

FALL 2016

IDAHO

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GRAIN



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VIEWS



VIEWS



**BY TERRY KULIK
PRESIDENT**

Fair Time

Harvest of crops is well underway and a special ag event is taking place across many Idaho counties. I am talking about the annual county fairs that give special attention to agriculture. This year Twin Falls County is celebrating a 100-year anniversary. That is a huge tribute to agriculture. I would like to point out some of the reasons fairs are special for the people in Idaho and across the country, and why I like to attend the fair.

Animals: What better way to educate people and children about farm life. Taking care of animals provides FFA and 4-H participants skills and education that will enable them in a variety of ways to become leaders and to have a future in farming and ag related jobs. People can show and teach their children about farm animals and rural life.

Machinery and Equipment: Here, the past links with today's equipment (antique vs. modern). The fair is a good place to converse with other farmers, equipment dealers and neighbors that we might only see once a year. Innovation has played a huge role from farming with horses, to the development of the steam engine, to the modern day gasoline and diesel tractors. Technology has advanced farm equipment even more with computers and software that allow tractors to steer automatically guided by Global Positioning Satellite. I think it is important that the younger generation get to see the historical background of farming and how farming is done today and into the future.

Agriculture Pavilion: This is a great place to learn all about Idaho agriculture. Displays showing crops, important facts about different crops and a place for kids to play in the beans and corn, reminding me of my favorite thing as a kid playing in the grain that was loaded in the truck. Idaho Grain Producers has an excellent display telling about the organization – if you are a grain producer, please consider joining our organization.

Agriculture Produce Displays: A great place to view all of the various crops, vegetables and flowers that are produced from our outstanding Idaho soils, from the tallest corn, biggest sugar beet, biggest squash to all of the garden vegetables.

Fair time is a great time for our community and agriculture. I hope you all enjoy your own county fair.

One last note: please consider joining us at the Tri-State Grain Growers Convention in Coeur d'Alene, Idaho November 9 – 12, 2016. There will be convention seminars on international trade, energy and climate, conservation, marketing, risk management, research and prevision ag technology. More information and registration forms can be found at www.wawg.org.

I hope everyone has a good harvest. ■

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Cover photo by David Waterman

Harvest at Grant 4-D Farms near Middleton, ID

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EDITOR'S NOTE

BY STACEY KATSEANES SATTERLEE
EXECUTIVE DIRECTOR

I have had the opportunity to spend much of the past three months traveling around Idaho, spending time with grain growers from Bonners Ferry to Teton. I love this beautiful state that we live in and consider myself incredibly blessed to be able to live and work here representing Idaho's grain producers.

One week of my travels was hosting farmers from the southern United States on an agriculture tour throughout eastern Idaho (read more about the tour on page 14). It was an honor to be able to travel with these farmers and show off how varied and spectacular Idaho agriculture is.

A couple of weeks prior to that, I was able to join the Idaho Barley Commission for their budget meeting in Bonner's Ferry – this was also Commissioner Tim Dillin's final meeting on the Commission, and he was honored and thanked for his service. It was my first time to Boundary County, further proving the point that Idaho is spectacular and varies wildly from region to region, that part of Idaho is unlike any other part of the state I've seen. I now know what people mean when they call that area "the Garden of Eden."

Throughout my travels, the grain has looked good – but as harvest has gotten underway, some grain in North Idaho counties has suffered from Low Falling Numbers (LFN). This has been devastating for growers. Here are three things IGPA and the Idaho Wheat Commission are doing to help with the current situation:

- Market Channels - the IWC is working with partners to see where this wheat can be moved and utilized. This is particularly important as harvest continues and some elevators may fill up and be unable to take additional wheat from growers.
- Research – there is still a need for significant research into falling numbers, some shorter term research, some longer term. The most immediate need is to do formulations to use as much of this LFN wheat as possible (i.e. figure out if there are products that can be made using this wheat). Other longer-term research projects include pulling this data apart to further our understanding of what is causing LFN wheat and what can be done to avoid this outcome.
- Insurance and Emergency Assistance – it is broadly acknowledged that the Risk Management Agency's (RMA) discount scale doesn't reflect what's happening on the market. Significant discounts don't apply until wheat has a falling number below 200, yet most elevators start discounting wheat at 300. IGPA is working with partners to provide sufficient data to RMA to enact changes to their discount table for future years. We are also talking with the Governor's office and members of our federal congressional delegation so that they are up to date on the falling numbers situation. While it is highly unlikely that there will be any emergency remedies, we will keep our legislators and the Governor briefed on the situation and we will look for opportunities to help growers now and in the future.

To learn more about LFN, head to page 200. We will be talking about this and other important and timely issues at our district meetings this fall (more information to come soon on those meetings), and at Tri-State Convention (see page 19 for more information). IGPA will continue to work on issues important to Idaho's grain producers – if you're not a member, consider joining and adding your voice to the fight. ■



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New GMO Law a Win for Farmers and Consumers

Chuck Conner, President & CEO, National Council of Farmer Cooperatives and Co-Chair, Coalition for Safe and Affordable Food

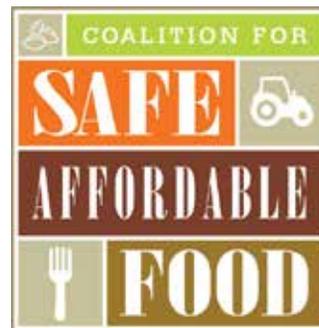
Election years in Washington, D.C., are called the “silly season” for a reason—work in Congress slows to a snail’s pace by early summer. Members are focused on re-election and party leadership is more interested in either pushing legislation that scores political points or running out the clock. This is especially true in presidential election years like 2016 and even more so when the incumbent president is not running.

Overcoming the inertia takes an issue with a sense of urgency and broad bipartisan support. This summer, the July 1st effective date for Vermont’s law labeling foods containing genetically modified (GMO) ingredients supplied the urgency and legislation crafted by Senators Pat Roberts and Debbie Stabenow supplied the bipartisanship.

The process, though, was something of a whirlwind by congressional standards—it was only a month and a half between the announcement of the Roberts-Stabenow deal, known as S. 764, and when the bill was signed by President Obama in early August. Below is an outline of the key elements of the legislation and some key decisions that will need to be made in the rulemaking process.



“First, and most importantly, the new law pre-empts the Vermont statute and any other similar state laws on GMO labeling.”



First, and most importantly, the new law pre-empts the Vermont statute and any other similar state laws on GMO labeling. This means that a state of about 600,000 will no longer set food and farm policy for the entire country, and it heads off

the potential for an unworkable state patchwork of state labeling laws.

Second, the law provides for more disclosure of information to consumers about genetically modified ingredients than ever before. It requires companies to disclose this information as soon as definitions and rules are set by the USDA. Companies can meet the disclosure requirement in a range of ways, such as an electronic digital link (like QR codes) that leads to detailed information, text on the package or an on-package label. With this range of options, the law lets individual companies decide how best to meet the standard.

It is also important to note that the law will provide greater information about the use of biotechnology without stigmatizing the products that are produced with it. That is what would have occurred with the Vermont GMO labels, as anti-GMO activists have been clear that they would use required on-package GMO labels to scare consumers away from purchasing these products and attempt to drive biotechnology out of the marketplace, just as it was done in Europe.

The law’s language on disclosure also contains provisions to protect small business owners from potential burdens in complying with the law. Finally, for any farmers with organic operations, the law will also ensure that any disclosure system is fully consistent with the requirements of the National Organic Program.

Those are the provisions of the law as signed by the president. Yet while the preemption of Vermont’s



"It will remain critical for farmers and the agricultural sector to remain engaged as the process moves forward."

law went into effect immediately on signing, two key decisions on the disclosure piece must be made by the U.S. Department of Agriculture's (USDA) Agricultural Marketing Service (AMS) during the implementation process.

First are the requirements for disclosure. In particular, AMS will need to set a threshold for biotech content above which disclosure will be required. As part of this, the agency also must set regulations for how to treat food products with no traces of genetic modification but grown from seeds using biotechnology—examples here include oil from GMO soybeans or sugar from GMO sugar beets.

Second are regulations concerning the forms of how the information is disclosed. USDA will need to set a framework for disclosure through electronic digital links and content for those companies choosing to utilize prescriptive language or a symbol instead of a code. Finally, options will need to be developed for what the bill calls "very small food packaging"—things like a pack of gum or a box of raisins.

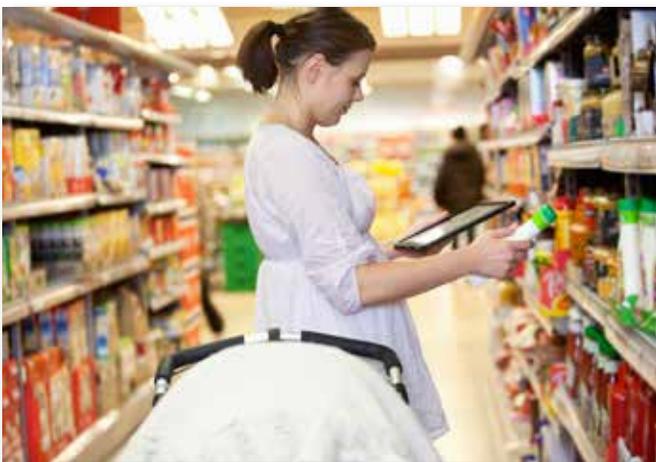
So, while one battle has been won, another remains going forward. The law sets a two-year timeline to develop and finalize regulations,

and USDA has already taken the initial steps in the process, setting up an interagency working group to guide the process and launching an information page on the AMS web site.

It will remain critical for farmers and the agricultural sector to remain engaged as the process moves forward. While Secretary of Agriculture Tom Vilsack has played a key role in this debate, he and his team will be leaving USDA when the new administration takes over in January. In addition, anti-GMO activists will try to push at every turn of the regulatory process for rules that demonize the technology and put undue burdens on companies that choose options other than a symbol.



What allowed us to get to this point has been an unprecedented degree of unity in the agriculture and food sectors. The Coalition for Safe and Affordable Food brought together all segments of the supply chain—from the co-ops providing the inputs to farmers growing the crops to food companies manufacturing consumer products to retailers stocking the grocery store shelves. We as an industry will need to maintain this unity as the process continues to unfold. ■





Jevan and Evan checking cows

Evan Wood

Evan Wood farms on the Moody Bench, east of Rexburg, on the same ground his great grandfather homesteaded in 1907 after moving from Utah to Idaho in 1901.

It's where he grew up with four brothers – and where his father required they'd get their work done before play, and that meant getting up at 5 a.m. to move pipe and work cows.

An off-farm job lured him away from his roots after high school, but he returned to those home fields and pastures in 2005.

What brought you back to the farm?

I drove truck for about 10 years, hauling fertilizer across Montana and Canada. It drove me crazy; I knew I needed to be farming. I was born and raised doing that, and that's what I wanted to be doing. I wanted those family values and wanted to raise my kids the way I was raised. And Dad was getting old enough that he needed more help. My brother Luke came back in 2010. He was in Washington managing a dairy.

What type of farming do you practice?

It's a conventional farm. We work the ground in the fall and spring, mostly irrigate with sprinklers and pivots, flood irrigate pasture and dryland farm on the bench. We have a four-year rotation with three years of barley and one year of potatoes. My oldest brother does no-till in the Moody area between Sugar City and Teton, but I didn't feel we could control the weeds enough on our farm.

Home:

South of Newdale, eastern Idaho

Operation:

Family business with father, Scott, and brother Luke

Ground:

irrigated and dryland

Crops:

Malt barley, wheat, potatoes, hay

Livestock:

Red Angus beef cattle, horses

Family:

Wife, Summer; blended family of sons Faustin (18), Kellen (9), Jake (7), Jevan (2) -- the couple's "miracle baby," born in the second trimester at 1 pound 1 ounce; and daughters Cassidee (15), Salem (11)

Education:

Sugar-Salem High School, graduated 1994; participated in football, wrestling, rodeo and FFA

Have things changed on the farm since you returned?

Some things have. Dad is still going as strong as he ever did -- and he likes to give us advice or suggestions every day. It's still a conventional farm. Dad's a little bit more old-school, but some practices have changed.

For example, 10 years ago, we would have planted potatoes, harrowed, let them come up, cultivate, sometimes cultivate again and Dammer Dike. Now we plant and Dammer Dike. Field work all happens before they even come up, and we don't lose soil moisture from disturbing the soil, he said. You have to plant quicker, water quicker and water more. We water a little bit more than we used to and sooner.

Jevan watching Evan move pipe in the barley



How are your yields?

They vary depending on the year. Irrigated barley yields are 100 to 130 bushels an acre. We probably get 350 to 375 hundredweight an acre on potatoes. Dryland wheat yields in some years are 50 to 60 bushels per acre, but some years, like this one, are 30 to 35 bushels. We grow hay for our own use to feed the cattle.

Where do you sell your commodities and what kind of specs do you have to meet?

There are strict specs, you bet! All the barley goes to Anheuser Busch, and you have to meet your contract. Protein can't be too high and no sprout damage, which has been an issue lately – especially two years ago when we had all that rain.

The majority of the wheat goes to Thresher, and they dock you pretty hard if it doesn't meet protein levels and test weights. You don't want the docks; every dime counts now.

Ninety-five percent of the potatoes go to Eagle Eye Produce, a fresh shed, and you almost have to grow a perfect potato to stay in the game.

What are the challenges?

We strive to do better every year, raise better potatoes, better barley and build a better cow herd. Weather is a big challenge for us, especially on the dryland. We're always trying to beat the weather and trying to produce a crop we can make some money on. And we're always trying to grow that perfect potato to get a decent return so we can survive and go another year.

A big challenge we have is we're a small farm trying to compete and stay competitive with larger farms and corporations. Being a small farmer can be awfully tough, especially in a tough year of commodity prices.

Evan with Jevan on Mater in Island Park



Back L to R: Cassidee, Faustin, Evan, Salem
Front L to R: Jake, Summer holding Jevan, Kellen

What's your market strategy?

Like anything about supply and demand, sometimes there's too much supply and not enough demand and sometimes it's the other way around. You need to be market – smart, be able to capture demand. We try to stay consistent. We sign a grain contract when we think the market is as good as it's going to get. Our potatoes are open market, and we sell half in the fall and half in the spring.

I don't like chasing markets, and we try not to get greedy. You could hold out for another dollar you think might be in the market, and the market could do the opposite.

What is a typical day on the farm?

In the summer, you're up at 5:30 doing the water then off to swathing or baling, then to cut grain and water again. It's a sun-up to sun-down job and during haying season, it's a night job too.

Do you ever want to trade in the farm?

Oh yeah. In a year when you're selling commodities at a loss, you're wondering why you're doing it. There are good days and bad days.

What do you do for fun?

Move cows on the forest. We have Forest Service permits in Island Park. It's work but fun for me. We have to move them monthly, and it's fun to go up on the horses, even just to check them.

Do you have any hobbies?

I like going roping. I do it just for fun with friends, rope some steers, family camping in the fall, and I love steelhead fishing.

What are your plans for the future?

We plan to grow the operation – slowly. My brother and I bought another small farm a couple of years ago. Faustin (his oldest son) is vice president of the state FFA and he's really interested in farming but he wants get a degree in ag engineering first.

What's your philosophy about farming?

Every day's a good day. There are just some that are better than others. ■



Representative Caroline Nilsson Troy

What is your background?

I was born in Lewiston. My folks, Jon and Ann Nilsson, were childhood sweethearts from Genesee, both were from farming families. Dad’s father had a farming accident, and Dad worked at a pea processing plant during high school and college to be able to go to college. He got a degree in soil science and was working as a field man for the pea company. He came home one day and told my mother he hated his job and he wanted to do something else. He saw an ad in the paper that families were being taken into the Peace Corps. We were accepted in 1971. I was 9, my brothers were 6 and 7, when we moved to Botswana, Africa. Dad had a contract to establish a foundation seed program for the country. He was a typical farmer, real handy, and he built a seed-cleaning facility so they could structure the program and do basic breeding, mostly sorghum and millet.

He got a second contract to manage a research farm that was part of the country’s college of agriculture. Mom worked for the college of ag as a research associate.

Was it an unusual experience for you?

When you’re a kid, whatever your family does is normal. When I had my kids, I asked my mom ‘What were you thinking.’ I think that generation was very inspired by Pres. Kennedy and a vision to do something for the world. And my folks had that traditional perspective that farms feed the world. A lot of farmers feel, and I feel that way too, that they are invested in a noble cause – feeding humanity – and they take that to heart.

Home:

Genesee

Legislative District 5:

Benewah and Latah counties, one term, up for re-election

Business:

Nonprofit consulting firm Nilsson Advisory Group, owner

Family:

Husband, Dave Troy; blended family, daughters Marie (29), Mollie (25), Amanda (26), Madeline (22), son-in-law Tom Linehan (married to Marie)

Education:

Orofino High School, 1979; University of Idaho, B.S. in Communications, 1984

Affiliations:

Leadership Idaho Agriculture; Idaho Community Foundation, board of directors; College of Letters, Arts and Sciences, University of Idaho, advisory board; University of Idaho Cooperative Extension, advisory board; served on local boards for IGPA, Idaho Cattle Association, Idaho Cattlewomen’s Association, Idaho Women for Agriculture (now defunct)

Appointments:

House Health and Welfare, Agricultural Affairs and Business committees; appointed by Gov. Otter to the Suicide Prevention Council; appointed by Speaker Bedke to the Idaho Rural Council.

Recognitions:

American Conservative Union 2015 Award for Conservative Achievement; Foundation for Advancing Alcohol Responsibility 2016 Leadership Award; Idaho Food Producers Agricultural All-Star; Farm Bureau Friend of Agriculture; Idaho Cooperative Council Outstanding Legislator; Idaho Association of Chiropractic Physicians Legislative Champion; Idaho State 4-H Friend of 4-H

We came back to the U.S. in 1977. I was a sophomore. My folks joined Mom’s family farm in Genesee, growing wheat rotated with barley and green peas. We lived on a farm the family owned in Clearwater County, and I went to Orofino High School.

Were you involved FFA or 4-H?

When we came back from Africa, my brothers and I didn’t really fit in – 4-H was really our re-entry program into American culture. We didn’t have FFA in Orofino, but we had 4-H. I’m a huge fan of 4-H. It’s some of my fondest memories. I think it was

the basis for where I am today as a legislator – public speaking, keeping records. It’s a great program. I fit it into every conversation, and I just won a Friend of 4-H award from the state.



Touring the University of Idaho dairy facility on campus – cute calves, but huge need for upgraded facilities to match the world class research being conducted across the state.

Where did life take you from there?

I went to the University of Idaho and continued to work on the family farm. I drove truck, picked rocks – whatever torturous job my dad could think of. I graduated from college in 1984 and married a local farmer. I really embraced the farm life, and when we divorced in 1992, I had to reinvent myself. I fell into fundraising and worked for a hospital in Clarkston for three years. Then I did fundraising for the University of Idaho College of Agriculture for five years. It was a wonderful experience. I’ve been in every extension office in every county in the state. I was learning the diversity of agriculture and raising money for ag research.

I worked at the College of Ag from 1995 to 2000 and then took a job as lead fundraiser for the university, all the colleges and the athletic department. I was there for seven years, and it was the first successful comprehensive fundraising effort at the university. In 2007, I went to Washington State University to do fundraising for its College of Agriculture, Human and

Natural Resource Sciences. And in 2013, I left to found a nonprofit consulting company. I do consulting for nonprofits in the Northwest and California – audits, strategic planning and a lot of coaching of professional staff. It fits in pretty well with this legislative gig – which is very time-consuming.

What got you into politics?

Working in the university system, you had to be very, very careful about politics. People have very strong opinions, and you have to be neutral. So I’ve been very quiet about my political beliefs. But as someone in agriculture, you live every day with the consequences of political decisions, from farm programs to marketing and food safety.

I don’t think any industry is impacted at every level as much as agriculture, it’s regulated to death. And I had been frustrated in our district by folks who ran for office, their lack of connection to agriculture, education and the need for rural resources.

I married Dave in 2000. He owns an insurance agency in Lewiston and does a lot of crop insurance. He had worked on a farm in high school and college. I would complain and complain and complain to him. I was no longer in the university system, and I could come clean about my politics.

I was at a centennial farm event, and a couple of legislators approached me about running for office. I had to put my money where my mouth is. I had to pay for all that complaining. It was a hard decision to make. I spent a whole career trying to make people happy. In this, there are some people you can’t make happy. You have to do your sincere best and let it go. That’s been one of the hardest things.



Son-in-law and Idaho farmer Tom Linehan shows his support of the Nilsson Troy ticket during harvest.

What made the biggest impression on you in the Legislature?

I really didn’t know what to expect. What impressed me was that regardless of where folks are coming from or what business they’re in, this is still very much a citizen Legislature. Most have to go back home and have jobs to do. No one is on an ego trip. Everyone is sincerely trying to make a difference for their constituency.

They're hard-working people. It's a lot of work, and we're not well funded as far as support staff. I share an administrative assistant with 37 other legislators. She's a fantastic gal, but she can't get it all done. So the burden is on legislators. It's a lot of early mornings and late nights and an incredible amount of work.



Latah County Grain Producers President Eric Odberg presents Rep. Troy with an Idaho Wheat and Barley PAC support check.

Who do you represent in District 5?

All of Idaho's districts have a population of about 48,000. District 5 has 17,752 households. It's mostly rural. We're in the heart of the Palouse, some of the most productive dryland farm ground in American. We get about 120 bushels of wheat per acre, and we don't irrigate. The area is very unique, rolling hills that are thought to have been formed by ash from the Pacific Rim volcanoes that settled like steep waves – very rich farm ground.

So there's a pocket of ag production. There's timber ground, Forest Service ground, lots of mills and loggers. The University of Idaho is also here, and there are a lot of higher education people in the area, not just teachers. The university has over \$100 million in research grants.



The Troy Family - L to R: Mollie, Marie, Amanda, Caroline, Madeline and David

And WSU is right across the border -- the universities are only 7 miles apart. There are over 50,000 students in the area, and they're all coming back this week (mid August) -- it's very busy, no parking to be found. There are also a lot of tech spin-offs from UI, and Schweitzer Engineering Laboratories is located here. It's an international company with technology that protects power grids.

What's been the focus of your legislation?

I've focused on legislation that benefits my district – schools, the trucking industry, agriculture. I think I carried the most legislation of anyone this last session.

One issue is the interest in taking out the dams on the Snake and Columbia rivers. About 60 percent of the wheat exported out of the U.S. goes out of this system. It would be devastating to lose those dams between Lewiston and Portland.

One of the biggest day-to-day issues is trying to bridge the large resource gap between urban and rural. The disparities between rural and urban resources go on and on. I want to be a voice not just for agriculture but rural communities. The loss of healthy rural communities would be really difficult to recover from.

What is your overall philosophy as a legislator?

I always try to be one of the hardest working. And that's what a lot of this takes – hard work. If we work together, we can find a way to resolve our differences and get done what needs to be done for Idaho.

What do you do for fun?

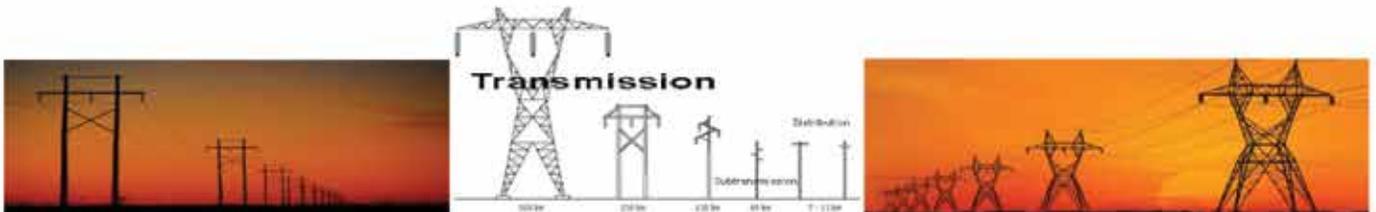
We're so busy. I didn't realize how much time it (the Legislature) was going to take. We bought an old farm house about 10 years ago and have been working on renovating it. We have family get-togethers. I have a horse and do some riding, and I have two beagles. We also go to a lot of local parades; it's part of being a legislator. ■



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Idaho grain growers welcome southern cotton farmers

Farmer exchange reaps better understanding, camaraderie

Growers from the South got a taste of northern hospitality when IGPA and the Idaho Barley Commission hosted the National Cotton Council's 10th annual Multi-Commodity Producer Tour in southeastern Idaho in June.

The growers came from Tennessee, Georgia, Alabama, Mississippi, Arkansas, Texas and Arizona with little to no idea of agricultural production in Idaho's valleys and high desert.

But they went away with a much better understanding of Idaho's diversity, as well as some newly forged friendships.

"The purpose of the tour was to provide farmers from the south an opportunity to learn first-hand about northern production systems," said Kelly Olson, IBC administrator, who helped organize the tour.

"The tour participants are leaders in their own commodities and regions, so it was not surprising to observe how smart and curious they were, eager to learn about the agricultural challenges and opportunities in our region," she said.

They asked tough questions and offered excellent insights about how production practices are more similar than different between our growing areas, particularly in irrigation, she said.

"Besides their intellect and vast experiences, what I most admired about these guys was how humble and kind they were," she said.

The group immediately established a warm camaraderie with each other and with their Idaho hosts, which made the tours both fun and educational.

"After four days and 1,100 miles together, we felt like family," she said.

Dwight Little, a former Idaho barley commissioner and IGPA's secretary-treasurer got the ball rolling on the tour following his participation in last year's tour in Texas.

Idaho's tour gave the southern farmers an intense and up-close look at farming and ranching, dairy and aquaculture, food processing, ag research and fertilizer production.

But it also gave the Idaho hosts a better understanding of the challenges those southern growers face and just how universal some of those challenges are.

First impressions

Visiting with several of the participants, they had no idea about Idaho agriculture, what was involved and the diversity of crops, said Justin Place, IGPA member and a barley grower in Hamer.

“They were quite amazed,” he said.

Some had pictured Idaho as flat lands with dark black soil, and they were awestruck by the landscape. “They wanted to see and experience it all. It was a really good group. All had questions, and they sure seemed to soak it all up,” he said.

They were quite curious about irrigation. Some came from areas where production is all rain driven. Others kept wanting to know what crops they were seeing, which are entirely different from what they’re used to.

“They had so many questions I couldn’t get them answered fast enough,” he said.

Little said the southern farmers were intrigued with Idaho irrigation and how water is allocated, and they were really interested in irrigation practices in the high dessert.

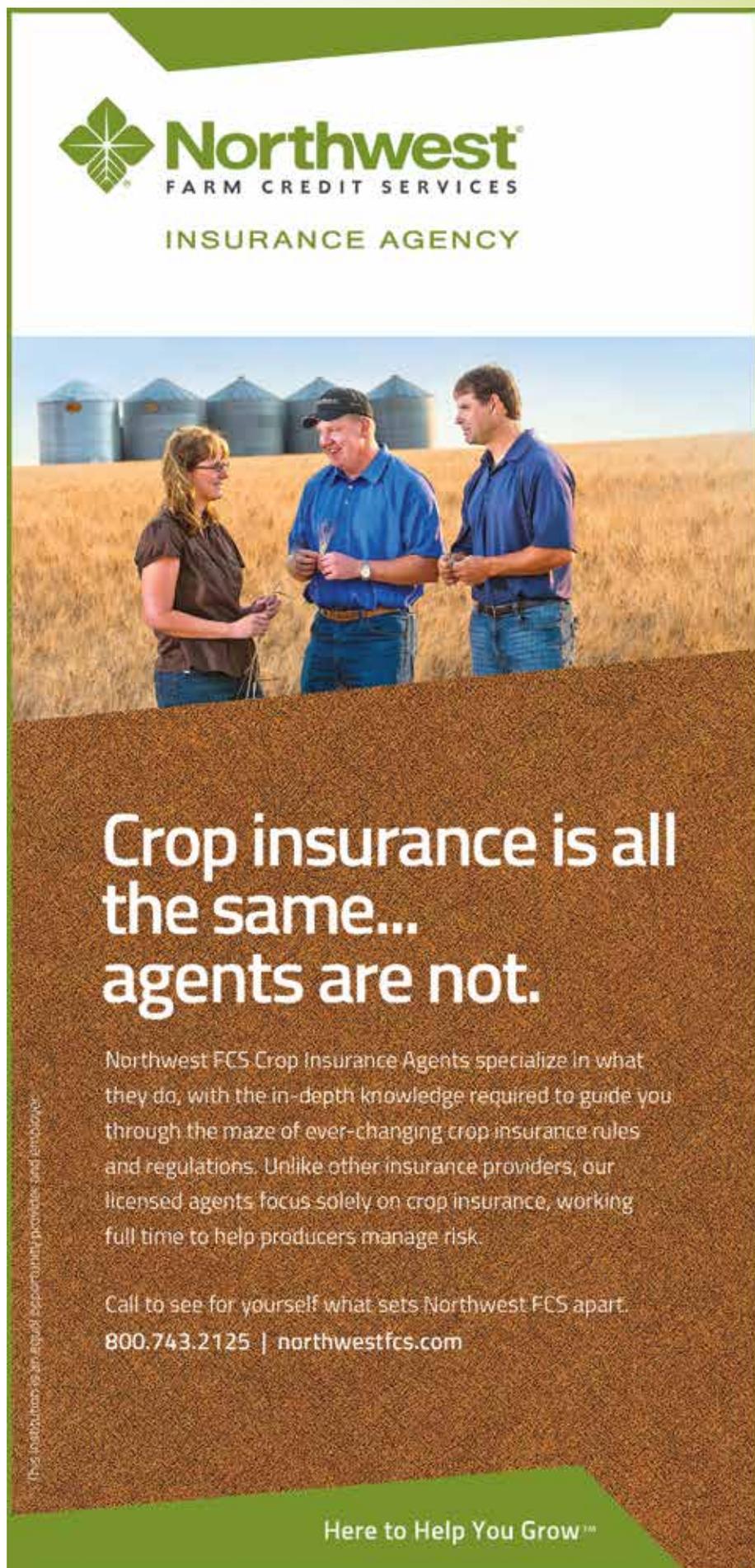
Idaho barley commissioner Scott Brown of Soda Springs said it was a really good tour that provided a lot of the flavor of Idaho agriculture.

“They were surprised and amazed at the diversity of our state. One guy said he expected it to be similar to Kansas. The beauty of our state and diversity more than anything really impressed them,” he said.

Trent Clark, Monsanto’s public and government affairs director, said the southern growers were amazed to see crops being grown in valleys between mountains.

Striking a chord

Despite contrasting landscapes, farmers on both sides of the tour found they had a lot in common. Little said what really stood out was that even though producers



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in the North and South are raising different crops and producing different products, they all have similar challenges.

“They face the same issues we do here in Idaho,” he said.

Place said it was clear that challenges with water are universal. The southern farmers were interested to see how producers here handle water, compared with how they handle water.

“They struggle with drought and priority,” he said.

Brown said while all the farmers have similar challenges and similar goals – all working to feed and clothe the world -- the tour “gives us northern farmers a chance to talk to our counterparts in the South.”

“It was just fun to sit down and talk with them and compare challenges, goals and dreams. They’re the salt of the Earth, just like farmers in this region,” he said. It was good to meet with them and talk with them and get their perspective, he said, adding that he’s kept in

Clark said.

Benefits abound

One of the big benefits for all participants was the ability to exchange ideas and understand the respective challenges southern and northern farmers face, Little said.

Sometimes when ag groups are working on a farm bill, disaster legislation and trade agreements, there’s a difference of opinion on what that policy should be. The tour provides a better understanding of what farmers in other areas and different commodities are dealing with because “you’ve been there and seen it,” he said.

Olson said farmer exchanges are extremely valuable in building a deep network of producers across the country who truly understand and empathize with fellow producers who are seeking ways to overcome production, regulatory and marketing hurdles.

“For me personally, the time was well spent learning more about the U.S. cotton government safety net and

“If the opportunity comes around that I can participate again – hosting or going on a tour – I’d love to do it.”

-Justin Place, Hamer barley grower

touch with several of the participants.

“It helps us understand their challenges, whether it’s environmental conditions or farm policy. I think that’s the goal of the program. It gives growers a chance to speak casually about issues and develop a relationship and rapport,” he said.

Place agrees, saying “It’s always neat to network with other growers across the nation ... get a better feel for their industry. They were very sincere people. I count several of them as my friends now.”

Transitioning to no-till production and experimenting with low energy precision application (LEPA) irrigation, both relatively new practices in Idaho, Place gained valuable insight from the visitors. Some of the southern farmers have been using those practices for 20 years and were able to give him advice and troubleshoot problems. Networking and being able to bounce ideas off those farmers was hugely beneficial, he said.

Monsanto’s Clark came away with a little different perspective than Idaho growers, saying “every person on the tour had experience with and spoke optimistically about improving the technology around herbicide tolerant crops, especially cotton.”

On the drive to Soda Springs, growers had seen how effective the technology is for alfalfa and corn, but they were not prepared for what they saw when they arrived at the Monsanto plant -- the starting point in the manufacturing chain for glyphosate, the active ingredient in all Roundup herbicides, he said.

“As one tour participant exclaimed, ‘I had no idea of the massive work that it takes to produce a little weed control. I won’t take it for granted in the future.’”

insurance programs and how and why they differ from government supports for grain. I have never really given much thought to how the cotton safety net has evolved over time and why cotton producers were compelled by international trade obligations to try an entirely different approach in the 2014 Farm Bill.” She also learned from the southern farmers the new program is not really working as intended and needs a fix before the next farm bill cycle.

“Armed with this information, I hope Idaho producers and their congressional leaders can be supportive of these needed cotton policy changes,” she said. ■



Tour participants

Protecting Stored Grain with



Bob Johnston, Regional Sales Manager for the Agricultural Products Division of Central Life Sciences

With the season's wheat and barley harvest underway, it is important that growers take every possible step to ensure the quality of the grain they'll be storing. The USDA estimates that stored-grain insects are responsible for losses as high as 10% annually, potentially costing the industry \$100 million per year in barley and \$300 million per year in hard red winter and spring wheat.

To ensure the quality and profitability of grain in storage, stored grain operators should incorporate the use of a protectant such as Diacon®-D IGR from Central Life Sciences. Diacon®-D IGR can help control insects that cause damage to stored agricultural commodities, such as malting barley and wheat. This insect growth regulator (IGR) works by preventing larvae from maturing into adult pests, breaking the insect's life cycle. Applied at an application rate of 10 lbs per 1,000 bushels of commodity, Diacon®-D IGR helps end insect infestations and prevent rebound, providing continuous control for 12-18 months.

Diacon®-D IGR offers:

- An insect growth regulator that breaks the insect life cycle
- The active ingredient (S)-methoprene
- Ready-to-use formulation
- Labeled for all stored commodities and foods
- Application to the grain stream
- CODEX approved
- Approved everywhere grain insects infest
- A long residual
- EPA tolerance exempt
- Protection against reinfestations

Diacon®-D IGR is a dry formulation ideal for use on commodities stored on farms and other locations where the ease of using a dry product is preferred. Diacon®-D IGR may be used by MillerCoors™, Rahr Malting Co. and Busch Agricultural Resources, LLC growers and other companies' growers supplying barley to

MillerCoors™, Rahr Malting or Busch Agricultural Resources, LLC. Other malting companies are presently considering usage. Grain can be used immediately after treatment with Diacon®-D IGR, and CODEX clearance has been established for any grain produced from the grass family.

Diacon®-D IGR provides control of the insects most commonly found infesting stored grain, including:

- **Lesser Grain Borer:** These pests bore into grain kernels and feed on grain dust, leaving a powdery residue and sweet musty odor. Their bodies are brown or black, 1/8" long with a head that can't be seen from above.
- **Saw-toothed Grain Beetle:** With brown, flattened bodies and legs that resemble a cockroach, these pests are easily identified by a distinctive saw-tooth projection on the side of the thorax. Infestations are typically visible within grain, and they can lead to overheating in storage.
- **Confused Flour Beetle:** These pests can live up to 18 months, primarily feeding on grain dust and broken kernels. They have a reddish-brown body with antennae that gradually expand, and leave traces of shed skins and fecal matter in infested grain.
- **Indian Meal Moth:** While the adults of this species don't feed on grains, their larvae typically feed 4 to 6 inches from the surface of the stored grain. Larvae are off-white with brown heads and produce dense webbing that binds to food fragments. Adults can typically be found flying near the vicinity of the stored grain, and they are brown in color with distinctive "rusty brown" or bronze wing tips.

Those seeking assistance in identifying pests infesting their grain can learn more at www.GrainBugs.com.

Stored grain insects can have damaging, costly consequences to any stored grain operation. But by implementing best practices and adding Diacon®-D IGR to a control plan, stored grain operators can protect the quality and profits of their grain.

For more information about Diacon®-D IGR and other products in the Bug Free Grains lineup, contact your distributor, visit www.BugFreeGrains.com or call 1-800-248-7763. ■





Important Crop Insurance Deadline Near

Producers Need to Make Insurance Decisions Soon

By Ben Thiel, U.S. Department of Agriculture Risk Management Agency, Spokane Regional Office Director

USDA's Risk Management Agency (RMA) Spokane Regional Office reminds Idaho grain producers of important crop insurance dates for the 2017 crop year. Idaho wheat and fall-planted barley producers have until September 30 to apply for crop insurance coverage. Current policyholders who wish to make changes to their existing policies also have until the September 30 sales closing date to do so. Crop insurance provides protection against crop production losses due to natural perils such as drought, hail, and excessive moisture.

If the Winter Coverage Endorsement (WCE) is elected, policyholders have until December 15, 2016, to file an acreage report that contains their share of all acreage of the crop in a county, whether insurable or not insurable. If the WCE is not elected then policyholders have until July 15, 2017, to file an acreage report for wheat and barley.

Final planting dates vary by county. Producers are encouraged to contact their crop insurance agent soon to learn county-specific final planting dates that indicate when an insured crop must initially be planted in order to be insured for the full production guarantee. The final planting dates for Bingham County are October 15, 2016 (winter wheat with the WCE), December 31, 2016

(winter wheat without the WCE), and May 15, 2017 (spring wheat). The final planting dates for Canyon County are December 15, 2016 (winter wheat with the WCE), January 31, 2017 (winter wheat without the WCE), and April 30, 2017 (spring wheat).

Crop insurance is sold and delivered solely through private crop insurance agents. A list of crop insurance agents is available at all USDA Service Centers and online at the RMA Agent Locator. Producers can use the RMA Cost Estimator to get a premium amount estimate of their insurance needs online. Learn more about crop insurance and the modern farm safety net at www.rma.usda.gov. ■





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Frequently Asked Questions About Low-Falling Number Wheat

As harvest began to unfold in North Idaho, what appeared to be the best wheat crop in recent history was dampened by the news that tests were showing Low Falling Number (LFN). The area affected was much larger this year than in most, recent questions to the Idaho Wheat Commission and Idaho Grain Producers Association have been abundant. These frequently asked questions might be helpful to all growers, if not for the current harvest, then for something you may deal with in the future.

Why does the elevator discount my low-falling number wheat?

The low-falling number test was developed to test for starch activity. If the starch has been damaged by pre-harvest sprout or temperature shock during kernel filling (late-maturity alpha-amalase or LMA), the functionality of the wheat is compromised and millers and end-users will not buy the wheat.

Why is a low-falling number score of 300 seconds used as the measure of acceptable wheat?

The milling industry has used (for over 40 years) the following measures for starch activity in wheat:

Falling Number (sec)	Indication of Starch Damage
FN>300	No damage to starch
300>FN>200	Some sprouting and other starch damage
200>FN	Severe starch damage

What causes low-falling number wheat?

The two most common causes of low-falling number wheat are pre-harvest sprout and temperature shock during kernel filling (LMA). There are other causes, as well, which are being researched. This includes low protein content and smaller starch granules.

My wheat was not rained on, so why do I have low-falling number wheat?

Wheat is very sensitive to wide variations in temperature when starch is being laid down in the kernel, particularly 25-30 days past flowering. Record low temperatures in Nez Perce, Lewis, Latah, and Idaho counties between June 12 and 19, 2016 may have impacted the quality of starch as the kernel was filling. On June 12, the reported high temperature in Lewiston was 80 degrees and the low temperature was 44 degrees. A record low of 42 degrees was reached on June 15. Another day with wide fluctuations was June 17 with a high of 80 degrees and a low of 47 degrees.

How long has the low-falling number test been used? How come I have never heard of it before?

After receiving inferior quality wheat in 1994, complaints by Asian customers led to the implementation of the low-falling number scores as one of the export specifications and FGIS grading standards. The exporters in Portland have been using low-falling number equipment since that time. For the past 20 years, wheat being exported has been held to the 300 minimum low-falling number standard. On the domestic side, however, use of low-falling number equipment and scores did not become widely used until the pre-harvest sprouting that occurred in eastern Idaho in 2014.

In most years there are scattered low-falling number anomalies which are frequently handled by the elevator without any impact on the grower. However, this year the amount of wheat affected is so large that the elevators are having trouble assembling shippable quantities of wheat with a falling number score above 300 seconds, causing elevators to discount growers more widely than before.

Information on low-falling number wheat and the low falling number test can be found at the following link:

<https://www.ars.usda.gov/SP2UserFiles/Place/36070500/InfoDianeuploaded/2010ResearchReviewAnnualReport/MKweon-FN-012810.pdf>

Can my wheat be blended?

Tests conducted by University of Idaho researchers have demonstrated that just one kernel of highly-sprouted wheat added to 2500 kernels of sound wheat reduced the falling number score by 100 seconds and turned the sample into “feed grade.” Unlike protein differences, which can be blended in a 1:1 ration to get an average value, LMA and sprout-damaged wheat caused by enzyme activity is a logarithmic relationship making it very difficult to blend. Growers who blend damaged grain with sound grain are taking a risk of making it all feed grade.

Will my falling number score be higher if I store the wheat and wait to market it?

Growers often ask about how storage affects falling number values. The scientific evidence is mixed with some experiments suggesting falling number may be altered after storage but it isn't consistently higher than when the wheat went into storage.

Is the falling number test accurate?

There is a significant variation in the test scores. This is due primarily to the way the operator handles the sample and it may swing by as much as 30 points. The Wheat Commission suggests growers have their wheat re-tested if it is lower than 300 but higher than 270. A re-test may move it high enough to make commercial grade. FGIS testing offers the least variation due to consistent handling by the operator. The FGIS test score is most credible because of the volume of tests and their consistency in handling.

Are some varieties of wheat more susceptible to low-falling number scores than other varieties?

This is being studied but no clear pattern has been determined. Nearly all varieties are affected this year, indicating climate and not variety, is responsible for the current low-falling number concern.

What market options do I have for my low-falling number wheat this year?

Growers should work with their elevator to find the best market. If the falling number score is below 200, it should be segregated into feed channels immediately to avoid contaminating commercial grade supplies. Feed channels are saturated due to abundant supplies of wheat on the world market so persistence is advised.

Elevators may be able to work with growers of wheat with falling number scores above 275. How far each elevator is willing to dip below 300 for commercial channels depends on their contract with the exporter and the customer's end product use.

Wheat between 200 and 270 will have the most variability in market channel. Some may have to go into feed channels and some may find an export market where falling number scores are not an issue. Flatbread markets in the Middle East are possibilities. U.S. Wheat Associates is looking into Yemen and Bangladesh on behalf of PNW wheat growers.

Time, patience, and coming to terms with possible discounts are advised.



What research is being done to help work through this problem?

There are different causes of low-falling number wheat, and growers are being discounted for all causes, whether it affects end-use or not. Idaho, Oregon and Washington have committed grower funds toward a milling stream study to find out if the end product changes depending upon the cause of low-falling number. The hope is that a way to blend more wheat can be found, depending on the level of starch degradation.

In addition, the Idaho Wheat Commission has funded Dr. Amy Lin, a starch chemist, at the University of Idaho to pursue research into how starch quality is impacted by climate as it is being laid down in the kernel. Her preliminary findings indicate that in some situations a low falling number occurs when starch is not degraded and therefore end-use quality is not diminished.

What are the prospects for disaster declarations and emergency assistance from appropriate agencies?

IGPA met with the Director of the Idaho State Department of Agriculture and staff from Governor Otter's office on August 9 and briefed them on the developing low falling numbers situation in Nez Perce, Lewis, Latah, and Idaho counties. IGPA also had conversations with members of our federal congressional delegation. While sympathetic, the sense is that little that can be done at this time to provide emergency assistance. IGPA has been asked to keep these partners up to date throughout harvest, and will do so – and we will follow up immediately if any opportunities arise to offer relief.

Will crop insurance cover my loss for low-falling number wheat?

Falling number below 300 could result in a crop insurance claim. Since the 2011 crop year, the Risk Management Agency implemented a Falling Number Discount Factor Table as an allowable quality adjustment for crop insurance. Falling number between 200 and 299 have discount factors ranging from 5.2% to 15.7%. The applicable discount factor is applied to bushels harvested and reduce the Production to Count for claims purposes.

Falling Numbers less than 200 result in a Reduction in Value (RIV) procedure. If the wheat production on the date of final inspection for the unit is sold to a disinterested third party, the discount factor will be the sum of RIVs (cash discounts applied by the buyer) divided by the local market price. If the wheat production on the date of final inspection is unsold, or sold to someone other than a disinterested third party, then the discount factor is 50%. Discount factors for multiple covered quality deficiencies can be combined except sprout damage and falling numbers discounts.

Where can I go to learn more about low-falling number wheat?

Three articles on low-falling number wheat appeared in Idaho Grain magazine in 2015. In addition, the Idaho Wheat Commission created a video with University of Idaho researcher Juliet Marshall in 2015 to caution growers against blending low-falling number wheat with sound wheat:

https://vimeo.com/131819077?utm_source=email&utm_medium=clip-transcode_complete-finished-20120100&utm_campaign=7701&emailid=Y2xpcF90cmFuc2NvZGVkfDMwMjUzMDQ1ZmZjYjlmYTM5MlW14MTFhYmE1NzkyMjg4NDAwfDE4MjYzMjB8MTQzNTI3MDE0NXw3NzAx

A YouTube video featuring Art Bettge and "Potlatch" Joe Anderson can be found here:

<https://www.youtube.com/watch?v=YMjhdSskXP0> 



How does starch affect falling number?

Amy Lin, PhD, Assistant Professor in Starch Chemistry, Bi-State School of Food Science, University of Idaho, Moscow, ID

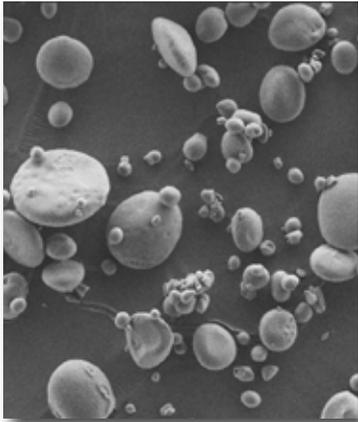


Fig. 1 Wheat starch under scanning electronic microscope (SEM)

Steve, a retired farmer, grew wheat, barley, and other crops. He got to know the new faculty member in Starch Chemistry at the university, Amy Lin, and became good friends. Steve lives near Coeur D'Alene, ID. Recently Amy and Steve were chatting on the phone.

Steve: Hey Amy! When will you come

back? I don't remember, where did you go this time? We should get together. Water is very nice here at the lake.

Amy: Hi Steve! I went to see my family. I came back last week, but I am busy with new students and tons of e-mails. Many people asked me about the low falling number in wheat this year.

Steve: Again? They had low falling number two years ago. It was bad. Did it rain a lot there? What do you do with low falling number?

Amy: Well, falling number is not all about raining and sprouting. Falling number is a measurement of the viscosity of hot flour paste. There are many factors to influence falling numbers. It is quite controversial to judge grain prices and wheat quality using falling number.

Steve: I am glad I don't need to worry about it anymore. What are you going to look at?

Amy: This is not a new research topic, but I feel we have underestimated the influence of starch in falling number and wheat quality. I know weather can affect starch synthesis. When growing cassava with different temperature, cassava starches had different molecular structure and properties though they were the same variety. A similar temperature influence has also been studied in other crops.

Steve: I've never heard about it.

Amy: Well, you've never taken my "Starch Chemistry" class. Time for lesson one?!

What is starch? What is wheat starch?

Higher plants store energy as starch. It is composed of a simple sugar – glucose. Glucose molecules are linked to each other and form molecular chains through two types of linkages, α -1,4 and α -1,6 glucosidic linkages. Based upon the ratio of these two linkages there are two types of glucose chains, amylose and amylopectin. The majority of the chains are linear when the linkages are α -1,4 linkage; a branch forms in the chain when an α -1,6 linkage is formed. Amylose has less than 0.2% branches, but amylopectin has about 5%. Branches make starch structure very complicated. Scientists still don't fully understand starch structure and can not make an artificial starch granule. A tiny change in the ratio and location of branches has a dramatic influence on starch properties, such as flour viscosity and product texture.

Can you tell the difference between potato and wheat starch? They are both white powders. When adding water to make a starch suspension, they look similar. However, they are very different under a microscope. Potato starch granule is an oval shape with a diameter of 50-150 μ m (Fig.2). It is one of the crops with large starch granules.

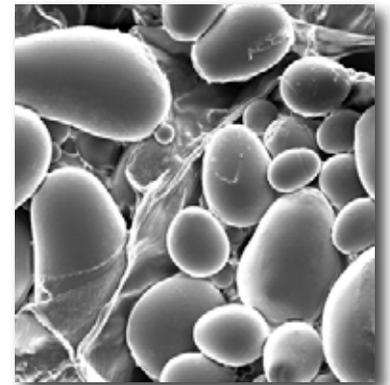


Fig. 2 Potato starch under scanning electronic microscope (SEM)

Wheat starch granules are disc and sphere shapes. Take a close look at Figure 1; the big (20 – 40 μ m) disc shape granule is A-type, and the small (less than 9 μ m) sphere shape granule is a B-type granule. A and B granules are synthesized at different periods after flowering. In addition to their size and shape, their molecular structure and properties (e.g. viscosity) are different.

Not all the crops have two size distributions of their starch granules; barley, rye and oat are similar to wheat and have big and small starch granules.



The Falling Number test from the perspective of starch molecules

How does starch affect falling number?

If ten students wear balloon costumes in a classroom, it will become very difficult to move around the room when the balloons are filled with air. Similarly, when heating starch with water; starch granules swell, and the space in the solution becomes very crowded. Thus, viscosity increases and the solution will thicken like gravy. Also, starch granules release some molecules, especially amylose, which contributes to the increase in viscosity. When cooking continues, granules eventually break and then viscosity decrease. Usually, this happens at about 95 to 100 °C, which is similar to the temperature used in the falling number test.

When comparing potato and wheat starch in hot solutions, potato starch solution is transparent, but a wheat starch solution is opaque. Next time you go to a Chinese restaurant, order a cup of sweet-sour soup. You will see the transparent appearance with dark brown color, which is the color of vinegar, soy sauce, and other food ingredients. The secret ingredient of the transparency is potato or tapioca starch. How about chicken noodle soup and gravy? Corn starch works well for chicken noodle soup and wheat flour is perfect for gravy; both starches have a low viscosity and opaque appearance. What makes the difference among potato, corn and wheat starches? When starch granules are synthesized, there are many enzymes involved. Each type of plant has slightly different enzyme compositions and activity at different stages of plant growth and

different stages in starch synthesis. Thus, each starch is unique genetically and is influenced by the plants growing conditions or environment.

What are the falling numbers of potato, corn and wheat starch? Obviously, we will get three different falling numbers because they have different viscosity. How about comparing wheat starch and wheat flour? Though starch is the major component in wheat flour, there are other components such as protein, fibers (soluble and non-soluble), lipid, minerals, pigments and others. All the big molecules such as protein and fiber can directly contribute to viscosity, and some micronutrients, such as phosphate, can influence viscosity. Thus, starch is not the only factor in determining falling numbers, and all the components are affected by wheat's genetic background (cultivar), weather, and agronomic practices. Now, let us think deeper. Among those components, which component determines the dough quality (such as water absorption), volume of bread, and size of a cookie? Indeed, each component interacts with the others, especially with the starch. For example protein with starch, starch with phosphate, and starch with lipids. Also each quality attribute is associated with particular structural properties. In conclusion, wheat end-use quality cannot accurately be determined by a single component (e.g. protein or starch) or represented by a value of viscosity as in the result of the Falling Number test. ■

Idaho Wheat Commission Report

In the 2015 crop year approximately 1.1 million acres of wheat were harvested. The yield was about 77 bushels per acre and the total crop was 87.1 million bushels. Sales were over \$506 million, and wheat continues to rank as Idaho's second largest crop, behind potatoes and ahead of hay.

Almost sixty percent of Idaho's production is grown on irrigated farmland and forty percent is grown on dry land. Approximately two-thirds of the crop is winter wheat and the remaining one-third is spring wheat.

Soft white wheat makes up the largest amount of Idaho wheat grown. It is roughly 55% of the annual crop. Hard Red is the second most popular class, at 39%. Idaho's production of hard white wheat has slipped,

but its six million bushels of hard white in 2015 still makes it the largest hard white growing state, Idaho expects to release a new hard white winter variety of wheat this year.

Half of Idaho's crop goes to domestic mills and customers. This includes the GrainCraft (Pendleton) mill in Blackfoot, mills in Ogden, and customers in California. California is the largest wheat-milling state in the country and they dramatically increased purchases of wheat from Idaho during their dry years. Roughly half of the crop is exported. Top foreign destinations include Japan, Mexico, Korea, the Philippines, China, and Taiwan.

Approved 2016 Budget

Activities carried out by the Idaho Wheat Commission on behalf of Idaho wheat growers are funded by a \$.035 per bushel wheat tax. This tax is remitted quarterly. Revenue from the wheat tax during FY'16 is budgeted at \$3,025,000. Spending in FY'16 is budgeted at \$3,379,443. The difference will be made up from reserves invested with the State Investment Pool.



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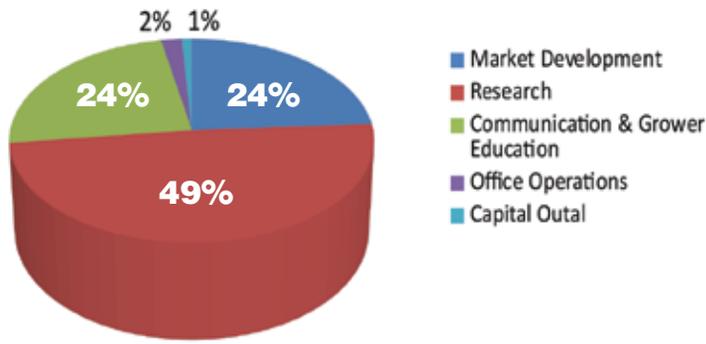
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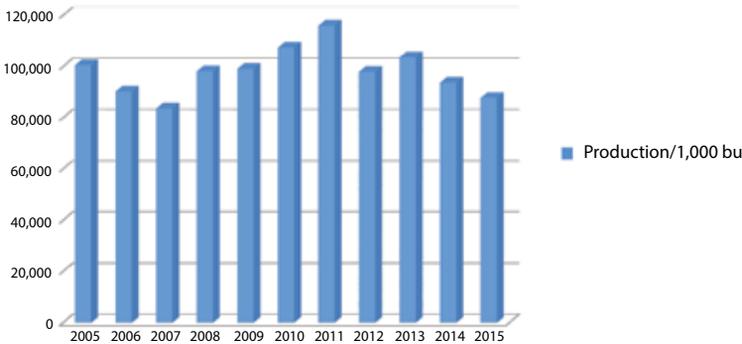
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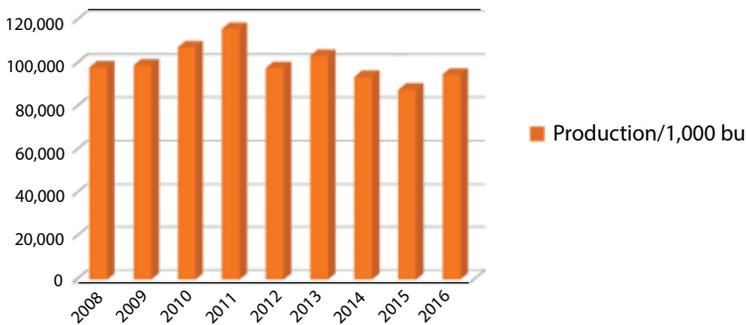
Idaho Wheat Commission 2016/17 Budget \$3,414,707



Idaho Wheat Production



Idaho Wheat Production History



Projected FY'17 Revenue and Spending

Production is slowly recovering from the sprout-damaged crop of 2014. Production in FY'17 is expected to be slightly over FY'16. The Idaho Wheat Commission is providing substantially more support to the University of Idaho and other agricultural programs than it did ten years ago. The IWC focuses its support on protecting core wheat programs. Agriculture is a basic industry benefiting all Idaho residents and reinvestment in agriculture will help rebuild Idaho's economy and employment faster than almost any other sector of the economy.

The Idaho Wheat Commission established two \$1 million endowments in 2012 to provide support to two Aberdeen positions. The two endowments benefit and help stabilize the Aberdeen wheat breeder and Aberdeen cereal agronomist. The Idaho Wheat Commission is also funding a new wheat geneticist position at the Moscow wheat breeding station and this new position may be considered for an endowment at some point in the future.

Where Wheat Commission Time and Resources are Currently Being Put

- Invest Idaho's grower assessment dollars for maximum return.
- Uphold the consistent, dependable quality of Idaho wheat and preserve and protect the robust, healthy status of Idaho's wheat industry. Maintain what has already been built.
- Maintain and expand sales of Idaho wheat to domestic and export customers.
- Identify the best new wheat technologies and implement for the benefit of Idaho wheat growers and industry.
- Boost public research through the University of Idaho, and forge strong ties between public programs and new exciting breeding efforts.
- Maintain balance between profitability, sustainable production practices and stewardship of Idaho's natural resources.

Wheat Marketing Center



From left, Bon Lee, Yosep Kim (Visiting Scholar from Korea) and Gary Hou with over 100 sponge cakes being tested as part of a research project funded by PNW wheat commissions.

WMC Misson and Staff

The Wheat Marketing Center, located in the old Albers Mill building in Portland, OR, provides technical training, education and research for U.S. wheat farmers and customers, both domestic and international.

Created in 1988 with the support of seven wheat states including Idaho, Washington, Oregon, Montana, North Dakota, Nebraska, and Colorado, WMC serves as an information bridge between growers and end users of wheat. WMC's mission is to improve the well-being of present and future generations of U.S. wheat farmers and worldwide consumers by conducting wheat utilization research projects and delivering dynamic educational programs in partnership with other international technical and educational organizations.

WMC's full-time staff includes:

- Managing Director Janice Cooper – New to WMC, Ms. Cooper brings wheat industry, international trade and diverse business experience to her role of managing the Center and its relationships with supporting states, US Wheat Associates (USW), and the many stakeholders.
- Technical Director Gary Hou – With more than 20 years at WMC, Dr. Hou is a recognized expert in wheat foods product quality, including Asian noodles, cookies and crackers, sponge cake, flat bread, and whole grain products. He leads the Center's technical training and research activities.
- Lab Supervisor Bon Lee – With more than 18 years at WMC, Mr. Lee manages the annual crop quality testing effort, including the weekly harvest and annual CQ reports. He also is responsible for lab testing services provided to private companies.

- Lab Technologist Kathleen Gehring – Ms. Gehring has been with WMC for close to eight years, performing hundreds of quality tests and explaining their value to the many visitors that come through the facility each year.
- Food Technologist Caryn Ong – On staff since 2014, Ms. Ong assists Dr. Hou with all technical training courses and works on various research projects. She can often be found measuring sponge cake texture or preparing dough for the cookie/cracker pilot line.
- Office Manager Gamble Wright – The newest addition to the staff, Ms. Wright joined WMC in March and is quickly bringing order to all corners of the operation. She provides a friendly greeting to visitors and organizes WMC activities.



From right, Gary Hou, Caryn Ong and Jungang Wang demonstrate the cookie/cracker pilot scale line for customers and guests from the Latin American and Caribbean Buyers' Conference tour.

Visiting Scholar Program

Supplementing this staff are our Visiting Scholars, Research Assistants and on-call staff to assist with milling. The Visiting Scholar Program allows WMC to tap skilled researchers from key markets and engage them in specific projects designed to address market challenges and expand market opportunities. These scholars come from universities and customer companies (including mills) and expand WMC's research capability. Some examples of recent projects include:

- Dr. Wenyin (Sofia) Zheng is an associate professor of Anhui Agricultural University, who focuses on wheat quality and utilization. Her WMC project tested soft white whole-wheat flour in pan bread, steamed bread and flour tortillas.
- Mr. Yosep Kim, a researcher from Daehan Flour Mills, evaluated the impact of various protein levels soft white wheat on sponge cake quality. This project was funded by the PNW wheat commissions in response to the cyclical high protein years. The study found that 85% to 75% SWH (10.5% wheat protein) combined with 15% to 25% WHCB was the optimum blend. This creates flexibility for customers who may have thought flour made from SWH 8.5% protein was required.



L-R: Yosep "Jo" Kim • Visiting Scholar; Gamble Wright • Office Manager; Stu Conser • Lab Technician; Caryn Ong • Food Technologist; Kathleen Gehring • Lab Technologist; Bon Lee • Lab Supervisor; Wenyin "Sofia" Zheng • Visiting Scholar; Janice Cooper • Managing Director; Dr. Gary Hou • Technical Director; Jungang "Jason" Wang • Research Assistant.

In addition to conducting in-depth research, the scholars backstop WMC staff for tours and crop quality testing. Once they return to their home country, the scholars share their expanded knowledge of U.S. wheat quality with their colleagues in their local wheat industry and often act as advocates for expanded use of U.S. wheat. Dr. Ting Liu, a recent scholar, has just been hired by USW-China as a technical specialist.

University of Idaho researcher Dr. Amy Lin and WMC's Dr. Hou are collaborating on a study that examines the impact of low temperatures on starch granule formation. Combining Dr. Lin's starch chemistry expertise with Dr. Hou's knowledge of end product quality will provide added value to Idaho's wheat industry.

The Idaho Connection

The Idaho Wheat Commission (IWC) is a founding supporter and active participant in shaping WMC's programs. Idaho Wheat Commissioner Bill Flory from Winchester chairs WMC's Board of Directors. "Wheat Marketing Center is a powerful resource for the U.S. wheat farmer," said Flory. "Our strength in the world market is quality and WMC demonstrates to customers how they can utilize that quality to its full potential in their end products."

Each year, WMC proposes projects and activities that directly support the interests of Idaho wheat farmers. For

FY 2016/17, the IWC approved funding for:

- Crop Quality Sample Collection and Testing
- PNW Soft White Wheat Crop Quality Report
- Visiting Scholar Program
- Special research project that will study whether substituting SWH bran in whole wheat noodles improves product color and texture compared with using hard red bran. If successful, this would help maintain or even increase the market share of SWH in Asia by increasing its economic value.
- General support that includes technical training for customers and the annual grower tour

Idaho joins other state wheat commissions in supplying approximately 75 percent of WMC's operating budget. Additional income is derived from technical course income, lab services and special research projects.

Coordination and collaboration also take place in research projects. On the important subject of the causes and impact of low falling numbers, for example, University of Idaho researcher Dr. Amy Lin and WMC's Dr. Hou are collaborating on a study that examines the impact of low temperatures on starch granule formation. Combining Dr. Lin's starch chemistry expertise with Dr. Hou's knowledge of end product quality will provide added value to Idaho's wheat industry.

Core Programs

WMC's core strengths are its experienced staff and the unique and specialized equipment enabling product development and wheat/flour quality evaluation. With



funding from IWC and other state wheat commissions, for example, WMC acquired a pilot scale cookie/cracker/biscuit line that allows customers to test different combinations of wheat and other ingredients in their formulations. Major cookie and cracker manufacturing companies have come to work on the line and have seen first-hand that U.S. wheat offers the quality they are looking for in their end products. WMC partners with US Wheat Associates (USW) to bring customer teams comprised of product manufacturers and millers to experiment on new products and compare their control flour to various blends of U.S. wheat. For both cookies/crackers and Asian noodles, this approach has worked very effectively by allowing the customers to engage in hands-on product formulation and evaluation.

The other focus of educational outreach efforts is farmers. Each January, IWC organizes a trip to Portland for wheat growers to learn about the international market and the importance of quality to end products. The group makes several stops around Portland including export elevators, barge operators, and the Wheat Marketing Center to get a complete view of what happens to their wheat when it leaves their farms. WMC staff always enjoys their interactions with farmers and the opportunity to learn more about their challenges and concerns. In 2016, about 20 people participated in the tour. Later in the year, WMC often hosts an Idaho FFA group and provided a similar experience.

In June, 2016, USW held its biennial Latin American Buyers Conference in Portland. This provided a special opportunity to interact with customers from throughout the region and farmers from around the country. WMC offered a special tour before the conference and attracted more than 60 attendees. Chairman Flory and several of his fellow board members, including Darren Padgett from Oregon, Brit Ausman from Washington, John Akre from the Port of Portland, and Greg Guthrie

from BNSF, helped host the tour. Demonstrating the cookie/cracker, Asian noodle and tortilla lines spurred many interesting conversations. Several major wheat buyers were particularly interested in learning that they could arrange for additional quality tests as their wheat was being loaded onto ships. These results help them know how to best utilize the wheat upon arrival. USW produced a video of the tour, which can be viewed on YouTube.



Gary Hou and cracker consultant Dr. Meera Kweon (left) leading cracker evaluation with international participants at the Cookie and Cracker Technology Short Course.

Conclusion

In late summer and early fall, WMC turns its focus to analyzing the new crop and producing weekly harvest reports. The data is compiled and included in the USW annual crop quality report (covering all wheat classes) and the special SWH report, which are shared with customers around the world. As growers know all too well, each harvest presents new challenges; WMC stands ready to help Idaho wheat farmers address those challenges and to show customers how to make quality end products with the wheat Idaho grows. 🇺🇸



Lansing grows Idaho operations

High speed unloading at Pleasant Valley

Lansing Trade Group, one of the nation’s leading privately held commodity merchandising and handling companies, has traded wheat and other commodities with commercial dealers in Idaho for more than 25 years.

Never satisfied with the status quo, however, the nearly century-old company is always on the lookout for new opportunities, improvements and growth.

Here in Idaho, the purchase of a shuttle facility in Bliss in 2004 began Lansing’s expansion in the local dealer market. Since that time, the company has rapidly spread its footprint from the Magic Valley locations (Buhl, Hansen, Glenns Ferry) into the Treasure Valley (Greenleaf) and most recently into eastern Idaho (American Falls, Pleasant Valley, Idaho Falls).

Lansing invested in Idaho due to its strategic, high-quality dependable production areas attributable to irrigation, said Jim Rooney, a Lansing merchandiser in Idaho Falls.

“Much of our expansion was due to growers’ desire to have local delivery points that have large capacity with high-speed unloading capability. Our local strategy mirrors our corporate strategy,” he said.

Lansing’s core business is the origination and physical delivery of commodities from producers to end users utilizing industry-leading logistical expertise and strategically located storage and handling facilities.

Growers have shown, through their patronage, that Lansing’s operations are strategically located to service their needs and its improvements are increasing receiving efficiencies, Rooney said.

“For many years the speed and technological advances at the farm level exceeded that of the grain industry. With the addition of the high-speed unloaders and additional capacity from Lansing’s

investments, growers are finding smaller lines and faster turnaround times at these dumpsites,” he said.

Lansing now serves southern Idaho from east to west, offering competitive prices for all commodities. Its depth and breadth of marketing experience, locally, domestically and internationally, from its local merchandisers to those in Kansas City, bring growers broad access to mill, feed and export markets, he said.

Lansing is currently working with more than 700 growers and livestock producers in Idaho, said Perry Knopp, Senior Location manager at Bliss.

“We have expanded this base through an ever-increasing footprint of facilities and by building relationship of appreciation, respect and trust with our growers. Many growers rely on our years of local marketing and merchandizing experience to help them make decisions on sales, purchases as well as agronomic decisions,” he said.

Lansing supplies end users and exporters across the U.S. and has great relationships with all of the major mills and exporters that expand well beyond Idaho through its trading offices across the country, he said.

Seed innovation

In the past two years, Lansing has expanded its seed operations by upgrading seed conditioning equipment in Buhl. The new equipment allows Lansing to provide certified seed that is cleaned and sized to very high standards, Rooney said.

Along with its existing dealership with Syngenta Cereal Seeds, Lansing has added new dealerships with Monsanto Westbred, Limagrain Cereal Seeds



Juliet Marshall, UI Pathologist Derek Reed, Idaho Grain Producers, and Jim Rooney, Lansing Grain in a field of UI Platinum

and the University of Idaho to offer seed varieties of all kinds and classes.

One of the most exciting varieties of soft white winter wheat to hit the market in the last few years has been Syngenta's SY Ovation, and yields of Ovation have been phenomenal this year, Rooney said.

John Moffatt of Syngenta developed the variety for the Pacific Northwest, and growers' experience with the variety is just as Moffatt expected. It is one of the best all-around performing wheat varieties the breeder has ever seen, he said.

When asked about blends for soft white winter planting, Moffatt said the best blend he has ever seen is Ovation blended with Ovation, Rooney said.

Lansing also participates in one of the most unique relationships in the seed industry, teaming up with Limagrain and the University of Idaho. Lansing and Limagrain are promoting a new hard white spring variety, UI Platinum, developed by the university.

The companies' goals are to drive sales and guarantee broad access to the seed for production and grain for end users, while returning a royalty revenue stream to the university for additional wheat research and development, Rooney said.

Lansing will sell registered or certified seed to dealers so they can either grow their own certified seed to sell or just buy wholesale to re-sell, he said.

UI Platinum is a high yielding, short and early variety with strong flour functionality that is an excellent replacement for Klasic. Developed through a successful public-private partnership between UI, Limagrain and the Idaho Wheat Commission, it recently received high scores from the Pacific Northwest's Wheat Quality Council -- where end users evaluate wheat varieties for flour functionality, he said.

"We are seeing some early results from one of our seed fields of UI Platinum yielding in excess of 150 bushels per acre with a 65.5 pound test weight," he said.

Emphasis on education

Lansing and its employees recognize that the grower is the most important asset of its business. Rooney said.

Idaho growers can produce some of the highest quality, most consistent crops in the nation. The cropping systems employed in Idaho are second-to-none with the irrigation, crop protection and fertility programs in place, he said.

"Our growers depend on us to help them make informed decisions of when to buy or sell, what to grow, and to provide fast dependable delivery systems and payment terms. We pride ourselves on and continually work to



Pleasant Valley facilities

About Lansing

Founded in the 1920s, Lansing Trade Group is one of the nation's premier independently owned physical trading companies. The company trades whole grains, feed ingredients, and energy products via all modes of transportation in North America and internationally. With headquarters in Overland Park, Kan., Lansing has offices both domestically and abroad, including across the United States, in Brazil, China, Canada and the United Kingdom.

www.lansingidaho.com
www.lansingtraegroup.com

improve our service offerings to meet the demands of the grower while matching those of the end user," he said.

"The more Lansing can help growers increase their bottom line through education, such as yield and quality and of course price, the more we create a win-win for everyone," Knopp said.

This summer, Lansing held its first field day in the Magic Valley, and it was a huge success, Rooney said. The day was very educational for growers and included a visit to Monsanto's state-of-the-art breeding facility in Filer. Growers learned about double haploid, hybrid and traditional breeding techniques. They also viewed Lansing's test plots where discussions were held concerning diseases, such as rust and barley yellow dwarf virus. The test plots also helped growers see the different variety offerings from the various plant breeders and understand where the best fit for each variety might be.

"Lansing understands the value of both yield and performance to the grower, as well as the quality needs of the end user," Rooney said.

Market trends

The ever-expanding dairy industry in Idaho has led to a shift to more corn production in the Magic and Treasure valleys. Lansing

A look at Lansing Idaho

Bliss

110 car shuttle loader/unloader, rail and truck; high-speed unloads with new storage capacity, wheat, corn, DDG's, commodities

Greenleaf

New high-speed truck and rail loader/ unloader; corn, wheat, barley and commodities

Buhl

Seed headquarters, state-of-the-art seed plant; high-speed truck and rail loader/unloader; corn, wheat and barley.

Glenns Ferry

Truck and rail loader/unloader; corn and wheat

Hansen

Convenient location for truck unloading/loading; corn and wheat.

Pleasant Valley

New location between American Falls and Aberdeen; state-of-the-art high-speed unloading; conveniently located for truck unloading/loading.

American Falls

High-speed truck and rail loader/unloader; primarily wheat

Lincoln

New location on the east side of Idaho Falls with truck and rail loading/unloading; great storage capacity with segregation.

Total capacity • 12.5 million bushels

Grain contracted • Corn, SWW, HWW, DNS, HRW, durum, DDG's, wheat seed and commodities.

Source: Lansing Trade Group



Stadiums, bin and commodity shed at Bliss Idaho

has expanded its business to service the dairy industry by adding infrastructure such as the commodity shed in Bliss, as well as commodity traders to assist dairyman with their needs, Rooney said.

Along with whole and ground corn, Lansing offers DDG's, canola meal, wheat mids, cotton seed and many other commodities to this new demand.

Back to wheat, this year's harvest in Idaho has brought very high yields and good-quality soft white wheat supplies, contributing to burdensome U.S and world supplies of wheat that have depressed markets. Marketing wheat at profitable levels is challenging, he said.

"Selling the rallies even as small as they may be might offer the best opportunities we will have, as forecasts for next year look to be more of the same," he said.

One of the biggest issues facing hard wheat growers this year is protein. Low-protein crops across the country have led to steep discounts for lower protein and conversely, nice premiums for high protein are expected, he said.

Lansing continues to look for opportunities to fill the needs of Idaho producers and end users of their grains through providing strategically located facilities and creative new value-added contracting programs, he said. ■



Drone photo taken of Pleasant Valley, recently filled and tarped.

2014-2015 Idaho Winter Wheat Variety Performance Tests and 2013-2015 Yield Summaries

By Juliet Marshall and Kurt Schroeder, Extension Specialists, Department of Plant, Soil and Entomological Sciences, University of Idaho, and Mike Flowers, Extension Cereal Specialist, Oregon State University

Variety Testing

Idaho winter wheat varieties are evaluated each year to provide performance information to help growers select superior varieties for their growing conditions. The tests are conducted using farmer fields or university experiment stations, and the varieties are grown under conditions typical for crop production in the area. Varieties are included in these tests based on their potential adaptation in an area and commercial use of a



Table 1. Dryland Winter Wheat Variety Performance in the Northern District near Bonners Ferry, Genesee, Moscow, Nezperce, Tammany and Tensed, 2014-2015.

Variety	Seed Yield						Yield bu/A	Test Weight lb/bu	Plant Height Inches	Protein %	Lodging %
	Bonnors Ferry	Genesee	Moscow	Nezperce	Tammany	Tensed					
Soft White Winter	bu/acre										
ARS-Amber	102	92	114	51	106	121	97	56	37	10.9	0
Bobtail	103	89	112	57	118	101	96	54	34	10.5	0
Brundage 96	103	99	112	58	112	114	100	56	36	11.4	0
Bruneau	111	105	114	60	120	126	106	57	39	10.5	1
ARS-Crescent (club)	94	83	109	41	117	114	93	55	37	10.9	0
Jasper	95	98	118	50	116	122	100	54	36	11.1	0
Kaseberg	99	92	103	56	109	93	92	56	34	10.5	0
LCS ArtDeco	71	111	109	70	135	113	101	57	32	10.9	0
LCS Biancor	94	93	95	60	110	80	89	56	31	10.4	0
LCS Drive	98	99	94	60	124	94	95	56	30	10.6	0
Madsen	101	85	105	53	115	110	95	56	36	11.6	0
Norwest Duet	100	102	118	61	128	113	104	57	40	10.7	0
Puma	106	98	120	59	134	128	107	56	41	10.6	0
Rosalyn	102	97	113	64	125	123	104	57	36	10.0	0
Selbu	97	88	109	55	120	115	97	58	36	11.1	0
Stephens	106	97	103	56	116	107	97	56	36	11.4	0
UI Castle CL+	100	82	100	40	87	63	79	58	36	11.8	0
UI Magic CL+	105	91	101	45	114	77	89	58	34	11.5	0
UI Palouse CL+	88	86	101	49	107	107	90	55	34	11.4	0
UI/WSU Huffman	112	95	113	56	118	111	101	56	37	11.0	0
WB1376 CLP	99	91	99	58	107	94	91	61	37	12.1	0
WB-1529	95	96	106	66	124	114	100	59	34	10.7	0
WB-1604	104	92	105	63	121	95	97	58	34	11.1	0
WB-456	100	97	98	61	119	103	96	60	35	11.6	0
WB-523	98	98	110	57	119	113	99	58	36	10.7	0
WB-528	105	93	103	62	121	114	100	59	37	10.8	0
WB-Junction	106	106	106	67	126	118	105	59	36	10.5	0
Trial Average	100	95	107	57	117	107	97	57	36	11.0	0
LSD (0.05)	12	10	9	9	8	10	4	1	1	0.3	ns
Hard Winter											
Boundary	108	98	110	65	95	116	99	59	38	11.1	3
Keldin	111	106	114	67	123	119	106	61	38	10.9	0
LCS Azimut	101	97	111	54	112	92	94	55	30	11.2	0
LCS Colonia	113	94	116	55	116	88	97	55	34	11.6	0
LCS Jet	125	104	128	70	125	117	111	59	35	11.2	0
Norwest 553	102	90	95	52	93	69	83	60	32	11.7	0
Rimrock	108	101	119	67	109	117	104	60	37	10.9	2
UI Silver (w)	91	99	107	63	84	110	92	60	40	11.1	33
UI SRG	110	93	108	65	90	105	95	58	46	11.6	25
WB-Arrowhead	107	103	115	66	108	117	103	61	40	11.3	3
Trial Average	108	99	112	62	106	105	98	59	37	11.3	7
LSD (0.05)	11	6	10	8	7	15	5	1	1	0.2	4

(W) = Hard white

variety. The number of entries is limited due to resource constraints. Individual plots were planted as 7 rows spaced 7” apart or 5 rows spaced 10” apart for 14’ to 25’ in length and replicated 3 or 4

Table 2. Irrigated Soft White Winter Wheat Variety Performance at Parma, 2015.

Variety	Yield		Test		
	Average bu/acre	Weight lb/bu	Height (in)	Lodging %	Protein (%)
Bobtail	141	57	38	45	11.1
Goetze	123	54	40	16	12.0
Jasper	145	59	42	15	10.6
Kaseberg	140	58	39	21	10.1
Ladd	140	57	39	1	11.5
LCS ArtDeco	158	57	39	1	10.3
LCS Biancor	142	58	34	0	10.9
LCS Drive	135	57	32	0	11.0
Legion	126	58	43	63	10.5
Mary	118	57	39	51	11.5
Norwest Duet	143	58	45	51	11.0
ORCF-101	116	57	40	15	11.8
ORCF-102	123	58	44	19	10.9
Puma	122	59	44	71	10.9
Rosalyn	146	59	40	28	10.6
Skiles	127	58	39	30	12.0
Stephens	95	56	39	48	11.2
SY 107	95	56	42	63	11.3
SY 96-2	145	60	39	6	11.0
SY Ovation	156	60	43	4	10.7
Tubbs 06	114	55	43	50	11.1
UI Sparrow	140	58	44	36	10.4
UI/WSU Huffman	133	59	43	18	10.7
WB 1376 CLP	131	59	42	1	12.4
WB 1529	154	61	38	6	11.1
WB 1604	149	60	40	6	11.3
WB EXP 1028CL+	125	58	38	0	12.9
WB Trifecta	138	60	41	18	11.0
Average	131	58	41	30	11.2
LSD (α = .05)	17	2	2	39	0.9

times in a randomized complete block design. Agronomic performance data for winter wheat are summarized by state districts in Tables 1-6. Northern District results are presented in Table 1 and Western Idaho results are in Tables 2 and 3. Southern and Eastern Districts results are presented for irrigated trials in Table 4, and for dryland trials in Tables 5 and 6.

Information Summarization

Yield data are reported for individual sites while other agronomic data are averaged over all sites of each table. Bushel/acre yield results are based on 60 lbs/bu at 11% moisture. Lodging ratings are the percent of a plot area lodged, and in some tables not reported due to no or minimal lodging. Average values are presented at the bottom of listings and are followed by a least significant difference (LSD) statistic at the 5% level. Average yield data from variety performance trials in 2013, 2014, and 2015 are presented in Table 7 for all districts. These data represent results of 7-15 site/years and can be a good indication of long-term performance of a variety. More detailed lodging information is available on the URL for UI cereals website <http://www.uidaho.edu/extension/cereals/>.

Information Interpretation

Average past performance of a variety is the best indicator available to predict future performance potential. Variety performance can vary from location to location and year to year. The results reported in this article are for 2015 trials; previous results can be found in the 1992 to 2014 issues of Idaho



Table 4. Irrigated Winter Wheat Variety Performance in Eastern and Southern Districts at Kimberly, Rupert, Aberdeen, 2014-2015.

Soft White Winter Variety	Yield				Test Weight	Spring Heading		Lodging	Protein	
	Kimberly	Rupert	Aberdeen	Average		Stand	date			Height
	bu/acre				lb/bu	(%)	(in)	%	(%)	
Bobtail	139	156	152	149	55	99	5/25	37	0	10.7
Brundage	139	141	134	138	58	99	5/19	37	0	11.2
Bruneau	131	133	144	136	57	97	5/27	37	4	10.1
Eltan	114	121	131	122	55	99	5/28	41	29	11.4
Jasper	144	131	141	139	56	98	5/26	39	0	11.3
Kaseberg	141	135	151	142	55	99	5/25	38	0	10.5
LCS Artdeco	135	151	131	139	55	99	5/19	35	1	9.9
LCS Biancor	129	150	139	139	56	99	5/24	33	0	10.5
LCS Drive	139	136	129	135	54	99	5/20	33	0	10.0
Madsen	121	127	139	129	57	94	5/27	40	0	11.2
Madsen / Eltan	119	117	137	124	57	99	5/27	41	5	10.5
Mary	151	149	135	145	57	98	5/23	36	0	11.0
Norwest Duet	147	119	132	133	55	100	5/28	43	0	11.4
Rosalyn	145	148	155	149	57	98	5/24	38	0	10.1
Stephens	136	130	127	131	56	100	5/22	36	0	10.7
SY 107	131	135	144	137	56	99	5/25	38	1	10.7
SY 96-2	133	126	111	123	57	99	5/14	34	2	11.1
SY Ovation	150	147	139	145	58	99	5/22	39	0	10.6
UI Castle CL+	121	117	126	121	56	99	5/25	39	7	11.4
UI Magic CL+	132	123	140	132	58	95	5/22	36	4	10.8
UI Palouse CL+	120	128	130	126	56	99	5/25	38	0	11.7
UI Sparrow	127	145	152	141	56	99	5/29	41	3	10.5
UI-WSU Huffman	141	127	135	134	56	100	5/27	39	0	10.8
WB 456	138	137	118	131	59	99	5/16	36	0	10.7
WB 528	127	146	143	139	58	99	5/20	39	2	10.9
WB1376CLP	123	127	124	125	60	98	5/22	37	0	12.6
WB1529	137	131	148	139	59	99	5/22	37	0	11.0
Average	134	133	137	134	56	99	5/23	37	2	10.9
LSD (α = .05)	16	18	19	10	1	3	1	2	6	0.9

Hard Red and White Winter Variety	Yield				Test Weight	Spring Heading		Lodging	Protein	
	Kimberly	Rupert	Aberdeen	Average		Stand	date			Height
	bu/acre				lb/bu	(%)	(in)	%	(%)	
Colter	145	129	117	130	60	98	5/23	41	0	13.8
Earl (W)	135	124	111	123	57	99	5/20	38	25	13.3
Garland	129	119	109	119	57	98	5/26	29	2	13.4
Golden Spike (W)	126	132	118	125	58	98	5/24	41	42	12.3
Greenville	137	126	130	131	58	100	5/20	32	0	12.7
Judee	131	112	119	121	60	99	5/22	37	5	13.9
Juniper	117	108	90	105	60	98	5/25	50	21	14.6
Juniper / Promontory	135	112	104	117	59	99	5/24	50	13	14.3
Keldin	155	145	109	136	61	99	5/19	36	3	12.2
LCS Azimut	129	136	114	126	54	99	5/19	32	0	12.0
LCS Colonia	135	146	123	135	55	99	5/26	35	0	12.3
LCS Jet	158	151	120	143	57	99	5/20	33	7	12.4
Manning	118	118	118	118	59	99	5/22	40	49	12.4
Moreland	141	125	115	127	57	98	5/18	36	3	13.5
Northern	132	127	120	126	58	97	5/26	40	9	13.3
Norwest 553	129	134	121	128	59	98	5/23	33	1	12.6
Promontory	142	147	115	135	60	99	5/21	39	13	12.4
SY Clearstone 2CL	131	114	116	121	59	98	5/22	42	23	13.0
Utah 100	124	117	106	116	58	99	5/26	44	5	13.1
WB-Arrowhead	152	131	121	134	60	98	5/21	39	1	12.4
WB-Arrowhead / Keldin	161	140	118	140	60	98	5/20	38	17	12.8
WB3768 (W)	145	133	119	132	60	99	5/25	44	8	13.2
Whetstone	145	120	112	126	60	99	5/15	37	6	12.9
Yellowstone	148	125	128	134	59	98	5/22	41	16	12.8
Average	136	126	115	126	59	98	5/22	38	12	13.0
LSD (α = .05)	14	21	19	10	1	2	1	2	14	0.8

(W) = white

Table 3. Irrigated Hard Red Winter Wheat Variety Performance at Parma, 2014.

Variety	Yield		Test		Lodging	Protein
	Average	Weight	Height	Height		
	bu/acre	lb/bu	(in)	(in)	%	(%)
Bobtail	144	58	38	5	9.8	
Keldin	155	62	41	0	10.1	
LCS Aymeric	167	58	34	0	9.7	
LCS Azimut	155	58	34	0	10.7	
LCS Colonia	145	59	38	0	10.6	
LCS Evina	148	62	46	0	11.4	
LCS Jet	168	61	40	0	10.5	
Norwest 553	157	61	38	0	10.6	
SY Clearstone CL2	138	61	45	50	10.6	
UI Silver	141	61	43	90	10.2	
WB Arrowhead	153	62	44	3	10.9	
Whetstone	143	62	42	3	11.2	
Average	148	61	40	6	10.8	
LSD (α = .05)	14	1	2	15	0.9	

2014-2015 Idaho Winter Wheat Variety Performance Tests and 2013-2015 Yield Summaries

Grain Magazine or at the UI cereals website. Average performance over locations and years more accurately indicates a varieties' relative performance. Try to evaluate as much information as you can prior to selecting varieties. Yield is a primary characteristic used to select varieties, but disease resistance, maturity, lodging tendency, and quality characteristics such as test weight and plumpness are also important variety selection considerations. Also consider that plots are managed according to the average expected yield, the latest varietal maturity, and / or performance of the surrounding crop in a grower's field, whether it is wheat or barley. Varietal performance may not reflect actual performance in your field when a specific variety is managed for optimal economic performance. Reported small differences among varieties in yield and other characteristics are usually of little importance due to chance differences that occur in the tests due to environment or other factors. Utilize the LSD statistic to determine the true difference between varieties. If

differences between varieties are greater than the 5% LSD value, the varieties are considered "significantly different." This means that there is a 9.5 in 10 chance that the reported difference between varieties is a true difference and not due to other experimental factors or chance variation. If no significant differences are determined for a trial, n.s. is used in place of the LSD.

Table 5. Dryland Soft White Winter Variety Performance in Southern Idaho, 2015

Ririe Variety	Test		Spring		Heading		Lodging	Protein
	Yield	Weight	Stand	date	Height	Protein		
Variety	bu/acre	lb/bu	(%)	(in)	(%)	(%)	(%)	(%)
Bobtail	61	54	98	6/9	26	8.4		
Brundage	38	57	95	6/1	28	8.4		
Bruneau	50	56	95	6/10	27	8.5		
Eltan	54	57	98	6/12	26	9.7		
UI Sparrow	55	56	99	6/11	26	7.6		
Jasper	48	55	99	6/9	26	9.3		
Kaseberg	52	55	100	6/7	26	8.9		
Madsen	46	57	95	6/10	26	9.3		
Madsen / Eltan	58	57	99	6/11	28	9.5		
Mary	47	57	98	6/6	26	9.1		
Norwest Duet	58	57	100	6/9	30	9.3		
Otto	55	58	99	6/13	28	9.2		
Rosalyn	46	55	99	6/7	29	7.2		
Stephens	53	57	100	6/5	29	8.8		
UI Castle CL+	52	58	96	6/10	27	10.0		
UI Magic CL+	50	57	94	6/4	27	9.9		
UI Palouse CL+	49	56	96	6/7	25	9.0		
UI-WSU Huffman	61	56	96	6/10	29	7.5		
UICF Brundage	54	55	98	6/8	26	8.8		
WB 456	44	58	100	6/2	25	9.7		
WB1376CLP	37	59	95	6/5	28	10.5		
Average	49	56	97	6/8	27	9.0		
LSD (α = .05)	11	1	6	1	2			

Soda Springs Variety	Test		Spring		Heading		Lodging	Protein
	Yield	Weight	Stand	date	Height	Protein		
Variety	bu/acre	lb/bu	(%)	(in)	(%)	(%)	(%)	(%)
Bobtail	125	57	91	6/23	33	0	11.1	
Bruneau	120	60	94	6/24	36	0	10.7	
Eltan	94	57	98	6/25	39	0	11.3	
UI Sparrow	120	58	97	6/23	39	0	11.2	
Jasper	133	58	100	6/21	36	0	10.8	
Kaseberg	120	58	94	6/21	33	0	11.3	
Madsen	110	59	97	6/23	37	0	11.6	
Madsen / Eltan	98	57	97	6/24	39	10	11.8	
Otto	113	58	94	6/25	37	0	12.5	
Rosalyn	109	57	87	6/25	34	0	11.0	
Stephens	101	57	93	6/21	35	0	12.8	
SY Ovation	132	60	95	6/21	34	0	11.2	
UICF Brundage	118	59	100	6/22	34	0	11.8	
WB 456	106	60	95	6/18	33	0	11.2	
WB1376CLP	109	62	92	6/20	36	0	12.8	
Average	114	58	95	6/22	36	1	11.5	
LSD (α = .05)	14	2	4	2	2	7		

Table 6. Dryland Hard Winter Wheat Variety Performance in Southern Idaho, 2015

Soda Springs Variety	Test		Spring		Heading		Lodging	Protein
	Yield	Weight	Stand	date	Height	Protein		
Variety	bu/acre	lb/bu	(%)	(in)	(%)	(%)	(%)	(%)
Bearpaw	84	59	96	6/19	39	0	13.1	
Colter	114	60	100	6/20	38	0	13.1	
Curlew	108	59	95	6/21	44	13	12.5	
Deloris	88	61	98	6/23	44	0	12.9	
Garland	75	53	98	6/22	25	0	13.5	
Golden Spike (W)	83	58	94	6/23	38	0	12.4	
Greenville	78	53	96	6/20	31	0	12.8	
Judee	113	62	95	6/20	35	0	12.6	
Juniper	104	62	98	6/21	49	12	12.0	
Juniper / Deloris	90	61	95	6/21	47	3	11.7	
Juniper / Promontory	106	62	97	6/21	48	3	12.2	
LCS Colonia	103	57	94	6/23	32	0	12.5	
Lucin-CL	87	62	97	6/21	45	0	12.0	
Manning	106	59	98	6/21	41	13	12.6	
Northern	96	60	98	6/20	36	0	13.2	
Promontory	99	60	97	6/19	38	0	12.7	
SY Clearstone CL2	108	61	99	6/19	40	0	11.9	
UI Silver (W)	115	61	98	6/20	40	0	11.4	
UI SRG	98	59	99	6/21	43	37	12.8	
UICF Grace (W)	82	59	94	6/22	49	13	14.7	
Utah 100	98	58	98	6/22	39	0	12.5	
Warhorse	90	60	97	6/21	36	0	14.8	
WB-Arrowhead	96	60	95	6/20	40	0	12.5	
WB-Arrowhead / Keldin	114	61	94	6/20	39	0	11.9	
WB3768 (W)	111	61	96	6/23	41	0	12.2	
Weston	78	60	95	6/22	48	38	14.9	
Yellowstone	107	60	98	6/20	39	0	12.3	
Average	98	60	97	6/21	40	5	12.4	
LSD (α = .05)	16	1	4	2	2	21		

Rockland Variety	Yield		Test		Spring		Heading	
	Rockland	Ririe	Average	Weight	Stand	date	Height	Protein
Variety	bu/acre	bu/acre	lb/bu	(%)	(in)	(%)	(%)	(%)
Bearpaw	43	43	43	60	90	5/26	27	10.5
Colter	54	46	50	61	94	5/29	30	10.7
Curlew	43	47	45	60	94	5/27	32	10.1
Deloris	54	49	51	61	93	5/30	32	10.3
Earl (W)	43	41	42	60	88	5/29	29	9.6
Garland	48	47	47	59	95	6/2	28	10.3
Golden Spike (W)	58	42	50	60	95	5/31	30	8.8
Greenville	49	48	48	59	94	5/26	24	10.2
Judee	44	43	44	62	94	5/30	28	11.6
Juniper	48	43	45	61	94	5/31	33	11.5
Juniper / Deloris	52	48	50	61	94	5/31	35	11.3
Juniper / Promontory	53	44	48	61	93	5/31	38	10.6
LCS Azimut	46	42	44	57	91	5/27	26	9.3
LCS Colonia	51	50	51	56	89	6/4	30	9.3
LCS Jet	49	47	48	57	91	5/27	25	9.2
Lucin-CL	50	46	48	61	94	5/29	29	10.8
Manning	39	47	43	60	94	5/28	28	10.7
Moreland	44	51	48	60	92	5/25	25	10.4
Northern	54	44	49	60	91	6/1	29	10.5
Norwest 553	39	42	40	59	74	6/2	28	10.5
Promontory	43	44	44	61	94	5/28	30	9.9
SY Clearstone CL2	50	39	45	59	95	5/25	30	10.9
UI Silver (W)	48	51	49	61	95	5/31	28	10.2
UI SRG	51	45	48	61	94	5/31	32	10.6
UICF Grace (W)	38	41	39	60	91	5/27	30	10.4
Utah 100	51	50	51	61	93	5/31	33	10.8
Warhorse	42	48	45	61	91	5/30	29	12.0
WB-Arrowhead	40	45	42	60	94	5/26	29	10.1
WB-Arrowhead / Keldin	43	42	42	60	93	5/26	31	10.9
WB3768 (W)	50	44	47	60	94	6/1	32	10.2
Weston	47	45	46	62	93	5/28	31	10.6
Whetstone	46	39	43	62	90	5/24	28	10.7
Yellowstone	51	46	48	60	95	5/27	32	11.1
Average	47	45	46	60	92	5/29	29	10.4
LSD (α = .05)	8	9	6	1	4	1	3	1.4

(W) = white

2014-2015 Idaho Winter Wheat Variety Performance Tests and 2013-2015 Yield Summaries

Table 7. 2013-2015 Winter Wheat Variety Average Yield Performance.

Site/years	Northern District	Southern/Eastern District	Western District	
	Rainfed	Irrigated	Dryland	Irrigated
	15	9	7	3
----- Yield (bu/A) -----				
Soft White Winter				
ARS-Amber	90	--	--	--
ARS-Crescent*	87	--	--	--
Bobtail	93	144	51	160
Brundage	--	129	--	--
Brundage 96	91	--	--	--
Bruneau	97	137	48	--
Eltan	--	121	45	--
Kaseberg	90	136	48	160
LCS Artdeco	98	134	--	168
Madsen	89	129	44	--
Mary	--	134	27	157
ORCF-101	--	--	--	140
ORCF-102	--	--	--	148
Puma	98	--	--	--
Rosalyn	96	136	43	163
Stephens	90	129	42	153
SY Ovation	--	137	--	163
UI Sparrow	--	135	51	159
UI/WSU Huffman	95	135	--	157
WB 456	--	120	42	--
WB 528	--	134	--	--
WB-1529	93	131	--	164
WB-1604	89	--	--	163
WB-523	91	--	--	--
WB-Junction	95	--	--	--
Average	92	133	44	157
LSD ($\alpha = .05$)	3	7	4	10
Hard Red and White (W) Winter				
Bearpaw	--	--	35	--
Boundary	92	--	--	--
Curlew	--	--	41	--
Deloris	--	--	39	--
Golden Spike (W)	--	118	38	--
Greenville	--	127	36	--
Judee	--	120	39	--
Juniper	--	113	40	--
Keldin	103	140	--	163
LCS Azimut	92	126	--	157
LCS Colonia	102	--	--	--
Lucin-CL	--	--	40	--
Manning	--	118	38	--
Moreland	--	128	--	--
Norwest 553	90	136	29	--
Promontory	--	133	38	--
Rimrock	96	--	--	--
UI Silver (W)	87	--	42	143
UI SRG	90	--	39	--
UICF Grace (W)	--	--	37	--
Utah 100	--	128	39	--
WB-Arrowhead	94	134	37	154
Weston	--	--	36	--
Whetstone	--	129	--	152
Yellowstone	--	135	39	--
Average	95	127	38	153
LSD ($\alpha = .05$)	3	7	3	11

*Club wheat
(W) = Hard white



Further Information

Variety performance information for winter wheat and winter barley has been published in the fall issues of Idaho Grain Magazine and on the University of Idaho Cereals website: <http://www.uidaho.edu/extension/cereals/>. Additional information is available on the University of Idaho catalog website: <http://www.cals.uidaho.edu/edcomm/catalog.asp>. In addition, publications are free through the University of Idaho Agriculture Publications (ph. 208-885-7982) or contact your county Extension Office. ■

Low Falling Number Meeting

Friday, September 16
8:00am to 10:00am
Lewiston Community
Center
1424 Main Street

Sponsored by





Idaho Barley Commission 2016 in Review



New North Idaho barley commissioner Wes Hubbard raises food barleys in Bonners Ferry for the Asian market.

Wes Hubbard appointed North Idaho Commissioner – Wes Hubbard, a second generation barley producer from Boundary County, has been appointed by Governor Otter to serve a three-year term on the IBC. Wes’ family moved to Bonners Ferry from Grace, Idaho, in 1966. He farms 1000 acres of barley, including new food barley varieties being grown under contract for Asian customers, winter wheat and canola on the family farm and manages another 500 acres of farmland for his brother. Wes has served on the Farm Service Agency County Committee for nine years and on the Idaho Oilseed Commission for the past four years. Wes and his wife Jolene have two sons Ethan and Dalin. He replaces Tim Dillin, who served on the Idaho Barley Commission from 2010 to 2016.

RESEARCH:

Research is our single largest investment, topping more than 54% in FY 2016 and 51% in FY 2017. Projects include:

- One Million Dollar University of Idaho Barley Research Agronomist Endowment is being funded at \$200,000 for five years
- ARS malting and food barley variety development at Aberdeen - \$47,000
- Oregon State University malting barley variety development and Double Haploid Laboratory - \$5,000 (FY 2016)
- Extension variety yield trials in 13 winter and spring locations - \$14,672
- Evaluation of elite barley breeding lines in North Idaho – \$3,965
- Optimizing agronomic performance through fertilization and water efficiency - \$55,513
- Wireworm control - \$15,444
- Long-term impacts of manure applications - \$16,000

Optimizing Agronomic Performance through Fertilizer and Irrigation Efficiencies

– Dr. Christopher W. Rogers, soil fertility scientist, was hired by the University of Idaho to manage the UI’s endowed Barley Agronomy Research Program and is based at the UI Aberdeen R&E Center. After only two years Chris has established strong research collaborations and has received competitive funding and support from the University of Idaho, Idaho Barley Commission, Anheuser Busch, MillerCoors and the Brewers Association. Dr. Rogers recognizes one of our biggest challenges as well as opportunities for Idaho barley is to improve management of our fertilizer and water inputs – the two biggest costs on the farm – to achieve both agronomic, economic, and environmental sustainability. His research is designed to help growers optimize these significant crop inputs and maximize barley’s economic returns.

- **Evaluate soil test methods for determining N fertilizer recommendations tailored to specific malting barley varieties**



UI Barley Research Agronomist Chris Rogers demonstrates fertility research project at UI Aberdeen Field Day on July 13.

Phase 1: Investigating alternative soil test methods for measuring and predicting soil-N available for the barley crop. An effective test for soil-N mineralization needs to be rapid, efficient and correlate well with barley yield and grain response. Phase 2: Correlate soil-N methods to yields and protein of specific varieties to optimize overall economic performance.

- **Determine N partitioning and fertilizer N use efficiency using enriched isotope tracers** – there are currently no available data on N uptake efficiency in high input / high yield Western US irrigated malt barley production systems. This study will determine accumulation and partitioning of fertilizer N and soil-N during the growing season and should help us improve the University of Idaho’s fertility recommendations while promoting sustainable production practices for Idaho barley.

- **Evaluate barley response to inorganic phosphorous fertilizers** – fields across southern Idaho are often high pH calcareous soils which may adversely affect the performance of phosphorous fertilizers. This study is designed to use newer malting barley varieties to evaluate whether P fertilizer recommendations are effectively predicting and meeting the plant fertility needs. Idaho barley fertilizer recommendations were developed in the 1980s and may not accurately reflect how well our newer varieties are going to perform in soils found across southern Idaho where more than 92 percent of the crop is grown.
- **Evaluate variety and N management strategies to enhance spring and winter barley malting barley performance (supported by the Brewers Association)** – this project is a robust and long-term evaluation of variety by nitrogen responses to optimize yields and proteins suitable for the craft brewing industry. The study has a large focus on winter malting barley varieties which may become more widely adapted to meet regional craft brewer needs.
- **Optimize N fertility recommendations and final irrigation scheduling (supported by MillerCoors)** – current research is designed to evaluate both N fertilizer recommendations and final water cut-off timings in high yielding spring barley in southern Idaho in terms of yield and quality. The study is designed to determine optimal fertilizer N rates and final irrigation timings where the 1st year of data indicated total applied and soil-N fertility of 160 units N maximized yield. Additionally, substantial water savings, with no yield or quality reductions, were measured when the final irrigation was scheduled at soft dough as compared to continuing later into the season.

MARKET DIVERSIFICATION:

- Maintain close working relationship with major brewing and malting customers who have contracted Idaho barley since the late 1960s.
- Expand business opportunities with the fast growing



Anheuser Busch and InteGrow Malt host Idaho barley growers for an appreciation barbecue on July 14 in Idaho Falls.

craft brewing segment which now represents more than 12% of the U.S. beer market, but buys more than 25% of the malt. In partnership with Great Western Malting Co. we sponsored a two day Idaho Barley Field Course for craft brewers from five states and Mexico in June.



IBC and Great Western Malting Co. host barley field tour and short course for craft brewers from several states and Mexico.

- Build new markets for Idaho malting barley and malt in Mexico and other growth markets throughout Latin America.
- Build new markets for high fiber food barley in both domestic and Asian markets. A 14-member multi-country Asian trade team will visit northern Idaho in September to investigate ways to expand purchases of food barley from the Pacific Northwest region.

GROWER SERVICES:

- We worked with Watts and Associates and the USDA Risk Management Agency to fine-tune and improve the new Malting Barley Revenue Insurance policy which was launched in the 2016 crop year. This policy provides significantly improved pricing and optional unit coverage for malting barley production compared to the old policies.
- We continue to provide grain marketing and risk management educational programs for grain producers across Idaho. In 2015-16 we conducted six crop insurance and crop management workshops across southern Idaho, conducted three webinars on 2016 grain marketing strategies, El Nino winter weather outlook and the new Malting Barley Revenue Endorsement insurance and gave five grain market outlook presentations.

We have received a total of \$189,860 in competitive grant funding from the Western Center for Risk Management at WSU to deliver producer education during the past 13 years. By collaborating with our valued county extension educators, we have sponsored more than 124 educational events reaching more than 6,100 participants across the state. ■

We have been awarded a \$33,000 competitive grant in 2016/17 to support grain marketing and producer risk management education across Idaho this coming year.

Trade benefits Idaho's farm economy

by Kelly Olson, administrator, Idaho Barley Commission

Bashing trade seems to be the only thing the two major U.S. presidential candidates have in common in the 2016 election (and that is not a good thing). For months populist candidates from both major parties have railed against trade agreements as job killing and harmful to the American middle class. But the facts simply don't support this anti-trade rhetoric and recent polls show that a majority of Americans understand the importance of trade to a healthy economy. One recent poll conducted by The Third Way found that 56% of respondents agreed that the U.S. economy cannot succeed if we limit trade with other countries. By a margin of 67% this poll found support was strongest among millennials who reject the idea that American industries are being destroyed by a hostile global marketplace.

During the past two decades, the U.S. has entered into free trade pacts with 20 countries. U.S. exports to these countries were valued at more than \$710 billion last year, led by \$516 billion to our two NAFTA partners Canada and Mexico. In the past five years, 52% of the growth in U.S. exports occurred with these FTA countries compared to 34% of the export growth to rest of the world. For sure, certain sectors of our economy often face cheaper prices on the global market which forces them to become more competitive or shift resources into other enterprises. These impacts can be painful and disruptive, but the same can be said for automation and other technological advancements which have made many once dominant products and businesses obsolete. History has clearly shown us that these dislocations have never been a compelling reason to stand still, or worse, adopt isolationist economic policies.

Overall the net economic gains from trade are significant: U.S. exports of goods and services topped \$2.3 trillion last year and 38 million American jobs were tied directly to trade. Despite the political rhetoric, the U.S. manufacturing sector particularly has benefitted from trade, with one in four jobs dependent on exports. American agriculture also relies heavily on trade, with roughly 20% of U.S. farm income and one in three acres of U.S. production tied to exports. Because of trade and global competition, American producers are constantly adopting new technologies to improve quality and efficiency. Trade

makes us better producers, but more importantly it opens doors to expanding overseas markets when our domestic markets are stagnant or over supplied.

It is no accident that Idaho's largest agricultural trade partners are Canada and Mexico. Because of our location and business ties we have achieved strong competitive advantages in supplying both of these markets. The North American Free Trade Agreement or NAFTA helped cement these trade advantages while our producers have done rest of the hard work to compete in these markets.

Despite the tough political climate for trade, the Obama Administration has put Congress on notice that it will be submitting the largest and most ambitious multilateral trade agreement for an up or down vote after the election this fall. This free trade pact known as the Trans Pacific Partnership covers the U.S. and 11 other Asia-Pacific nations and will create a free trade zone of more than 800 million consumers.

Here are some of the advantages that will directly benefit Idaho's top ag exporting sectors:

Wheat - Japan will create new tariff-rate quotas (TRQs) for wheat and wheat products and eliminate existing tariffs for processed products such as cookies and crackers. Malaysia and Vietnam will eliminate tariffs on wheat and wheat products.

Barley (we are not a major exporter but we will still see benefits)- Japan will eliminate tariffs on feed barley and create a TRQ for 25 TMT of food barley, expanding to 65 TMT in nine years. Vietnam will lock in tariffs at 0% for feed barley and will eliminate tariffs on milled barley within four years. New Zealand will eliminate all barley tariffs.

Dairy – Japan will eliminate tariffs on cheese and whey and create TRQs for whey, butter, milk powder, and evaporated and condensed milk. Malaysia and Vietnam will eliminate tariffs on dairy products. Canada will eliminate tariffs on whey and create TRQs for cheese, fluid milk, butter and other products.

Vegetables - Malaysia and Vietnam will immediately eliminate all tariffs, and Japan nearly all tariffs, on fresh and processed vegetables. All three countries will eliminate tariffs on potatoes and potato products.

Beef - Japan's beef tariffs, currently as high as 50%, will be reduced to 9%. Japan will eliminate duties on three-fourths of tariff lines, including processed beef products. Vietnam will eliminate tariffs and Malaysia will lock tariffs in at 0%. ■



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is ready.

Because they make sure it is.



Harvest is the time of year when all your hard work comes together. You have no time for downtime. And for the best harvest, you have to start with the best combine. That's why we're constantly improving the quality process at our East Moline, Illinois, factory — from the first part to the green paint.

Every single combine we build leaves the factory floor and goes to the test track. There, for a minimum of 45 minutes, each combine undergoes a 74-point inspection. Sensors detect abnormal vibration and sounds. A hydraulic filtration unit is connected to the combine to filter impurities from the hydraulic system.

And after the test track, your combine enters a bay where it's inspected for hydraulic leaks, alignment of drives and proper hose and harness routing, or any other abnormalities.

The result? Your combine is ready to work as hard as you do. To learn more about how we put our best into every combine, visit JohnDeere.com/quality.



JOHN DEERE

JohnDeere.com/Quality