Attachment 3:

2016 IDAHO BARLEY COMMISSION REPORT

IDAHO HOUSE & SENATE AGRICULTURE COMMITTEES

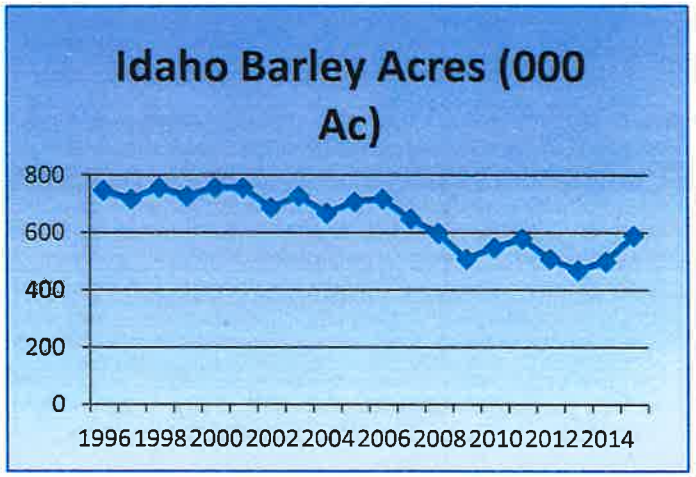
Kelly Olson
Administrator

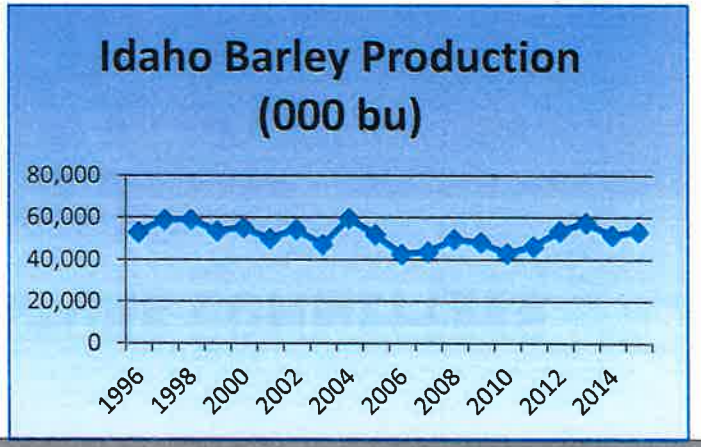
IDAHO BARLEY COMMISSION

CURRENT TRENDS

Idaho – leading barley producer in U.S.

- **Harvested acreage - 550,000 acres**
- **Ave. Yield - 97.0 bu/Ac, +3%**
- **Output - 53.4 million bu, +3%**
- **2015 farm-gate receipts $286 million, +7% and 5th largest crop**
- **About 85% used in malt for beer.**





IDAHO BARLEY COMMISSION

IBC BUDGET HIGHLIGHTS

	FY 2014	FY 2015	FY 2016
Income	**$730,003**	**$605,843**	**$692,566**
Expenses	**$676,771**	**$635,735**	**$652,858**
Reserves	**$509,848**	**$480,485**	**$520,193**

FY 2016 Expense Allocation	
Admin	14%
Research	48%
Market Development	12%
Grower Services	16%
Info/Education	10%

IDAHO BARLEY COMMISSION

UI ENDOWED BARLEY AGRONOMIST DR. CHRISTOPHER ROGERS

University of Arkansas: Crop, Soil, and Environmental Sciences

- Soil fertility, plant nutrition, applied soil physics
- Research grants from UI, IBC, Anheuser Busch, MillerCoors and Brewers Association

IDAHO BARLEY COMMISSION

ARS BARLEY BREEDING

- USDA-ARS Aberdeen, Idaho (winter and spring, malt, feed, and food)
- Charles (winter, 2009), Endeavor (winter, 2010), Merem (spring, 2013).

IDAHO BARLEY COMMISSION

ANHEUSER BUSH BARLEY BREEDING

Private Breeding Programs:

AB-InBev – Fort Collins, CO

Malt barley breeding for Anheuser Busch and some use by public groups

- ABI-Voyager (2014)
- Merit 57 (2010)
- Conrad (2007)
- Tradition (six-row, 2004)

IDAHO BARLEY COMMISSION

MILLERCOORS BARLEY BREEDING

MillerCoors

Burley, Idaho

- Moravian 69 (2010)

IDAHO BARLEY COMMISSION

THREE STAGES OF MALTING

Steeping (34-48 hrs)

Germination (80-120 hrs)

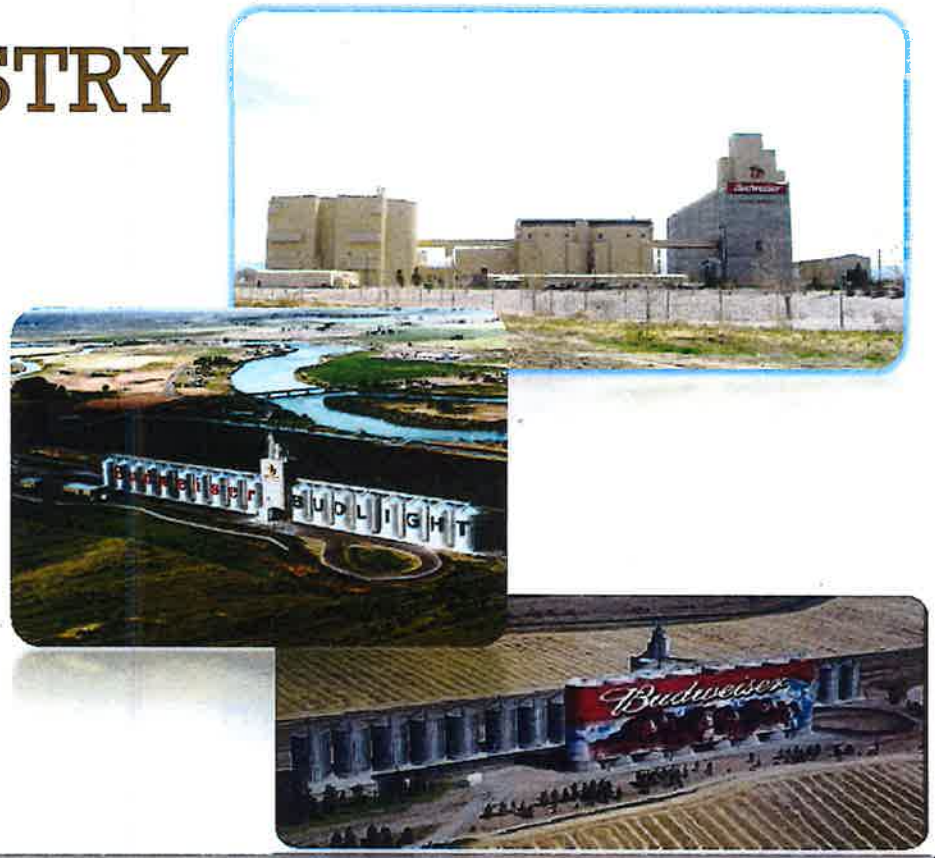
Kilning (12-48 hrs)

IDAHO BARLEY COMMISSION

IDAHO MALT INDUSTRY

AB InBev

- Largest Idaho buyer
- Contracting since early 1970s
- Idaho Falls elevator & malt plant.

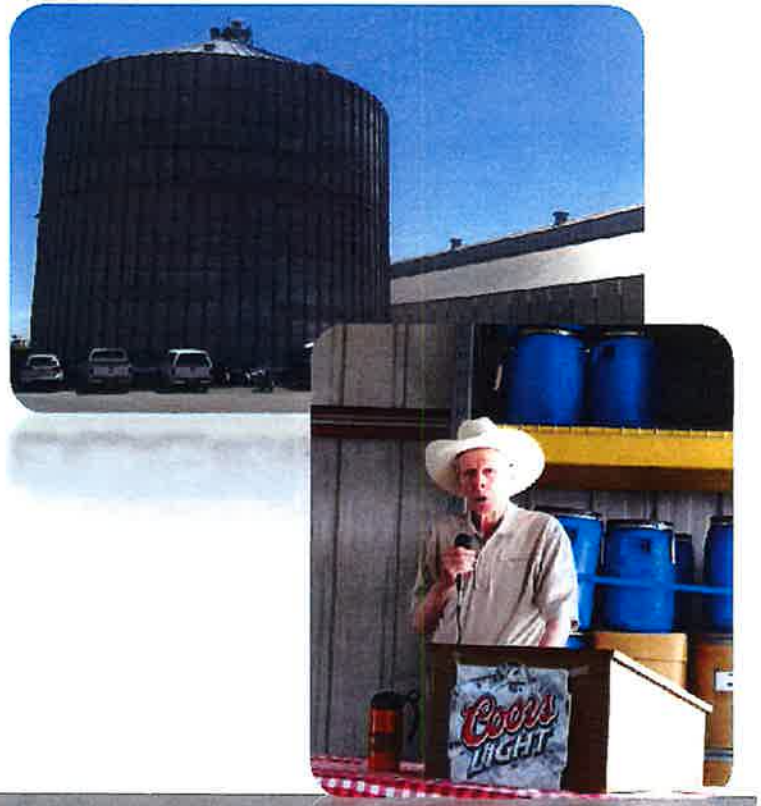


IDAHO BARLEY COMMISSION

IDAHO MALT INDUSTRY

MillerCoors™

- 2nd largest Idaho buyer
- Burley elevator
- Contracting barley since 1969
- Contract program has doubled since 2008.



IDAHO BARLEY COMMISSION

IDAHO MALT INDUSTRY

Great Western Malting Co.

GrainCorp

- First malt plant built in Idaho (Pocatello, 1981) and Vancouver WA (original plant 1934)
- 2009 purchased by GrainCorp (Sydney, Aust), world's 4th largest malt manufacturer with 14 plants worldwide.
- 2016 expanding Pocatello plant capacity by 130%.

IDAHO BARLEY COMMISSION

IDAHO MALT INDUSTRY

InteGrow Malt LLC

- 2004 built malt plant in Idaho Falls (GModelo Agriculture Inc.).
- 2010 formed joint venture with Cargill Malt.
- 2014 Grupo Modelo purchased by Anheuser Busch InBev, so now joint venture between ABI and Cargill.

IDAHO BARLEY COMMISSION

SUSTAINABILITY

SmartBarley
GLOBAL INSIGHTS, LOCAL RESULTS
delivered by Anheuser-Busch InBev

1) Agronomic – yield/quality goal met

2) Economic – profit goals are met

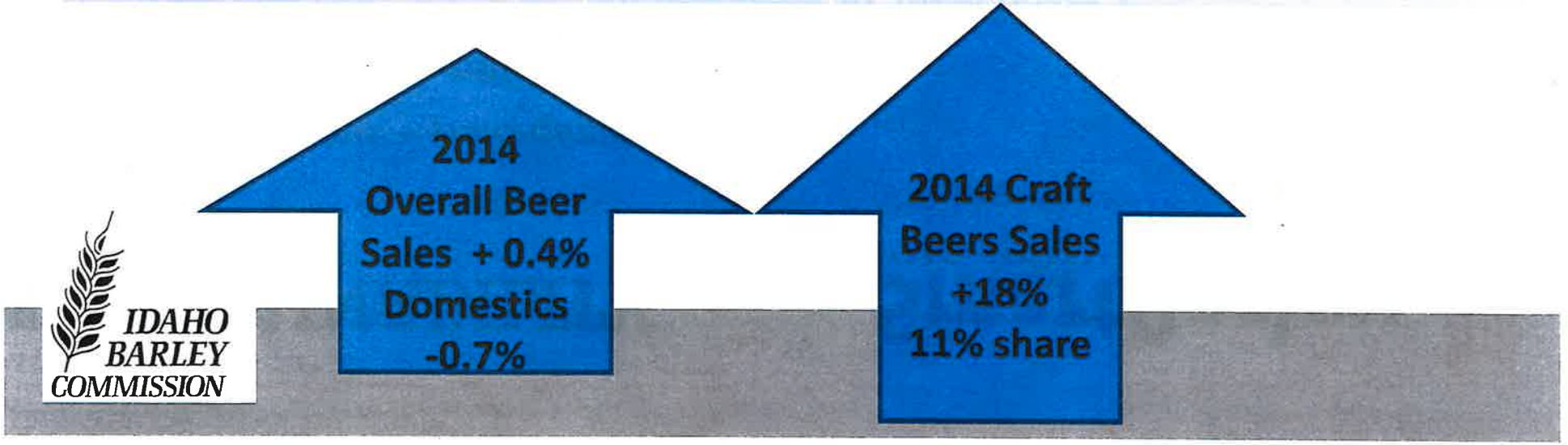
If we use best management practices to meet goals 1 and 2 we will also meet our third goal

3) Environmental – minimize impacts

IDAHO BARLEY COMMISSION

DOMESTIC BEER DEMAND

Percent Change in Volume	Year to Date August 2015	Latest 12 Months August 2015	Calendar Year 2014	Calendar Year 2013	Calendar Year 2012
Total Supply	**-1.0%**	**-0.7%**	**+0.4%**	**-1.2%**	**+1.3%**
Domestics	**-1.9%**	**-1.6%**	**-0.7%**	**-1.3%**	**+1.3%**
Imports	**+5.0%**	**+5.9%**	**+6.9%**	**-0.6%**	**+1.4%**



FOOD BARLEY OPPORTUNITIES

Developing heart-healthy / high fiber barley –

- Barley has 18% fiber content
- Barley health claim – lowers bad cholesterol
- Barley is low glycemic carbohydrate
- 2 varieties released since 2008 by USDA/ARS. More in pipeline.
- Public (USDA/ARS & Oregon State Univ.) & Private Collaboration (Highland Specialty Grains)

Hosting technical seminars on formulating cereal products with barley (Asian and Latin American customers). 2016 seminars will target domestic food manufacturers with Ardent Mills.

Launching Barley Nutrition Education with UI graduate students.

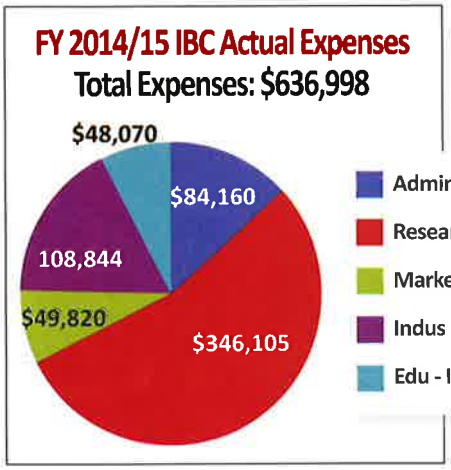
IDAHO BARLEY COMMISSION

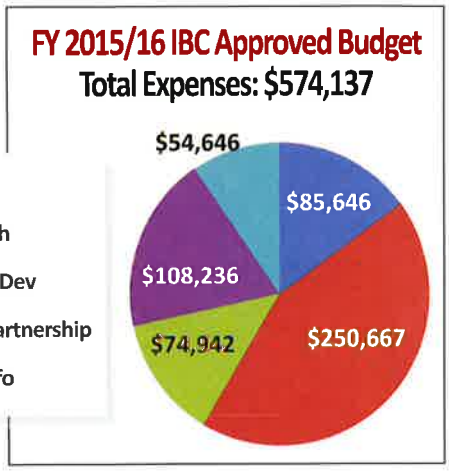
Idaho Barley Commission *2015 In Review*

THE Idaho Barley Commission's mission is to enhance the profitability of Idaho barley growers through research, market development and grower education. The IBC's strategic investments are currently focused on these priorities:

- University of Idaho Barley Research Agronomist Endowment (five year investment totaling $1 million)
- Sustainable production practices, including optimizing water and fertilizer inputs
- Pest and disease control
- Malting barley market diversification
- Food barley market development
- Barley producer risk management education.

Excessive moisture during the 2014 harvest caused serious quality and economic losses for Idaho barley producers and industry last year. The IBC immediately initiated an ***Idaho Barley Crop Crisis Action Plan*** that involved several strategies: communicating with producers and industry on testing procedures and handling recommendations for injured by sprout grain; assisting with county disaster declarations; working with insurance companies and the USDA Risk Management Agency on crop insurance issues and pursuing an aggressive feed barley marketing campaign throughout the Western U.S. There is no way to sugar coat the serious economic losses experienced last year, but everyone in the Idaho barley marketing chain learned important lessons and we are better prepared for the possibility of future production challenges.





Because of these economic losses, the IBC experienced an income shortfall in FY 2015 but made some significant adjustments in its budget to trim its deficit. Furthermore, the board has taken a conservative approach in the FY 2016 budget to ensure that we maintain funding for key priorities while rebuilding reserves. We are anticipating a significant recovery in 2015 production and quality across southern and eastern Idaho, where at least 92 percent of the state's barley crop is grown. This is great news for our producers and important malting barley industry partners.

RESEARCH:

- $1 million Barley Research Agronomist Endowment at the University of Idaho. Dr. Christopher Rogers was hired as the first Barley Research Agronomist last July and is based at the UI Aberdeen Research & Extension Center. Just one year on the job, Dr. Rogers has established a very comprehensive fertility and barley sustainability research program with collaborative research projects with the malting industry.
- Funding support for USDA ARS's malting and food barley breeding program based at Aberdeen, Idaho, with an emphasis on developing winter varieties adapted to Idaho's diverse growing conditions. ARS has established a collaborative barley variety development program with the U.S. craft brewing industry and Highland Specialty Grains.
- Disease control – IBC has supported two research forums in the past year to address rising concerns with the spread of Fusarium Head Blight (January 2014) and Barley Yellow Dwarf Virus (July 2015). We are supporting targeted research efforts at controlling the threat of both of these diseases.
- Long-term impacts of manure applications on malting barley production – this eight year study involves cereals, potatoes and sugar beets and is designed to develop recommendations for optimal manure applications rates and timing on basis of yield potential, grain quality, soil quality, disease pressure and nutrient uptake.

MARKET DIVERSIFICATION:

- We continue to work closely with our traditional malting and brewing customers on meeting their needs, including promoting sustainable barley production practices. We also have initiated outreach to the emerging craft brewing industry across Idaho and the Western U.S. The craft beer segment is a growing market for Idaho - craft beers now represent about 12 percent of the U.S. beer market, but they use more than 25 percent of the total malt consumed in the U.S.
- We continue to expand our FOOD BARLEY INITIATIVE, including development of high fiber barley varieties (ARS and Highland Specialty Grains), new product development using barley as a key ingredient and use of barley foods in school meals.
- We have targeted barley export markets in Latin America (malting) and Asia (food), by participating in market development programs sponsored by the U.S. Grains Council, a non-profit export market development organization based in Washington, D.C. with overseas programs in more than 50 markets around the world.

GROWER SERVICES:

- We worked closely with the North Dakota Barley Council on the final development of a new Malting Barley Revenue Insurance Endorsement that will be available for Idaho malting barley producers in 2016. This policy provides better coverage for both contract and non-contract malting barley production, including optional units, with a revenue component priced off of Chicago wheat futures.
- We teamed up with the University of Idaho Extension team in southern Idaho to organize and deliver nine workshops on the 2014 Farm Bill and Crop Insurance last December and January. More than 500 producers attended these workshops across the state, stretching from St. Anthony to Bonners Ferry. The southern and eastern Idaho workshops also included discussions on why pro-harvest sprouting is a concern to malting barley and wheat customers.
- We continue to work with local county extension faculty in offering grain marketing and risk management education across the state. Since 2001, the IBC has won more than $155,000 in competitive federal grants from the Western Center for Risk Management Education to conduct producer education in managing production and marketing risks. Highlights last year included local Grain Marketing Strategies workshops featuring Brian Ryland with CHS Hedging in Minneapolis and webinars on diverse topics including: Understanding 2014 Harvest Weather Events; Summer 2015 Weather and Water Outlook; Basics of Grain Basis; Cereal Best Management Practices; 2014 Farm Bill Program Details; and 2015 U.S. Economic & Grain Market Outlook.

New Eastern Idaho Commissioner Scott Brown inspects his Soda Springs barley fields.

2013-2014 Idaho Winter Wheat Variety Performance Tests and 2012-2014 Yield Summaries

Table 5. Dryland Winter Variety Performance in Southern Idaho, 2014

	Ririe Yield	Test Weight	Spring Stand	Heading Date	Height	Protein
	bu/acre	lb/bu	(%)		(in)	(%)
Soft White Winter Wheat						
SY Ovation	26.0	52.9	100	6/15	19	15.5
Eltan	25.7	50.2	100	6/21	21	16.6
Madsen / Eltan	25.4	51.1	96	6/19	21	15.8
SY 107	25.0	49.7	97	6/16	19	15.3
UICF Brundage	24.8	49.0	100	6/15	19	16.1
Bobtail	24.6	47.4	99	6/15	17	13.7
Skiles	24.4	52.2	100	6/17	19	15.1
Bitterroot	24.4	51.6	100	6/19	19	15.8
Otto	24.2	50.5	100	6/22	21	16.3
Kaseberg	24.1	49.8	100	6/14	16	15.0
WB-1070CL	24.0	51.6	100	6/12	20	13.1
WB 528	23.1	53.0	97	6/15	19	15.2
UI-WSU Huffman	23.0	49.3	98	6/19	19	15.8
Rosalyn	22.7	48.9	98	6/19	19	15.2
Bruneau	22.6	51.2	100	6/19	19	15.4
Mary	22.2	51.4	100	6/14	18	15.2
Ladd	21.9	50.3	95	6/19	20	15.6
Madsen	21.9	51.8	99	6/19	20	15.6
Brundage	21.7	53.0	100	6/12	19	14.4
WB 456	19.7	54.1	100	6/12	17	14.2
Stephens	19.5	50.7	98	6/15	18	15.3
Average	**23.5**	**50.7**	**99**	**6/16**	**19**	**15.3**
LSD (α= 0.05)	**3.9**	**1.3**	**4.8**	**2.2**	**2.1**	

	Soda Springs Yield	Test Weight	Spring Stand	Heading Date	Height	Protein
	bu/acre	lb/bu	(%)		(in)	(%)
Madsen / Eltan	82.4	55.3	90	6/24	27	12.8
Eltan	80.8	55.4	95	6/24	28	13.1
UICF Brundage	74.9	55.3	88	6/23	26	13.2
Madsen	64.6	55.1	88	6/24	26	13.2
Brundage	62.5	54.7	87	6/19	26	13.2
Bruneau	55.3	53.4	85	6/24	25	13.1
Stephens	53.4	52.4	80	6/21	25	14.1
Average	**68.4**	**56.5**	**90**	**6/21**	**29**	**13.5**
LSD (α= 0.05)	**14.9**	**3.0**	**5.7**	**1.6**	**4.7**	

Hard Winter Wheat	Rockland	Ririe	Average	Test Weight	Spring Stand	Heading Date	Height	Protein
Variety	bu/acre			lb/bu	(%)	Julian	(in)	(%)
AP503 CL2	37.2	18.7	28	59.0	98	157	19	12.5
Bearpaw	34.2	18.0	26	58.4	97	159	18	12.3
Curlew	42.7	21.9	32	59.2	99	159	24	12.4
Deloris	38.1	23.5	31	58.6	98	161	25	11.5
Garland	32.4	19.7	26	56.4	98	161	15	12.5
Garland/Juniper	37.2	18.9	28	58.3	98	161	26	12.4
Golden Spike (W)	39.1	18.3	29	56.8	98	161	21	12.6
Greenville	37.4	19.9	29	57.5	98	160	18	10.9
Judee	37.0	16.8	27	59.6	98	160	19	12.0
Juniper	37.2	25.8	32	59.8	97	160	25	13.0
Juniper / Promontory	39.0	19.5	29	59.6	98	161	25	12.4
Keldin	42.9	21.7	32	59.0	98	159	21	11.9
LCS Azimut	40.3	21.4	31	53.5	98	159	19	11.1
LCS Colonia	35.1	25.0	30	53.1	96	166	20	12.2
LCS Evina	28.1	20.5	24	54.3	94	167	20	12.9
Lucin-CL	36.8	21.9	29	58.7	98	160	25	12.8
Manning	27.2	19.6	23	58.5	97	159	20	12.6
Moreland	36.3	21.7	29	56.3	98	159	19	12.9
Norwest 553	29.1	19.2	24	57.8	91	164	20	13.3
Promontory	36.4	21.3	29	59.1	98	159	23	12.2
SY Clearstone 2CL	42.2	23.5	33	57.7	99	160	24	12.5
UI Silver (W)	41.6	25.3	33	60.0	97	160	24	11.8
UI SRG	43.7	20.2	32	57.8	97	159	24	12.6
UICF Grace (W)	32.1	21.5	27	57.8	96	159	27	12.3
Utah 100	40.1	21.3	31	57.8	98	161	24	12.4
WB-Arrowhead	38.4	19.7	29	58.9	97	158	22	12.6
WB-Arrowhead / Keldin	38.5	22.3	30	58.9	97	158	23	12.1
WB3768 (W)	40.1	21.3	31	58.6	97	162	23	12.4
Weston	36.7	18.6	28	59.6	97	160	24	13.3
Whetstone	43.1	19.7	31	58.9	99	156	20	12.0
Yellowstone	42.5	23.7	33	58.8	98	159	22	10.9
Average	**37.4**	**21.0**	**29**	**58.0**	**97**	**160**	**22**	**--**
LSD (α= 0.05)	**8.5**	**4.1**	**6**	**1.3**	**4**	**2**	**3**	**--**

(W) = White

Table 6. 2012-2014 Winter Wheat Variety Average Yield Performance

	Northern District	Southern/Eastern District	
	Rainfed	Irrigated	Dryland
Site/years	**18**	**9**	**3 soft, 6 Hard**
	Yield (bu/A)		
Soft White Winter			
ARS-Amber	86	--	--
ARS-Crescent*	80	--	--
Bitterroot	--	--	22.5
Bobtail	92	141.9	18.5
Brundage	--	131.5	16.9
Brundage 96	86	--	--
Bruneau	91	142.9	21.6
Cara	83	--	--
Eltan	--	--	23.9
Kaseberg	90	140.0	18.0
Ladd	--	128.9	16.0
LCS Artdeco	95	--	--
Madsen	86	133.7	19.5
Mary	--	136.3	18.0
Skiles	--	131.2	19.0
Stephens	82	134.2	16.8
SY Ovation	--	141.0	--
UICF Brundage	--	--	20.4
WB 456	--	118.5	--
WB 528	--	133.9	18.8
WB-1070CL	81	129.1	--
WB-523	85	--	--
WB-Junction	89	135.0	--
WB1529	--	131.4	--
Average	**87**	**134.0**	**23.9**
LSD (α= 0.05)	**4**	**7.4**	**2.7**
Hard Red and White (W) Winter			
AP503 CL2	--	--	22.2
Bearpaw	--	--	21.5
Boundary	86	--	--
Curlew	--	--	23.7
Deloris	--	--	25.9
Golden Spike (W)	--	122	23.6
Greenville	--	128	22.4
Judee	--	131	23.0
Juniper	--	123	24.9
Keldin	--	146	26.9
LCS Azimut	89	128	--
Lucin-CL	--	--	24.9
Manning	--	127	--
Moreland	--	135	--
Norwest 553	92	141	19.0
Promontory	--	135	22.0
Rimrock	90	--	--
UI Silver (W)	--	85	25.6
UI SRG	--	87	26.1
UICF Grace (W)	--	--	24.8
Utah 100	--	141	25.6
WB-Arrowhead	87	137	23.0
Weston	--	--	22.6
Whetstone	--	134	--
Yellowstone	--	142	26.3
Average	**87**	**133.6**	**23.9**
LSD (α= 0.05)	**4**	**7.0**	**2.7**

*Club wheat
(W) = White

Wireworms: Pest from the past
Research for future management

By Drs. Christopher W. Rogers and Arash Rashed

IN the world of farming it seems that at any given time there is something working against our efforts to ensure Idaho is continuing to produce high yielding and outstanding quality grain. These issues are often all too real for you as they directly cut into your returns and impact your livelihood. At this time of year, many of you are in the field and on the combine getting your grain in the bin and to market. However, it is important that we are always looking forward to ensure our upcoming year's crop, whether winter or spring grain, will be as profitable, or more, compared to the last. Many of you are aware that there has been a statewide resurgence in the occurrence of wireworms, a persistent and damaging crop pest particularly in the early seedling stage of grain. In this article and our upcoming University of Idaho Extension Current Information Series (i.e., detailed management and visual identification keys), which will be published this fall, we want you to be aware of this pest and your management and monitoring options so you can be thoroughly prepared to manage your fall and spring grain crops.

Wireworms are characterized by their hard, slender, and wire-shaped bodies that are less than an inch long. They are the immature stage of a group of beetles, known as the click beetles, and it takes them multiple years to mature. Wireworms are attracted to the germinating seed due to the release of gaseous compounds in the soil. Wireworms can result in failed seed germination due to their feeding on the seed and the emerging sprout. Post-emergence damage, caused by wireworm feeding on roots and at the very base of the stem below ground, can be detected through the presence of weakened and/or dead plants, a process that usually starts by wilting of the central leaves. At the field scale, damage is often seen as patchy areas of missing or weakened plants. Traditional environmentally persistent pesticide chemistries have been removed from the market due to environmental and health concerns, and the only currently registered chemistry (i.e., neonicotonoid seed treatments) for wireworms in barley and wheat are less effective, providing limited protection, and do not eradicate wireworms in the field. However, these treatments are recommended in fields that have historically had wireworm damage. These neonicotinoid seed treatments are also effective at reducing cereal aphid populations, some of which are known to be efficient host carriers of the barley yellow dwarf virus, also known as BYDV. Another effective management strategy is to rotate with other crops such as sugar beet and potatoes where more effective insecticide chemistries are available to reduce wireworm population in subsequent grain crops. If you believe your field is infested or at risk, monitoring protocols can be implemented using "solar-bait traps", where pre-moistened wheat/barley/corn seed is inserted in a small hole in the soil and covered with dark plastic to attract wireworms so they can be collected and the severity of infestation assessed. Detailed instructions for this method as well as visual identification keys for the most prevalent species of wireworm will be available in the upcoming University of Idaho CIS publication.

UI barley research agronomist Chris Rogers (left) and UI research entomologist Arash Rashed evaluate barley research trial at the UI Nutrient Management Field Day in Kimberly in July 2015.

In the past several years, the Idaho Barley Commission, the Idaho Wheat Commission, the USDA-ARS- REACCH, and the USDA-NIFA hatch programs have funded research to begin to address the wireworm threat facing Idaho grain producers. We have established numerous field sites statewide from Parma to Soda Spring as well as in Northern Idaho in multiple grower fields. Several species of wireworms have been observed and we are currently compiling the results from the 2014-2015 growing season where, during the 2015 growing season, we greatly increased our sampling program and added extensively to the monitoring protocol by investigating environmental soil factors including bulk density, moisture content, and temperature. In previous work in the Midwest, soil moisture content and temperature have been shown to be key predictors of wireworm activity in fields. Through the support of our Idaho grain growers and commissions, we believe our research efforts and intensive monitoring program will lead to an improved understanding of factors influencing wireworm management and control in Idaho. We hope you will find our upcoming publication a valuable addition to your management toolbox.

As always, we look forward to hearing from you as the feedback and contributions from all growers, county extension personnel, consultants, and barley industry stakeholders are crucial for creating a productive research and extension program to address the current needs of Idaho growers. ■

IBC Industry Representative Tim Pella, Anheuser Busch (left), examines malting barley at UI Bonneville County Cereal Field Day in July 2014.






A better shoe to help you put your best foot forward

JOHN DEERE

2016 S-Series Combines with new Dyna-Flo™ Plus Cleaning Shoe

Who says high capacity can't go higher? The upgraded 2016 S-Series Combines feature the all-new Dyna-Flo Plus cleaning shoe that's lighter in weight and longer in sieve to raise combine capacity 10% in corn and 13% in wheat and canola in shoe-limited conditions. Not to mention it offers a 28% reduction in tailings volume.

That's not all. This system can be equipped with the new Active Terrain Adjustment™, which automatically adjusts your shoe settings when harvesting contoured land. So whether you're going uphill or downhill, the combine maintains ground speed and minimizes grain loss.

Don't miss out on our new premier in-cab solution: **Harvest Mobile**. It works directly from your iPad to deliver in-depth info on field performance by visualizing mapping layers so you can see exactly what's going on in your field. Ask your dealer for details. **Nothing Runs Like a Deere.**

JohnDeere.com/Combines