

IDAHO GRAIN

THE IDAHO GRAIN PRODUCERS ASSOCIATION MAGAZINE

SPRING 2015



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HELLO! I am honored to serve as your president for the upcoming year. For those who don't know me, I farm 2,500 acres of dry land wheat and barley in Caribou County near Soda Springs, Idaho. In my 43 years of farming, I thought I had seen every weather-related problem that could hit a dry farm until late July and August of last year. Boy was I wrong!

We suffered from severe drought from June through early July. So when the rain came, we could have used it three weeks earlier. Little did we know the effects of the crop damage that had occurred.

Many farmers thought they had adequate insurance to cover their crops. Most coverage did not cover quality losses resulting from excessive moisture at harvest. Crop insurance proved to be inadequate to meet the challenges in most southeastern counties.

The IGPA and our wheat and barley commissions have teamed up with the USDA Risk Management Agency to help bridge these gaps in insurance for both crops. We've held numerous grower meetings, talked private consultants, and taken the issue all the way to the top by meeting twice with RMA administrator Brandon Willis.

While it appears the option to indemnify producers with losses in 2014 is not a viable one, we have a commitment from the RMA to make significant changes to the wheat and barley policies that will protect growers moving forward. Stay tuned for more updates.

We are continuing to work with the Idaho Cattle Association to find solutions to Idaho's open range law and its impact on private landowners and farmers. IGPA leaders met with our ICA counterparts on February 17th and made major strides to address the issues we hear from growers. We plan to announce soon a new collaborative program that we believe will minimize conflicts and help solve local problems in areas of the state.

The IGPA is working on a new state rule that clarifies how dust from farming operations is regulated. The rule is in reaction to a neighbor complaint lodged against a farmer who was creating dust from grinding hay for livestock feed. The rule is a product of several meetings facilitated by the Idaho DEQ where stakeholders provided input and found common ground.

The new rule clarifies that farmers following generally accepted production practices are not subject to the "fugitive emissions" rules under the Clean Air Act. The rule must be approved by the Idaho legislature and we are talking to key legislators to ensure its passage. The prognosis is very good.

Through the IGPA, I've gotten very involved in our national affiliate the National Association of Wheat Growers (NAWG). NAWG represents 22 of the top wheat-growing states in the U.S. It's a dynamic organization where we get to network with farmers from California to North Carolina and everywhere in between. I just completed a year-long service as chairman of the NAWG Nominating Committee. The committee helps place wheat growers into leadership positions within the Association and other entities related to NAWG. I also serve as a member of NAWG's Domestic and Trade Policy Committee which creates policies on a wide variety of issues ranging from the Farm Bill to taxes to transportation.

I'm looking forward to an eventful year ahead and towards continuing the legacy of the IGPA as a leader amongst Idaho commodity groups. It is an honor to serve the farmers of this great state and I wish you the very best in farming for this crop year. If you have any comments or concerns that the IGPA can assist you with, don't hesitate to contact our office! ■

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A New Year



YOU know that feeling when the cold, cloudy winter days suddenly, inexplicably become warm and sunny? In many parts of Idaho, that transition happened in mid-February. Most casual conversations I've had with folks this winter have included some mutual expression of disbelief about the abnormally warm temperatures.

As a semi-normal human being, I appreciate the unseasonably warm weather, but it also tends to scare me a little.

I empathize with the ski resorts around the state that are making the best of another difficult operating season. Living in the Boise banana belt, I witness the close tabs that the local news media keeps on the status of Bogus Basin Mountain Recreation Area, which has required a life preserver in recent years to keep it afloat financially. As I write, no measureable snow has fallen in nearly two weeks and the mountain's tubing hill is already closed for the 2014-15

season.

If there is a silver lining to this concerning weather trend, I might have found it. The strong desire for winter and thus ski season to arrive each year is being exploited by Boise's burgeoning craft brewing industry. Some of these emerging businesses have kick-started a new tradition of hosting "Pray for Snow" parties around town. These mini festivals feature the newest tasty malt-barley based seasonal beverages of area craft brewers coupled with live entertainment and prizes to appeal to the masses. Good news for Idaho's barley farmers!

Speaking of the farm...I've received reports that some brave growers have fired up their tractors and are threatening to get into the field. Of course that makes nervous wrecks of neighboring farmers. I can imagine there's a feeling of anxiety as growers are wondering how soon is too soon to get moving. Other growers have reported winter wheat crops that look better than ever right now. But they are doubly concerned that, with little or no snow cover, a bad frost could destroy the crop.

If we are experiencing a so-called "La Nina" weather pattern, should Idaho grain growers be worried about another deluge of unwanted moisture during harvest, the likes of which caused over \$200 million in losses last summer? There's just not a crystal ball clear enough to answer that question. Affected southern Idaho growers referred to the 2014 harvest disaster as a generational event. We can only hope so, but Idaho's grain industry certainly cannot withstand another perfect storm like that any time soon.

The IGPA and our sister wheat and barley commissions continue to pursue fixes to the gaps in crop insurance that left growers with no indemnity, few marketing options and completely vulnerable financially. We've sought relief for affected growers from our state and congressional elected leaders, but we see little opportunity. The nation is deeply in debt and the political climate remains mired in gridlock. Every piece of legislation proposed seeks to reduce spending, not encourage it. So we've had to focus our attention on what we could accomplish.

The IGPA and Idaho Barley Commission joined efforts to successfully petition the officials of 12 Idaho counties to declare an agricultural disaster within their respective jurisdictions. We facilitated face-to-face meetings between growers and top decision-makers of the USDA Risk Management Agency. Those meetings and correspondence were valuable and the RMA has committed to making important changes, some that we expect to take effect for the 2016 crop year.

We know that these immediate fixes are not the cure-all, but they are a positive start. With grower and industry input, we have generated a solid list of improvements which we will chip away at. Any changes made to wheat or barley federal crop insurance programs apply to grain growers nationwide, so we have reached out to other key grain states.

Throughout the winter months IGPA leaders have educated state grain grower groups about the problems Idaho encountered in 2014. We have raised the attention and gained support from the National Association of Wheat Growers (NAWG) which represents 22 wheat growing states. We found that growers from states including Michigan, Montana, North Dakota and Minnesota have encountered similar problems, and their input has helped us focus our efforts.

The hard lessons learned from the 2014 disaster cannot be corrected overnight. Insurance is simple and clear...said no one ever. Thus making changes that growers want requires constant and meticulous attention, follow-up and consistent monitoring. The heavy concentration on wheat and barley quality specifications in Idaho's grain market may require an innovative approach. If necessary, we will work to develop a new insurance product that adequately protects producers against certain quality losses.

Let's hope that last summer's untimely rains have reset Father Time's clock to another fifty or more years before the next episode, and that Mother Nature will bestow Idaho with an uneventful harvest season this summer.

It's my wish that a year from today, conversations with growers about last summer begin and end with talk of high prices and high yields. Meanwhile I'll certainly encourage my friends and colleagues here in Boise to attend as many craft brewer "Pray for Snow" (not rain) parties. Cheers to a productive spring season! ■



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New NAWG Officer Team Installed at Commodity Classic



Representing Idaho wheat growers at NAWG's annual meeting were (from l to r) Travis Jones, "Genesee" Joe Anderson, Sid Cellan, "Potlatch" Joe Anderson, Dwight Little, Robert Blair and Wayne Hurst.

WASHTUCNA, Washington wheat farmer Brett Blankenship was elected as the new President of the National Association of Wheat Growers (NAWG) at the Association's Board of Directors meeting during the 2015 Commodity Classic convention held February 24-28 in Phoenix, Arizona.



Brett Blankenship

"I'm looking forward to a very productive year for NAWG and America's wheat growers. I have high expectations for my tenure, and I hope to spend every day advancing the wheat industry into the 21st Century," said Blankenship.

Brett and his brother, Dan, are partners in Blankenship Brothers Joint Venture on the outskirts of the famous Palouse region in southeast Washington, where they farm soft white wheat in the rolling hills above the Palouse River.

Prior to becoming a NAWG officer, Blankenship served for several years on the NAWG Board, including as chairman of the NAWG Domestic and Trade Policy Committee as NAWG prepared for the 2012 Farm Bill legislation. Brett was previously president of the Washington Association of Wheat Growers.

President Blankenship, once an aspiring pianist, has been raising wheat full-time since 1982, when he completed his studies at the

Eastman School of Music in Rochester, N.Y., with a master's degree in performance and literature. He lives on the family homestead with his wife, Leeann. When he's not farming, he enjoys training horses and woodworking, and he also volunteers for the local emergency medical service.

Other NAWG officers elected and installed at the Thursday meeting include:

- Gordon Stoner, Outlook, Montana, Vice President
- David Schemm, Sharon Springs, Kansas, Treasurer
- Jimmie Musick, Sentinel, Oklahoma, Secretary
- Paul Penner, Moccasin, Montana, Immediate Past President

Members of NAWG's Executive Committee, known as officers, commit to serve five years when they first run for the role of Secretary. The NAWG Nominating Committee and NAWG Board reaffirms their selection each year as they move into new roles on the officer team.

The National Association of Wheat Growers (NAWG) is a federation of 22 state wheat grower associations, including the IGPA, that works to represent the needs and interests of wheat producers before Congress and federal agencies. Based in Washington, D.C., NAWG is grower-governed and grower-funded, and works in areas as diverse as federal farm policy, trade, environmental regulation, agricultural research and sustainability. ■

2014 Tri-State Grain Growers Convention Overcomes Snow

WHILE precarious weather made traveling interesting for some, the 2014 Tri-State Grain Growers Convention was worth the challenge.

The three and one-half day event held November 12-15 at the scenic Skamania Lodge in Stevenson, Washington brought together 438 grain farmers, vendors, agribusinesses, researchers, and commodity leaders for a fun and informative time.

General session and breakout workshops led by expert speakers



USDA RMA Administrator Brand Willis spoke about the federal crop insurance program in the PNW.



Nathan Gallup (L) pictured with his father and District 4 wheat commissioner Gordon Gallup was the lucky winner of the 'Golden Gun' raffle.

and panelists addressed hot topics, opportunities and challenges facing the industry. Nationally regarded speaker and entertainer Mark Mayfield highlighted the general sessions, but it was his former Kansas State University agricultural economics professor and mentor, Barry Flinchbaugh who grabbed some of the spotlight.

Dr. Flinchbaugh had attendees smiling in anticipation of his next punchline as he painted a funny, but pointed picture of the politics impacting U.S. agriculture and his general disdain for certain Members of Congress who do not understand production

agriculture. Flinchbaugh called on his years of wisdom as an agricultural economist to make projections of where prices, production and costs will go for leading commodities in the upcoming crop year.

Each state held its annual membership business meeting and awards banquet at the Convention. The IGPA adopted new resolutions and policy directions for 2015 that originated during the October and November county meetings. The Association voted in a new Executive Committee welcoming "Potlatch" Joe Anderson to

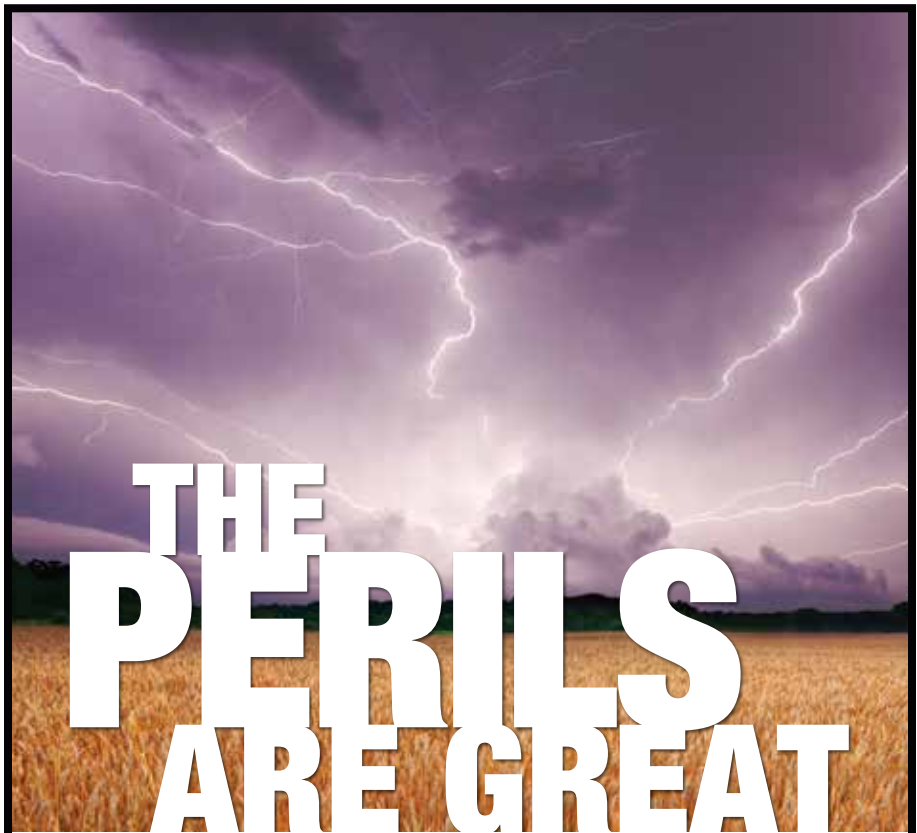


Outgoing IGPA president Robert Blair and wife Rhonda of Leland, Idaho.

the Committee as Secretary-Treasurer and bidding farewell to Clark Hamilton of Ririe. Four individuals were celebrated for their outstanding contributions to the Association and the industry over the past year.

After two days of business, growers from the collective states merged for the fundraising auction and entertainment on the final night of the Convention. The auction was a major success thanks to the generosity of many donors and county leaders. IGPA live and silent auction items coupled with money raised for the John Deere tractor raffle fetched nearly \$11,000.

Also announced during the auction activities were the winners of the IGPA's Remington 12-gauge shotgun "golden ticket" and John Deere tractor raffles.



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The lucky winners were Nathan Gallup (rifle) of Swan Valley, Idaho and Scott Fuhrman (tractor) of Malad City, Idaho.

Planning is already underway for the 2015 convention scheduled for Nov. 11-14 at the Grand Spokane Hotel in Spokane, Washington. The Grand

Spokane is a brand new property currently under construction and slated for completion prior to the Tri-State convention. More details will be posted when available on the website www.wawg.org/convention. We look forward another great convention! ■



Idaho Wheat Commission staffer Cathy Wilson shares a laugh with Blackfoot farmer Wayne Taylor.



The 2015 IGPA officer team consists of (from l to r) Robert Blair, Potlatch Joe Anderson, Sid Cellan, Terry Kulik and Dwight Little.



IGPA's Achievement Award went to retiring UI Experiment Station Director Don Thill.



The IGPA selected Cassia County farmer Lucas Spratling as its Member of the Year.

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"IGPA executive director Travis Jones presents Robert Blair with the President's Award."



Rep. Gayle Batt was honored as the IGPA's 'Friend of the IGPA' (pictured with husband Roger).



Robert Blair made sure to properly pass the presidency on to Sid Cellan (L) of Soda Springs.

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Where Does SE Idaho Wheat Go?

By *Cindy Snyder*

WHREAT leaving southeastern Idaho farms used to travel a long distance to market. But as domestic demand has increased, more and more of that wheat is staying local. That's been a good development for growers, although last year tested many carefully cultivated relationships.

Southern Idaho is the breadbasket of high quality wheat that is made into products from bread to tortillas. The ability to largely control both the timing and amount of water received by the crop allows growers to manage production to meet specific end use requirements.

But rains that fell across much of south-central and southeast Idaho in the middle of grain harvest disrupted normal marketing channels with reverberations expected to last even after the 2015 crop is in the bin.

EXPORTS STILL KEY

A few decades ago, exports accounted for nearly 70 percent of Idaho's wheat sales. Today, it's about half statewide. Thanks to close proximity to flour mills in both Blackfoot and Ogden, over four-fifths of the wheat grown in southeastern Idaho is used domestically. In contrast, over 90 percent of north Idaho's crop is exported.

According to the Idaho Agricultural Statistics Service, Idaho exported \$405 million worth of

wheat and wheat products in 2012 making Idaho the seventh largest state in terms of wheat exports. Much of that is soft white wheat exported through Portland bound for Asian markets. Only a quarter of the state's hard red wheat is exported through Portland.

Grain traders believe Hard White Wheat has the potential to grow into a large-volume market for Idaho growers, but the lack of acceptable varieties continues to constrain market development. There is demand for hard white wheat to fill containers at Portland and foreign buyers are willing to pay for it, explained one trader. But so far Idaho growers have failed to hit that critical mass for filling vessels.

Identifying Hard White Wheat varieties that are acceptable agronomically for growers and meet end user specifications is a challenge. But once varieties are developed and Idaho growers can differentiate Hard White Wheat from generic wheat production, they should see higher market premiums while gaining market share.

In addition to variety trials sponsored by the University of Idaho, some private grain companies are also conducting their own field trials in 2015 to evaluate new varieties.

Mexico is another market to watch. Although Mexico accounts for just 3 percent of Idaho's wheat export sales, it is the second largest market

for Idaho agricultural products overall. The Governor's Trade Mission will visit both Mexico and Peru in May.

DOMESTIC MARKETS GROWING

Statewide, Idaho sends more than 5 percent of total wheat production to the Midwest. However, markets in Kansas, Minnesota and Iowa are expected to remain strong for both hard red and soft white wheat grown in south-central Idaho.

Utah, California and Arizona account for nearly half of overall domestic markets and are the primary domestic markets for southeastern Idaho wheat.

"Southern and eastern Idaho have become very much integrated into the domestic market through identify preserved production," said one grower. "The nice thing is those domestic millers have come to understand the dynamics of grain production and are very supportive of those identity-preserved programs to meet their demand."

Tortillas are an increasingly important end use for southern Idaho wheat. Nationwide, tortilla consumption has increased by 60 percent over the last 10 years. Many non-Hispanic consumers prefer their sandwich fixings in a wrap rather than between two pieces of bread. The Tortilla Industry Association estimates that Americans consume about 85 billion tortillas annually.

Pizza flour is another key market. According

GRAIN CRAFT



Idaho Grain Handlers Offer Contracts for Hard White Spring Wheat

HARD white spring wheat contracts are being offered for 2015 by southern and eastern Idaho grain handlers. On average 2015 contract prices for hard white wheat are significantly above soft white and hard red winter prices, and just slightly under hard red spring wheat.

Varieties of hard white wheat being contracted are Klasic, Paloma, Snowcrest, and Dayn. Thresher Wheat, Lansing Grain, AgriSource, Evans Grain, Ririe Grain, and Pasley Grain are among the elevators indicating they are offering hard white contracts. Other grain handlers are likely offering contracts as well.

Idaho growers are encouraged to explore spring hard white wheat in 2015 and consider growing it to help meet the market need. Contact your grain handler for specific contract information.

to the U.S. Department of Agriculture, about one in eight Americans eat pizza on any given day.

FALLOUT FROM FALLING NUMBERS

Carefully cultivating relationships with millers and with end users has helped Idaho growers gain domestic market share, but grain traders are concerned that large supplies of poor quality wheat following last year's historic rains could jeopardize that vital market.

Today's food products have become so technical that cookies, for example, must always be the same size and shape to uniformly fit in the packaging. Achieving that standard requires a steady stream of flour with the exact same characteristics. A standard Idaho growers usually meet.

But as wheat buyers watched rain fall last August they knew there were going to be supply issues. Many of them worked directly with their customers to determine exactly what quality specifications had to be met in order to ensure end products were acceptable and which ones could be tweaked slightly.

Some bread makers were able to adjust their recipes to accept flour with slightly lower falling numbers but tortilla makers couldn't budge. Lower falling numbers, an indication of alpha amylase activity, translates into stickier dough

that just doesn't make a good tortilla.

The falling numbers test measures the time in seconds it takes for a stir rod to fall through a column of gelatinized starch. Any falling numbers test above 300 indicates no sprout damage, a test between 200 and 300 indicates some sprout damage, below 200 is considered severe damage.

Grain Craft continues to test falling number on inbound wheat every two hours at its Blackfoot mill to ensure consistent falling number.



DON'T BLEND IT

Even though some customers were able to adjust their recipes to make slightly lower quality wheat work last year, around 40 percent of the crop was diverted to the feed wheat market where it is competing with both sprout-damaged malt barley and cheaper corn. Many dairies and feedlots have already purchased all their feed grain needs through this harvest and some into 2016.

Traders are afraid growers with rain-damaged wheat still in the bin will try to blend it with the 2015 crop to get it sold. That would be a mistake.

Reuben McLean, who manages Grain Craft's quality department, told wheat growers during a series of meetings in December that blending sprout damaged wheat isn't like blending loads with different protein levels. Millers know they

can blend a load of 12 percent protein 50-50 with a load of 13 percent protein and get a batch of 12.5 percent protein.

"It's not one-to-one with sprout damage," he explained. "If you blend a 300 (falling numbers test) with a 200 fifty-fifty, you may get anything from 150 to 300."

While end users tried to work with buyers and millers in 2014, they may not be so magnanimous in 2015 if the crop is normal quality. "Flour mills are going to be very cautious this year," said one trader. "They will be testing."

So will grain elevators that don't want to risk losing long-term customers by selling them poor quality wheat.

Complicating the domestic market situation in 2015 is stiff competition from malt barley contracts. Malt barley contracts are up significantly this year as companies seek to increase acreage by 50 percent to refill replenished bins. With wheat prices below break-even across much of southern Idaho, some traders expect wheat acres will be down 10 to 15 percent, perhaps as much as 20 percent.

If that's the case, even if 2015 is a normal year, production could be down enough that flour mills in Idaho and Utah are forced to buy wheat from western Nebraska and Montana. Making sure Idaho wheat is top quality will be key to keep domestic buyers looking to the Gem State first. ■





Growing Asian Markets Trigger Investment in Columbia River Infrastructure

PHOTO: STEVE WIRSCHING

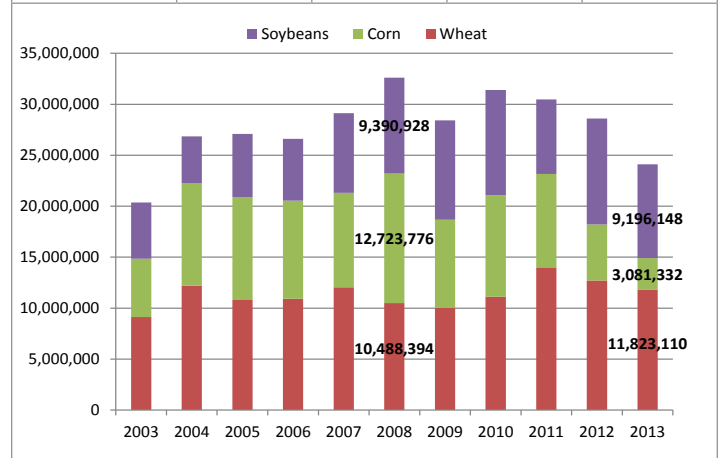
By *Steve Wirsching*
Vice President/Director, U.S. Wheat Associates West Coast Office

OUR ship has finally come in! The Louis Dreyfus grain export facility located on the Willamette River, tributary to the Columbia River, in downtown Portland loaded its first vessel after extensive upgrades that took just over two years to complete. The vessel ALMASI took on 49,000 metric tons of wheat and sailed to Thailand. Except for a few unhappy drivers who could not cross the Broadway Bridge because it was elevated to let the ship pass, everyone at the export facility and Louis Dreyfus was thrilled to see this first vessel depart. Louis Dreyfus or O-Dock for Oregon Dock was built in 1910 and is the oldest continuously operating facility in the Columbia River system. To put this into perspective, O-Dock opened before the Panama Canal, which was completed in October of 1913. Renovations that cost a reported 25 million dollars include new ultra-high tech wheat cleaners and dedicated shipping bins that will allow wheat to be blended and graded by the Federal Grain Inspection service (FGIS) before it is loaded on a vessel. Expectations are that this facility will compete aggressively for all of the high quality customers in Asia.

The Columbia River is the third largest grain port in the world and the single largest port for wheat in the United States. The Columbia River ten year average for wheat exports is 11.2 million metric tons, corn 8.4 million metric tons, and soybeans 7.5 million metric tons (Table 1). Durum

Table 1 PNW Wheat, Corn and Soybeans Exports

	Wheat	Corn	Soybeans	Total
10-year average	11,200,984	8,416,834	7,569,636	27,187,454
Percent of total	41%	31%	28%	



and Hard White are also exported but the amounts are very small. Soft White (SW) wheat is the largest class with 4.6 million metric tons, followed by 4.5 million metric tons of Hard Red Spring (HRS) and 2.4 million metric tons of Hard Red Winter (HRW) (Table 2). The primary SW wheat production areas are Washington, Idaho and Oregon. North Dakota and Montana

account for most of the HRS that is exported, while Montana is the primary HRW exporting state.

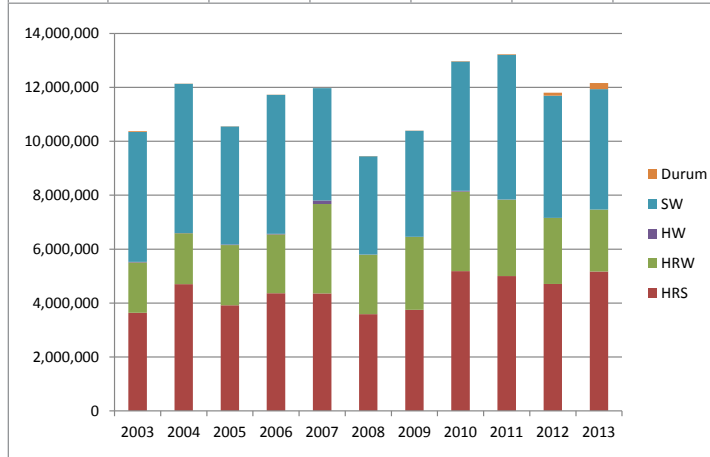
Seven export facilities in the Columbia River system handle wheat. All of these facilities have invested in cleaners and shipping bins that give them the ability to load cargoes with very tight quality specifications. Most of the wheat shipped to Asia is Grade Number 2 or better and requires a maximum dockage specification of 0.3 percent (three tenths of one percent by weight), a level so low it requires cleaning. Most all bread wheat such as Hard Red Spring (HRS) and Hard Red Winter (HRW) are marketed with a minimum protein specification, while almost all of the Soft White (SW) exported has a maximum wheat protein of 10.5 percent. These protein specifications require blending to create a consistent uniform product. Export elevators in the Columbia River add value because they manufacture a uniform consistent product by blending wheat from several different regions and states to meet customers' contract specifications and end-used product quality needs. These high-tech elevators give U.S. growers a competitive advantage in the international market because these facilities can meet the quality specifications of the most developed and high value markets in the world such as Japan, Korea and Taiwan as well as deliver economic value to other developing markets such as China and South Asia.

Rapid economic growth in South Asia and China is driving investment in Columbia River port capacity at all of the seven export facilities, including Louis Dreyfus. Over the last 15 years, China has experienced rapid economic growth, which is pulling more people out of poverty than any other time in history. In China, estimates are that 220 million new consumers will enter the middle-class by the year 2020. China is not the only growth market. In South Asia, countries such as the Philippines, Indonesia and Thailand are also experiencing rapid economic growth that is pulling consumers into the middle-class and changing diets.

The first thing new consumers want to do is eat more meat and the second is to try new foods. U.S. Soybean sales to South Asia and China have exploded as demand for pork increases annually. Soybean exports from the Columbia River have grown from near zero in 2000 to more than 10 million metric tons in 2012. Along with feed grains, these same consumers are looking for new Western style foods such as bread, cookies and cakes. Consumers choose wheat-based products because noodles, breads, biscuits and cookies require less cooking time when compared to rice, which is important in urban households with two income earners. Wheat consumption in South Asia has increased six percent annually over the last 10 years

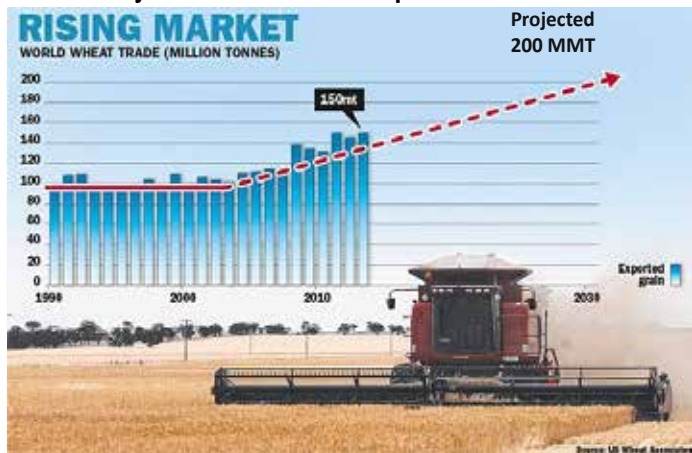
Table 2 PNW Wheat Exports by Class

	HRS	HRW	HW	SW	Durum	Total
Average	4,397,215	2,447,495	23,714	4,615,621	38,221	11,522,267
10-yr avg %	38%	21%	0%	40%	0%	



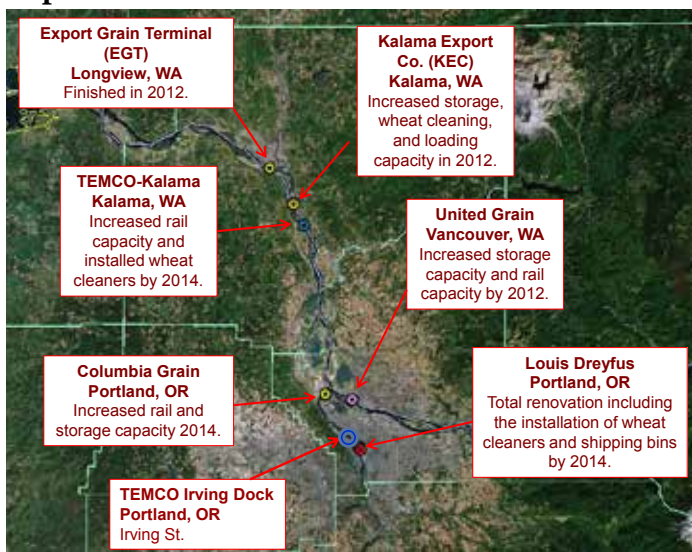
and sales of U.S. wheat to this region increased nine percent. Driving this growth is demand for Western style products made with U.S. wheat.

Table 3 Projected World Wheat Exports



Annually, the United States harvests between 55.0 and 60.0 million metric tons (2 to 2.5 billion bushels) of wheat, of which about half flows into the export market. World wheat trade is currently 150 million metric tons and is forecast to expand to 200 million metric tons by the year 2020. (Table 3) U.S. growers will benefit from this growth because they have gained the reputation as the most reliable supplier of high quality wheat in the world. This reputation was not simply given to growers; it was earned through substantial investments in the farm to market supply chain over the past fifty years. Grain companies are making huge investments like no other time in history because they see real opportunity to expand sales in Asia. In the Columbia River system, an estimated 500 million dollars has been invested to increase overall handling capacity by 30 percent, an estimated additional 12-15 million metric tons. While some Portland drivers may be frustrated with the bridge, wheat producers will be happy to see more export facilities moving wheat to Asia.

Export Facilities in the PNW



The seven export facilities in the Columbia River system that load wheat are Louis Dreyfus (LDC), Export Grain Terminal (EGT), Columbia Grain (T-5), Kalama Export Company (KEC), United Grain (UGC), TEMCO Portland and TEMCO Kalama.



PHOTOS: SHAWN CAMPBELL

LOUIS DREYFUS facility on the Willamette River, tributary to the Columbia, in downtown Portland is the oldest facility originally constructed in 1910. This facility was recently renovated with high tech wheat cleaners and shipping bins at an estimated investment of 25 million dollars. Expectations are that this facility will now compete aggressively for all of the high quality customers.

EXPORT GRAIN TERMINAL (EGT) loaded its first vessel on July 9, 2012 after almost two years of construction and contentious labor negotiations. This state of the art facility was the first new facility built in 25 years in the PNW. The revolutionary design and technology raised the bar for efficiency and set off a building spree for all of the other grain export facilities. Today, it is the flagship of the latest technological advancements in grain movement.

COLUMBIA GRAIN T-5 (PACIFICOR LLC) was constructed in 1976 and renovated in 2014 when an additional 20,000 metric tons of new storage was added, bringing the total storage to 114,000 metric tons.

Columbia Grain has also added wheat cleaners and improved the rail connection to the facility. This facility is now able to load corn, wheat and soybeans efficiently. Unconfirmed reports estimate that Columbia Grain invested close to 45 million dollars.

KALAMA EXPORT COMPANY, now part of the Pacificor LLC, was originally constructed in 1981 and underwent major improvements in 2002 when more storage was added and again in 2011 when wheat shipping bins and cleaners were added at an investment of 33 million dollars. This facility, which originally handled mostly corn and soybeans, is now able to load wheat.

UNITED GRAIN located in Vancouver, Washington was originally constructed in 1935, but has been upgraded six different times over the years. In 2011, United Grain added a corn handling and storage facility. The facility currently has a total storage capacity of 118,000 metric tons. The most recent improvement was in 2014 when United Grain expanded the rail yard to handle 550 cars. In the last three years, this company has invested an estimated 75 million dollars in additional storage, upgraded rail car unloading and the added of a state of the art corn handling facility.

TACOMA EXPORT MARKETING COMPANY TEMCO is a joint venture between CHS and Cargill. This joint venture has wheat export facilities in Kalama, Washington and Portland, Oregon. The TEMCO facility in Kalama was originally constructed in 1962 and has been remodeled several times over the years. The most recent improvements were in 2014, when additional storage capacity, wheat cleaners and upgraded rail unloading facilities were added at an estimated cost of 50 million dollars. Currently, the total storage capacity of this facility is estimated to be 174,000 metric tons.

TEMCO Portland Irving Street was originally constructed in 1955 and last renovated in 1999 when shipping bins and grain cleaners were installed. This facility was one of the first to install wheat cleaners in an effort to meet Japanese dockage specifications. The storage capacity of this facility is 40,000 metric tons and they can receive wheat via truck, rail and barge. ■





All Roads Lead to Idaho Wheat

IN ancient Rome, a tall, gilded bronze monument stood at the center of the city. Erected by the Emperor Caesar Augustus in 20 BC, the monument was called the *Golden Milestone*. As the center of the world's most powerful city, it was said that the *Golden Milestone* was also the center of the world. In theory, all roads began at the milestone, and the distance from the gates of Rome to other cities within the empire may have been inscribed on its base. In the Middle Ages this tradition gave rise to the saying that, "All roads lead

to Rome."

More than two thousand years and an ocean away from Augustus, the same theme is playing out in Idaho. For five diverse and outstanding individuals at UI's College of Agriculture and Life Sciences, it may truly be said that, "All roads lead to Idaho wheat." These five scientists, whose stories appear here in brief, have traveled very different roads to reach Idaho. But for each of them, the golden stalks of Idaho grain have become the new *Golden Milestone*. Here are their stories:



Kurt Schroeder

Dr. Kurt Schroeder's journey toward Idaho Wheat began on the family farm south of Buhl. He was involved with FFA and grew his own crops. Working in UI's Plant Science Department as an undergraduate inspired Kurt's career choice. He notes, "I was able to see how the scientific theories I was learning in the classroom could be directly applied to plants and agriculture. That's when I knew that I wanted to pursue a career that enabled me to combine my farming experience and education."

Kurt earned a B.S. in microbiology and an M.S. in plant science from UI. At WSU in Pullman, his doctoral research focused on evaluating the impact of direct seeding on root diseases in wheat and barley. He began work at UI in the fall of 2013, as an Assistant Professor of Cropping Systems Agronomy located in Moscow. His present research is on the impact of acid soil and remediation of acidity through liming, and the influence of biostimulant use on crop production. He's also investigating nitrogen management in cereals and disease reduction and resistance in cereal crops.

Through his work, Kurt says, "my goal is to make a difference for Idaho farmers. As a scientist, it's important to be able delve carefully and methodically into the biology of the system and to learn as much as possible to solve problems. It's just as critical to be able to share this information with Idaho farmers who can then apply the information on their farms to improve the yields and quality of their crops."



Arash Rashed

Dr. Arash Rashed's road to Aberdeen, Idaho began when he was born in Lincoln, Nebraska while his father was doing his graduate work in weed science. When Arash was a small child, his family returned to Iran, where his lifelong exposure to Ag research continued. He recalls, "As a child I went to the field with my father. I helped students collect insects and I enjoyed examining them under the microscope. My fascination with insects goes all the way back to elementary school."

In college, Arash pursued this interest majoring in entomology and plant protection, and then completing a Master's degree in a like field. He had considerable knowledge about insects, their life cycles, and ways to control them (mostly chemical), but wanted to know more about how insects gain certain characteristics that facilitate their survival in the environment. He observes, "That information is essential to the development of management approaches that sustainably limit pests in our agro-ecosystems."

After completing his PhD, Arash moved back to the US, where he did postdoctoral research at the University of Cincinnati, the University of California, Berkeley, and Texas A&M Agri-Life Research, Amarillo. His research has focused on insects that transmit plant pathogens. As an Entomologist with UI's Aberdeen Research and Extension Center, he primarily studies cereal aphids transmitting Barley Yellow Dwarf Virus, wireworms in Wheat and Barley and potato psyllids causing Zebra Chip. Arash is grateful for the opportunity to give back, commenting, "It's a pleasure to know this long journey has brought me to a place where I can serve our agricultural community."

Yueguang Wang

Dr. Yueguang Wang's road began in Shandong Province, China, where he worked the fields with his father, who grew a wide variety of crops. Dr. Wang recalls, "My father worked very hard but he couldn't improve production. I thought I should gain knowledge to help my father. So, I went to agricultural college to study genetics and crop production."

Dr. Wang obtained a BS in Agronomy from Qingdao Agricultural University, Shandong, China. He went on to complete MS and PhD degrees in Plant Breeding and Genetics from China Agricultural University and Chinese Academy of Agricultural Sciences, Beijing, China, respectively. Dr. Wang came to the United States in 2004. He held postdoctoral positions at North Dakota State University, Texas A&M University and the University of Florida. In 2012, he found his way to Aberdeen, ID where he was a very productive



Postdoctoral Research Associate working with Dr. Jianli Chen, the University of Idaho Wheat Breeder.

In April 2014, Dr. Wang moved to Moscow to assume a Research Associate position focusing on soft white winter wheat breeding as part of the joint variety development collaboration between UI and Limagrain Cereal Seeds. His responsibilities include making crosses in the greenhouse, selection in early generations (F2-F4), evaluation of F5 generation lines, and moving F6 and advanced generation materials forward toward release. Dr. Wang also manages the West Regional Nursery and Idaho Regional Trials. He is kept busy traveling between trial locations in Moscow,

Genesee, Lewiston, Tammany, Cavendish, Fenn, Ferdinand, and Bonners Ferry. Dr. Wang's objective is to help improve the productivity and end-use quality of soft white winter varieties grown in north Idaho and the Palouse. He is married and has a grown daughter.

Olga Walsh

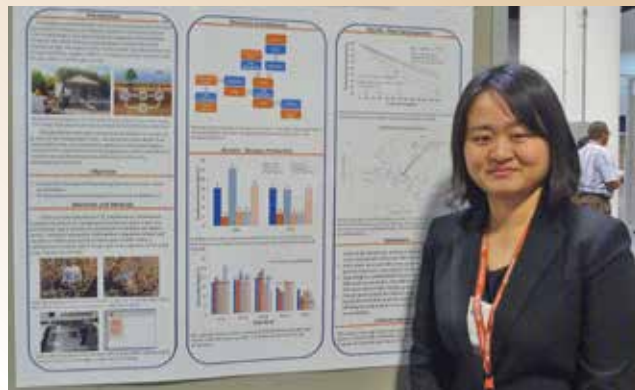
Dr. Olga Walsh's fascination with soil science began even before her undergraduate days at St. Petersburg State University, the oldest university in Russia. She earned a BS in Soil Chemistry there in 1997, followed by study in the United States. Her MS



(2007) and PhD (2009) in Soil Science come from Oklahoma State University, where her research focused on soil fertility and nutrient management. In her new capacity as Research Assistant Professor of Cropping Systems Agronomy at UI's Parma Research Center, she's now applying her knowledge and skills to help Idaho growers improve the quantity and quality of their crops through precision agriculture, remote sensing tools, and other beneficial technologies. Her goal is to aid growers in making site-specific management plans that increase nutrient use efficiency and minimize negative soil impacts.

Prior to her arrival in Parma in 2014, Dr. Walsh served as an Assistant Professor of Soil Fertility and Nutrient Management at Montana State University's Western Triangle Agricultural Research Center in Conrad, MT. Today, Olga's work in Parma focuses on the development of sustainable, environmentally sound crop management, and also encompasses agricultural education and extension programs. Olga is enthusiastic about research and teaching and adds, "I look forward to serving the needs of agricultural clientele across the state of Idaho."

On a personal note, Olga lives in the Nampa/Caldwell area with her husband Stephen and their three children: Willow (14), William (6), and Vivienne (4).



Xi Liang

Dr. Xi Liang (pronounced "She Leeang") began her journey to Idaho in Liaoning Province, in northeast China. She studied Range Science in Shaanxi, China as an undergraduate and Turf Science for her Master's degree in Beijing, China. In 2010, Dr. Liang came to the US to study Agronomy with Dr. John E. Erickson at the University of Florida, Gainesville, receiving her PhD in December 2013. Her doctoral research investigated carbon and water dynamics in tall bioenergy grasses in the Southeastern US, with particular attention to the rhizosphere, root architecture, and related plant physiology.

Dr. Liang has received numerous undergraduate and graduate student awards for academic achievement. In 2014, she joined the UI cropping systems team at Aberdeen R & E Center, where she will lend her expertise in plant physiology and root architecture to the research conducted there. This is important because scientists know that what goes on below ground is the foundation for what happens in above ground crop development. She observes, "Our research aim is for a strong root system supporting a strong plant that gives good yield." Dr. Liang has already been involved with several pre-existing collaborative projects on wheat and barley, and cereal grains will be an immediate focus of her research in Aberdeen.

In addition to her work, Dr. Liang loves the outdoors and is enjoying the many recreational opportunities Idaho offers.



UI/WSU Huffman

Soft White Winter

Wheat Variety Honors

Bradley Huffman



UI/WSU Huffman is a soft white winter wheat co-bred by the University of Idaho and Washington State University and licensed by Limagrain Cereal Seeds. The variety is noteworthy for its agronomic characteristics and excellent trial performance. But it is better known for its namesake: UI alumnus Bradley Huffman, who tragically died in his sleep at age 22.

A dedicated plant scientist

Huffman grew up on the family farm in Cavendish, Idaho. He showed a keen interest in plant breeding from a young age, watching the UI field trials that were hosted on his parents' land and creating plant varieties of his own in the family garden. He was an excellent student, including valedictorian of his high school, whose passion for agronomy followed him to UI.

"Brad had a good understanding of math and science, which is essential to being a good plant breeder," says Bob Zemetra, former academic advisor and wheat breeder at UI and current wheat breeder at Oregon State University. "He came into the program with a good work ethic and a good understanding of what it took to grow wheat in the field from his days of working on the family farm."

Zemetra hired Huffman to work in his

wheat breeding program as an undergraduate. When Zemetra left UI, he kept in touch with Huffman and noted that "he had a good eye for making crosses and a willingness to take on responsibility, such as running the greenhouse crossing program during his senior year He had the makings of a good plant breeder."

After graduation, Huffman was employed by the UI mustard and canola breeding program.

Brad's legacy

UI/WSU Huffman is part of Huffman's legacy as a plant scientist. His work under Zemetra at UI involved mid- and late-generation testing of the cultivar Bruneau, which was crossed with a WSU line to create the variety. Huffman was an avid photographer as well, and some of the last pictures he shot captured the variety that would later bear his name.

In order to commemorate Huffman's life and help other students follow in his footsteps of agricultural innovation, a portion of UI/WSU Huffman seed royalties will fund the UI Bradley Huffman Scholarship for Plant Breeding and Plant Sciences.

A promising variety

UI/WSU Huffman was tested in state variety

trials in 2014, where it performed well in dry-land conditions and showed good resistance to *Cephalosporium* stripe and stripe rust.

"In 2014 WSU testing, UI/WSU Huffman also performed very well in the higher rainfall regions of Washington," asserts Limagrain Cereal Seeds PNW Wheat Breeder Jean-Bruno Beaufumé. "Along with excellent quality and high test weight grain, this new release has good resistance to crown rot and soil-borne mosaic virus, as well as C-stripe and stripe rust."

For more information about UI/WSU Huffman, contact Frank Curtis at Limagrain Cereal Seeds at 970.498.2200. ■



Children Prefer 100% Whole Grain Bread from Hard White Wheat versus Hard Red Wheat



By Samantha Ramsay, PhD, RDN, LD

HEALTH professionals and the Dietary Guidelines for Americans encourage adults and children to consume 100% whole grain products. Consumption of 100% whole grains provides a greater source of nutrients to include B Vitamins, fiber, and other phytonutrients. Some people, especially young children, demonstrate a dislike for 100% whole grain products because of the bitter taste. Whole grain products, such as bread, are typically prepared using hard red wheat. Hard red wheat has greater amount of tannins that result in a more bitter flavor; and thus may be a key factor in the decreased intake

of 100% whole grain bread.

Another type of wheat, hard white wheat, has a fewer amount of tannins that result in a less bitter 100% whole grain bread. Integrating more hard white wheat into grain products could be preferred and support the national effort to get more people consuming 100% whole grain products and increasing overall nutrient intake. The use of hard white wheat in bread products could be particularly important to increasing young children's consumption of whole grain products such as 100% whole grain bread.

Dr. Samantha Ramsay, PhD, RDN, LDN, a Food and Nutrition professor at the University

of Idaho and her research team received funding from the Idaho Wheat Commission to identify children's preferences for bread prepared from each of the following: hard white wheat, hard red wheat, and non-whole grain wheat. In addition, her team aimed to identify parent reported bread preferences and family bread purchasing habits.

In a collaborative effort between Food and Nutrition faculty and the Child Development faculty, twenty-six children 3-5 years of age and their parents were recruited from the University of Idaho Child Development Laboratory. This past fall of 2014, parents completed a questionnaire to gather information about their bread



Children were asked to select a taste cup in whichever order they chose and prompted to place the cup next to one of five faces: “really yummy,” “yummy,” “just okay,” “yucky,” and “really yucky.”



preference and purchasing habits. Shortly after gathering information from parents, each child completed a hedonic taste preference activity. The activity involved having the child visit the Nicolls Eating Laboratory and sit with a research associate who facilitated the activity. Four samples of bread in tasting cups were offered. Each tasting cup included three standardized ¼ inch cubes pre-prepared and weighed using 100% whole grain bread from hard white wheat, 100% whole grain bread from hard red wheat, non-whole grain bread from hard white wheat, and non-whole grain bread from hard red wheat. Children were asked to select a taste cup in whichever order they chose and prompted to place the cup next to one of five faces: “really yummy,” “yummy,” “just okay,” “yucky,” and “really yucky.” All responses were recorded on a data sheet, children’s intake of bread was collected and measured, and each taste activity was video recorded. To capture children’s and parents’ taste preferences, a variety of analysis have been employed. Descriptive statistics captured parent and child consumption patterns and both parametric and nonparametric analyses were used to determine differences in hedonic taste activity preference and intake.

Based on the preliminary results, the participants in the study were highly educated and frequently consumed whole grain bread products. Bread was typically consumed at breakfast, lunch, and for evening snacks by

both parents and their children. Sixty-nine percent of parents and 72% of children reported that they consumed whole grain bread versus non-whole grain bread at home. Regardless of the frequent whole grain bread consumption, during the taste preference activity children selected non-whole grain samples first. Non-whole grain bread was frequently reported as “yummy” or “very yummy,” but in regards to hard white wheat and hard red wheat, children more frequently reported “yummy” or “very yummy” for 100% whole grain bread from hard white wheat versus hard red wheat, although this difference in preference frequency was not statistically significant. However, a statistically significant difference was identified in children’s consumption of 100% whole grain hard white wheat bread versus 100% whole grain hard red wheat bread. In other words, children consumed more bread from hard white wheat than from hard red wheat. Further, of the children who refused to consume the bread prepared from hard red wheat, all children consumed the bread prepared from the hard white wheat.

Based on the preliminary work from this study, the results indicate that children may be more likely to prefer and consume 100% whole grain bread prepared from hard white wheat grain compared to hard red wheat grain. Work on this study will continue through the spring. Additional information regarding children’s preference for hard white wheat bread will be

determined at a snack in a group setting. Dr. Ramsay’s research team is currently offering bread from hard white wheat and bread from hard red wheat on alternating weeks to the children in the Child Development Laboratory during their scheduled snack time. Children are offered either 100% whole grain bread from hard white wheat or hard red wheat and their consumption is collected as well as video and audio recordings of their behaviors during the snack. In conjunction with the data collected during snacks, her team also will complete post taste preference activities for comparison to baseline data.

The possibility of children’s increased preference for 100% whole grain hard white wheat has tremendous implications for supporting the Dietary Guidelines and increasing children’s consumption of nutrients dense foods. National attention has been given to the need to increase children’s fiber intake. Since hard white wheat has a taste more similar to non-whole grain bread, the use of hard white wheat grain in 100% whole grain bread could replace non-whole grain breads and increase children’s fiber intake. Further, hard white wheat can be used in a variety of grain products beyond bread, such as tortillas and crackers. The integration of hard white wheat into the U.S. and national grain market has wonderful implications to improve the nutrient intake and overall health of the U.S. and global population. ■



2014 Idaho Spring Wheat Variety Performance

By Juliet Marshall, Extension Specialist
Aberdeen, and Kurt Schroeder, Extension
Specialist Moscow, Department of Plant, Soil
and Entomological Sciences, University of Idaho

IDAHO spring wheat varieties are evaluated each year to provide performance information to help growers select superior varieties for their conditions. Because of similarities among spring wheat and spring barley tests, details about spring wheat test design and interpretation of the information presented in this article can be found in the preceding article '2014 Idaho Spring Barley Variety Performance Tests and 2012-2014 Yield Summaries.' Agronomic performance data for spring wheat are summarized by state districts in Tables 1-4. Yield data are given for individual sites while other agronomic data are averaged over all the sites of each table. Bushel/ Acre yield results are based on 60 lb/bu at 11% moisture. Lodging ratings are the percent of a plot that is lodged, and in some tables not reported due to minimal or no lodging. More detailed lodging information is available on the UI cereals website <http://www.uidaho.edu/extension/cereals/>. 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 results from variety performance trials in 2012, 2013, and 2014 are presented in Table 5 for all districts, with 3-12 site/years of data summarized for each districts.

Table 2.
Irrigated spring wheat performance in Southern District at Parma, 2014.

Variety	Yield	Test Weight	Plant Height	Protein
Soft White	bu/acre	lb/bu	inches	%
Alpowa	87	59	38	10
Alturas	90	58	37	9
Babe	98	59	39	9
Penawawa	85	58	37	9
Seahawk	94	58	35	9
UI Pettit	89	57	34	9
UI Stone	86	58	36	8
WB6121	89	58	38	10
WB6430	86	57	33	9
Average	90	58	37	9
LSD ($\alpha = 0.05$)	11	0	2	1
Hard Red				
Jefferson	84	60	35	11
Kelse	98	61	37	11
UI Winchester	82	60	33	10
WB9229	81	59	30	11
Westbred 936	82	59	33	11
Hard White				
Dayn	96	60	37	9
Klasic	90	61	27	10
LCS Atomo	106	60	29	10
LCS Star	106	59	33	9
Average	89	60	33	10
LSD ($\alpha = 0.05$)	9	1	2	1

Table 1.
Dryland spring wheat performance in Northern District at Bonners Ferry, Craigmont, Genesee, and Moscow, 2014.

Variety	Yield				Average				
	Bonnors Ferry	Craigmont	Genesee	Moscow	Yield	Test Weight	Height	Lodging	Protein
Soft white	bu/A				bu/A	lbs/bu	inches	%	%
Alturas	61	43	51	70	25	55	32	2	12
Babe	66	66	61	73	28	56	31	14	12
Diva	84	51	49	78	66	57	36	52	11
JD*	71	52	54	71	31	57	34	23	12
Seahawk	95	53	50	80	27	58	35	3	12
UI-Stone	68	56	56	75	64	57	33	37	12
WB1035CL+	80	64	54	67	26	57	32	3	13
WB6121	93	61	53	77	26	56	33	2	13
WB6341	84	62	57	79	27	57	33	6	12
Whit	89	54	54	79	28	57	34	8	12
Average	79	56	54	75	35	57	33	15	12
LSD (0.05)	7	7	n.s.	5	3	--	--	--	--
Hard red									
Alum	75	42	35	66	50	55	34	19	15
Buck Pronto	76	52	39	67	64	55	33	10	15
Glee	88	57	56	72	66	57	35	37	14
HRS3361	87	49	46	60	58	55	33	0	14
HRS3378	82	49	48	61	58	58	32	8	14
HRS3419	97	47	46	52	57	53	32	8	14
Jefferson	86	55	53	67	63	57	34	9	14
UI-Winchester	77	55	45	59	56	56	31	25	14
WB-Fuzion	82	57	49	66	60	56	36	12	14
WB9518	86	62	52	61	60	56	30	0	14
Hard White									
Dayn	97	51	44	67	60	56	34	1	14
LCS Atomo	92	66	53	66	66	55	26	20	14
LCS Star	95	55	43	70	61	54	30	3	14
Otis	94	47	39	62	56	56	38	3	14
UI Platinum	82	64	48	62	61	56	31	0	13
WB-Hartline	90	55	37	74	60	54	34	12	14
Average	87	54	46	64	60	55	33	10	14
LSD ($\alpha = 0.05$)	7	5	8	5	3	--	--	--	--

*club
Average lodging at Bonners Ferry and Craigmont. No lodging at Genesee or Moscow locations.

Table 3.
Irrigated and Dryland Soft White Spring Wheat Performance in Eastern Districts at Rupert, Aberdeen, Idaho Falls, Ashton, and Soda Springs, 2014.

Variety	Yield					Average				
	Irrigated		Dryland			Yield	Test Weight	Plant Height	Lodging	Protein
	Rupert	Aberdeen	Idaho Falls	Ashton	Soda Springs	bu/A	lb/bu	inches	%	%
Alpowa	123	162	111	123	43	130	57	36	27	12
Alturas	118	148	99	105	51	118	56	35	23	11
Babe	119	156	113	68	39	114	55	36	18	11
Penawawa	114	158	119	80	38	118	55	35	23	12
Seahawk	118	167	105	119	56	127	57	35	21	11
UI Pettit	142	150	122	69	41	121	56	33	7	11
UI Stone	150	183	131	93	39	139	57	34	13	11
WB6121	130	149	103	98	44	120	57	34	14	12
WB6430	139	163	115	98	-	129	57	32	11	11
Average	130	162	114	96	45	125	56	35	17	11
LSD ($\alpha = 0.05$)	20	13	17	16	11	8	1	1	17	1

Tests and 2012-2014 Yield Summaries



Table 4.
Irrigated and Dryland Hard Spring Wheat Performance in Eastern Districts at Rupert, Aberdeen, Ashton, Idaho Falls and Soda Springs, 2014.

Variety	Yield					Yield	Test Weight	Plant Height	Lodging	Protein
	Irrigated		Dryland							
	Rupert	Aberdeen	Idaho Falls	Ashton	Soda Springs	bu/A	lb/bu	inches	%	%
Hard Red	bu/A					bu/A	lb/bu	inches	%	%
Buck Pronto	127	135	101	89	-	114	57	33	21	15
Bullseye	127	148	81	93	-	112	57	32	28	14
Cabernet	141	149	108	104	-	125	57	30	4	14
HRS3361 (Croplan)	123	137	91	77	-	107	54	35	10	14
HRS3378	131	151	107	84	-	118	58	36	15	13
HRS3419	122	132	91	124	-	117	55	34	15	13
Jefferson	115	149	102	97	54	116	57	35	24	14
Kelse	145	153	110	109	47	129	59	36	2	14
SY Basalt	133	153	99	116	-	125	55	32	3	13
UI Winchester	114	134	83	88	37	105	56	33	46	15
WB9229	129	143	102	112	-	123	57	30	30	14
WB9411	144	147	116	114	44	130	57	33	6	14
WB9668	137	149	111	118	41	129	58	31	3	15
Westbred 936	116	139	106	28	43	97	53	32	7	14
Hard White										
Dayn	147	168	125	126	47	141	57	35	1	13
Klasic	124	134	100	88	35	112	56	26	10	14
LCS Atomo	131	155	97	109	39	123	55	27	17	13
LCS Star	131	148	107	112	43	125	55	33	11	14
Snow Crest	138	146	114	76	-	118	57	30	6	14
UI Platinum	149	152	105	117	45	131	57	31	15	13
WB-Paloma	146	151	113	103	-	128	57	31	10	15
Durum Wheat										
Alzada	141	145	113	95	-	124	58	32	27	13
Average	132	147	103	100	44	122	57	33	17	14
LSD (α = 0.05)	15	12	14	13	8	8	1	2	17	1

Table 5.
Spring Wheat Yield Average for 2012-2014 in Idaho.

Site/Years	District		
	Northern	Eastern	Eastern (Dryland)
	12	12	3
	Yield (bu/A)		
Soft white			
Alpowa	-	115	47
Alturas	66	109	47
Babe	72	108	46
Diva	73	-	-
JD*	68	-	-
Penawawa	-	106	43
UI Pettit	-	109	44
UI Stone	70	119	44
WB-1035CL+	72	-	-
Average	70	111	45
LSD (0.05)	3	4	4

Hard Red

Alum	67	-	-
Buck Pronto	63	-	-
Bullseye	-	103	-
Cabernet	-	104	-
Jefferson	72	102	46
Kelse		109	47
UI Winchester	68	96	44
WB-Fuzion	69	-	-
Westbred 936	-	88	42

Hard White

Klasic	-	96	40
Snow Crest	-	98	-
UI Platinum	-	102	44
WB-Hartline	72	-	-
WB-Paloma	-	104	-
Durum			
Alzada	-	104	-
Average	69	103	44
LSD (α = 0.05)	3	3	5

*club





2014 Idaho Spring Barley Variety Performance

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Variety Testing

Spring varieties of wheat and barley are evaluated each year to provide performance information to help growers select superior varieties for their growing conditions. The tests are done using growers' fields or experiment station locations 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 variety. The number of entries is limited due to resource constraints. Individual plots were planted as 7 rows spaced 7" apart for 14' to 25' in length and replicated 4 times in a randomized complete block design. Plots in North Idaho that were direct seeded consisted of five paired rows with openers spaced 10 inches apart.

Information Summarization

Agronomic performance data for 2014 spring barley tests are summarized by district in Tables 1-4. The state is divided into the Northern (Table 1), the Southern (Table 2), and the Eastern Districts (2-row barley in Table 3 and for 6-row barley in Table 4). 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 48 lb/bu at 11% moisture. Lodging ratings are the percent of a plot area lodged. Plump percentage is based on cleaned grain retained on a 6/64" screen. Thin grain percentage is clean grain passing through a 5.5/64" screen. 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 2012, 2013, and 2014 are presented in Table 5 for all districts. These data represent results of 4-12 site/years and can be a good indication of long-term performance of a variety.

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 2014 trials; previous results can be found in the spring 1992 to 2014 issues of Idaho Grain Magazine. Average performance over locations and years more accurately indicates a variety's 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, latest varietal maturity, and / or performance of the surrounding crop in a grower's field, whether 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 in tests. 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.

Further Information

Variety performance information for winter wheat and winter barley has been published in the fall issues of Idaho Grain. An excellent Extension Publication for barley producers is "Idaho Spring Barley Production Guide" (Bulletin No. 742) that was updated for 2003, (see the Idaho Ag Communications website at <http://www.cals.uidaho.edu/edcomm/catalog.asp> under "crops" and "cereals"). For spring wheat producers, "Irrigated Spring Wheat Production Guide for Southern Idaho" (Bulletin No. 697) can be ordered on the same website. All these publications are free through the University of Idaho Agriculture Publications (ph. 208-885-7982) or contact your county Extension Office. Additional Idaho small grain variety performance information is available on the web at <http://www.uidaho.edu/extension/cereals/>.

Table 1.
Dryland spring barley performance in Northern District at Bonners Ferry, Craigmont, Genesee, and Moscow 2014.

Variety	Yield				Average						
	Bonners Ferry	Craigmont	Genesee	Moscow	Yield bu/A	Test weight lb/bu	Plant Height inches	Lodging %	Plumps %>6/64	Thins %<5.5/64	Protein %
Feed	bu/A				bu/A	lb/bu	inches	%	%>6/64	%<5.5/64	%
Camas	130	83	71	86	93	50	33	40	63	16	10
Champion	126	90	76	89	95	50	34	42	61	19	9
LCS Vespa	131	86	71	88	94	48	28	21	59	17	10
Lenetah	130	92	75	81	95	49	32	56	67	14	9
Lyon	122	77	83	87	93	48	31	57	65	15	9
Muir	118	79	78	88	91	48	32	50	64	13	10
Salute*	111	82	68	83	86	48	33	60	72	10	11
Tetonia	130	77	71	84	91	48	31	40	54	23	10
Transit*	83	61	51	63	64	49	35	25	45	22	13
Malt											
CDC-Copeland	128	70	68	86	88	48	35	44	63	17	11
CDC-Meredith	127	71	67	85	87	46	33	62	65	17	10
LCS Genie	128	76	71	88	91	48	28	42	65	18	10
Merem	134	67	57	78	84	47	33	30	62	17	10
Average	123	78	70	84	89	48	32	44	62	17	10
LSD ($\alpha = 0.05$)	9	8	11	8	5	1	1	14	7	6	--

*indicates food barley variety

Table 2.
Irrigated spring barley performance in Southern District at Parma, 2014.

Variety	Yield bu/acre	Test Weight lb/bu	Plant Height inches	Plumps (%)	Thins (%)
2-Row Barley					
Baronesse	93	51	38	98	1
Champion	87	53	41	98	1
LCS Genie	97	50	32	97	1
LCS Vespa	89	52	35	98	1
Merem	91	49	38	93	3
Transit (hullless)	71	56	43	92	3
Xena	93	51	39	97	1
Average	89	52	38	96	1
6-Row Barley					
Goldeneye	99	52	40	97	1
Herald	84	50	43	94	2
Millennium	107	48	39	85	5
Average	97	50	41	92	3
Overall Average	90	51	39	95	2
LSD ($\alpha = 0.05$)	10	2	2	2	1

Tests and 2012-2014 Yield Summaries



Table 5.
Spring Barley Yield Average
for 2012-2014 in Idaho.

	District	
	Northern	Eastern
Site/Years	12	12
2-Row Feed		
Baronesse	-	128
CDC Fibar*	-	87
CDC McGWire*	-	113
Champion	99	149
Clearwater*	-	104
Herald	-	133
Idagold II	-	136
Julie*	-	117
Lenetah	97	140
RWA 1758	-	138
Tetonia	98	137
Transit*	-	98
Xena	-	142
Average	98	125
LSD (α = .05)	n.s.	6

2-Row Malt		
ABI Voyager	-	131
CDC Copeland	91	128
CDC Meredith	94	120
CDC Metcalfe	-	118
Conrad	-	123
Harrington	-	105
Hockett	-	121
LCS Genie	-	128
Merem	-	116
Merit 57	-	121
Moravian 69	-	128
Pinnacle	-	133
Average	93	124
LSD (α = 0.05)	n.s.	6

6-Row Feed		
Goldeneye	-	137
Herald	-	133
Millennium	-	145

6-Row Malt		
Celebration	-	119
Legacy	-	126
Morex	-	114
Quest	-	118
Tradition	-	127
Average		128
LSD (α = 0.05)		6

* indicates hulless variety

Table 3.
Irrigated Two-Row Spring Barley Performance in Eastern Districts at Rupert, Aberdeen, Idaho Falls, and Ashton, 2014.

Variety	Yield				Irrigated Average						
	Rupert	Aberdeen	Idaho Falls	Ashton	Yield	Test Weight	Plant Height	Lodging	Plumps	Thins	Protein
	bu/A				bu/A	lb/bu	inches	%	(% > 6/64)	%	%
Feed											
Baronesse	128	132	120	120	125	48	33	86	87	6	11
CDC Fibar*	97	107	82	57	86	53	37	88	75	10	17
CDC McGWire*	124	125	105	92	112	53	36	80	72	12	12
Champion	161	163	153	135	153	51	35	58	95	2	13
Clearwater*	105	121	100	72	99	53	36	83	75	10	17
Herald	149	130	146	116	135	46	37	57	91	4	12
Idagold II	156	167	145	96	141	49	33	48	88	5	12
Julie*	117	131	127	102	119	53	38	45	83	7	15
LCS Vespa	175	163	157	110	151	49	31	62	92	3	12
Lenetah	163	137	132	121	138	49	36	65	91	4	12
RWA 1758	156	155	131	129	143	48	33	75	88	6	12
Tetonia	150	147	156	122	144	50	33	64	87	6	11
Transit*	103	110	112	70	99	55	38	39	78	7	16
Xena	158	147	129	123	139	49	35	63	90	5	12
Average	136	136	128	101	125	50	35	63	85	6	13
LSD (α = .05)	21	20	21	14	9	1	2	15	8	4	1
Malt											
ABI Balster	145	157	138	93	133	48	33	57	96	2	12
ABI Voyager	142	145	141	97	131	49	36	41	97	1	12
AC Metcalfe	138	136	122	76	121	49	36	50	94	3	12
CDC Copeland	139	143	136	82	125	50	39	44	94	3	12
CDC Meredith	145	138	133	84	125	48	35	69	95	2	12
Conrad	135	138	129	86	122	48	33	50	92	4	12
Harrington	124	121	117	60	106	48	35	85	84	7	12
Hockett	127	142	121	90	120	48	33	71	94	3	12
LCS Genie	147	168	147	74	134	49	30	66	94	2	12
Merem	124	128	126	91	117	48	37	53	90	4	12
Merit 57	143	142	133	79	124	47	35	48	92	3	12
Moravian 69	152	151	126	68	124	47	31	53	90	4	12
Pinnacle	140	162	149	88	135	50	35	38	97	1	12
Average	140	142	135	83	125	48	34	56	93	3	12
LSD (α = .05)	21	28	19	16	11	1	2	19	4	2	0.4

* indicates hulless variety

Table 4.
Irrigated Six-Row Spring Barley Performance in Eastern Districts at Rupert, Aberdeen, Ashton, and Idaho Falls, 2014.

Variety	Yield				Average						
	Rupert	Aberdeen	Idaho Falls	Ashton	Yield	Test Weight	Plant Height	Lodging	Plumps	Thins	Protein
	bu/A				bu/A	lb/bu	inches	%	(% > 6/64)	%	%
Feed											
Goldeneye	170	136	140	92	134	48	36	21	89	4	12
Herald	170	151	145	87	138	46	38	43	91	3	12
Millennium	181	194	148	113	159	47	36	24	89	4	12
Malt											
Celebration	133	134	124	91	120	48	37	60	97	1	12
Lacey	133	139	130	93	124	49	37	51	97	1	12
Legacy	138	139	125	83	121	47	38	69	97	1	12
Morex	131	120	108	76	109	47	38	78	85	6	11
Quest	131	131	129	81	118	48	40	75	93	2	12
Tradition	150	125	135	99	127	48	38	48	97	1	12
Average	150	145	140	92	132	48	37	47	93	3	12
LSD (α = 0.05)	37	20	18	13	12	1	2	16	5	2	0.3



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