farmers Care About Genome Study?

So what is the advantage to the commercial grain farmer? By using marker selection, it will become increasingly more efficient to “move” a desirable trait into a variety which farmers can grow, and even more important – a variety which (hopefully) the market wants. Since oat breeding is still done “the old fashioned way”, by crossing one plant line with another, “letting nature mix up those genes, and trying to pick out the one-out-of-a-million mix-ups that happens to be what we want. So... picking out one of a million suddenly gets a lot simpler if you can measure a million seeds in the laboratory and narrow it down to picking out one of a

thousand, and then start your field work," Tinker says.

Does Colour Matter?

In the analogy of gene marking as a form of "fishing" then, the new technology helps us to know what germ plasm to search, and what genes we are "fishing" for. And, the "fish pond" may then become the 350 lines of oats from the example mentioned above.

To back up further, the previous one test-one marker technology (the old single-hook fishing line) is now replaced with a larger, finer, fish net (measuring 1000 markers at a time) allowing us to "catch a lot more fish at one time". But again, bringing this analogy back to commercial oat growers, the ability to use a "single fish hook" is not always ruled out. For example? Groat colour. "We have found that certain race horse owners may insist that oats be a pure white colour (many say the horses perform the same whether white or tanned oats are fed – but many horse owners and trainers insist that colour matters!). The question is put to us... could it be that marker technology *could* allow us to quickly retain the demanded feed qualities of an existing tan oat while "back-crossing" the all-important white colour into the hull? (All important to the true-blue "horsie" folks!)

The Language Of Fishing (Gene Marker Style)

Like any fisherman or craftsman, researchers have tools with special names. In gene study, researchers use terms that sound very much like "snips" and "darts".

A "SNP" to oat researchers is a "single nucleotide polymorphism", a way to identify changes to the plant DNA, and is the essence of what makes a marker. It's what allows modern plant science to speed up the detection of desirable traits. (In human terms, it's similar technology which allows any individual the opportunity to be DNA-tested, and thereby to identify our own genes, and which may point to genetic "weakness" or susceptibility to certain diseases.)

Identifying a SNP in oats allows research quickly to identify certain genetic susceptibilities or advantages. DARTS, says Tinker, were a step along the way, and are simply another "lower tech" way of identifying SNPs, and were used in earlier genetic studies, which did not demand DNA sequence information.

And again, corn leads the way among cereals under genetic research, where "sequencing" technology is well understood and now well used, examining perhaps millions of SNP sequences at a time, and is the direction in which Tinker sees oat genome measurement to be moving.

Breeding The Perfect Oat?

But will all this "snipping" and "darting" produce the oat for all seasons and all reasons?

"We doubt that," says POGA President Bill Wilton, who farms near Winnipeg, "but we are extremely excited about the launch of this oat genome study and the fact that Canadian scientists will be an integral part of it.

Hi Ho Silver!

OAT CHECK-OFF DOLLARS AT WORK

The movie image of cowboys is firmly entrenched in popular culture everywhere, it seems. But it is sometimes forgotten that the steeds these "Hollywood heroes" rode were equally as famous as their riders: think of Roy Rogers and Trigger, Gene Autry's Champion, and possibly most famously, the Lone Ranger's Silver.

But wasn't there something missing in these movies? We often saw the cowboys sipping their campfire coffee, while their faithful mounts grazed near by, but we were never told the real 'truth' about what made these horses great! We seldom heard reference to the food that powered them.

Could it be that oats was the "x factor" to Hollywood cowboy cinema fame?

Never fear – Canadian farmer/oat growers are charging to the rescue!

A 2008 study sponsored by the Saskatchewan Oat Development Commission (and with \$48,000.00 support from ACAAFS*) estimated that Canada was losing out on 250,000 metric tonnes or more, annually, in oat sales to the U.S. horse market. A report compiled by Randy Strychar of Ag Commodity Research showed that traditionally-fed oats, in many equine diets, had been replaced by other “lower cost” products, including commercially produced pellets.

Strychar learned that of an estimated nine million (yes nine with a capital 9!) horses, about two million were in the race horse industry and they were still being fed oats. But a large majority of the other seven million US equines now are fed a commercial pelletized product that may or may not contain oats – but most apparently don't! The reasons for this are many, but neither Strychar nor the directors of POGA blame either Cargill or the Land O Lakes Co-operative, saying that the companies simply reacted to market conditions, developing “oat replacer” pellets as a lower-cost alternative to oats.

In response to the report findings and Strychar's recommendations, SODC Chairman Dwayne Anderson noted, “We need to know more about the make-up of those pellets and whether there is an opportunity for oats to be part of the formulation. Re-capturing even a percentage of that market could be crucial to our challenge of creating, or finding, increased market for Canadian-grown oats.”

The equine feed project was able to move ahead and has now recruited an equine specialist, Dr. Laurie Lawrence at the University of Kentucky to collate research data from across North America, potentially a way to ascertain the exact role oats can play in equine nutrition. But at their annual conference in Brandon, Manitoba, Strychar urged the group to go ‘beyond science’ and to become champions for oats. “The problem”, he said, “is that there is no advocate for oats in the United States.”

As mentioned previously in this newsletter, the oat grower organizations are also partnering in a cross-continent study of the oat genome, a project which will hasten the development of new varieties of oats. The genome study would appear to have the potential to produce what Randy Strychar referred to as “the beta glucan for equine feed”; that's analyst language meaning that one day researchers may literally find “the silver bullet” element in horse-fed oats that has been identified as the major factor in human “heart-healthy” oats – beta glucan! “Up now, with a hearty Hi Ho Silver!”



Some horses will go anywhere to get their oats. Black Hawk, a three-year-old Gypsy stallion, walked into the kitchen of Holly Penner at Rolling Thunder Ranch near Saltcoats, SK in search of his lunch. The Penners will show Black Hawk and other Gypsies at the Royal Winter Fair in Brandon beginning March 29.



Tying up loose ends in the oat business? Dan Ward, left, of LaCrosse Milling, LaCrosse, WI, and POGA President Bill Wilton became magician “assistants” at the informal evening social that was part of the 2009 POGA annual conference held in Brandon, MB on Dec. 3.

Crop Week 2010

ROADMAP TO PROFITABILITY

Tuesday, January 12, 2010

Courtyard Room – Saskatoon Inn, Saskatoon SK

1:15 pm – Greetings from Sask Agriculture Minister Bob Bjornerud
1:30 pm – Mapping the Oat Genome – Canada/US Study
2:15 pm – The (Oat) Bulls Are Back in Town -- Oat market outlook by Randy Strychar, OatInsight.Com
3:00 pm – Coffee and oatmeal cookies
3:10 pm -- Oat Nutrition: An Industry View, by Mary Ellen Carlson, CEO, Farm Pure Foods, Regina
3:40 pm – SODC Annual Business Meeting, Dwayne Anderson of Fosston, Chair
4:00 pm -- Door prize draw for \$100 in oat groceries



No admission charge – No pre-registration required – Just be there!

Saskatchewan Oat Development Commission



WIN \$100 FREE Oat Groceries

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