WHEAT LIFE

The official publication of the Washington Association of Wheat Growers

MARCH | 2022

ARE SOIL OFFSET CREDITS ALL THEY'RE PUMPED UP TO BE?

ALSO IN THIS ISSUE:

Q&A with incoming NAWG president, Nicole Berg from Benton County

Top 10 wheat pests, diseases in PNW

Soil health in dryland agriculture

Markets, taxes, weeds—AMMO recaps

MAC exhibit focuses on flour sacks

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WASHINGTON ASSOCIATION OF WHEAT GROWERS

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President's Perspective

Why you should contribute to the PAC

By Howard McDonald

How hard would it be to grow your wheat without applying fertilizer? You'd get a crop, but it probably wouldn't be a great one, and with the rising cost of inputs, you'd be lucky to break even. Continue trying to raise a crop year after year without using fertilizer, and pretty quickly, you'll find yourself in a financial hole too deep to dig out of, right?

Now apply that same thinking to the political arena. The "fertilizer" is the funds in our political action committee, or PAC, and the crop we are applying it to is legislators. Frankly, the deck is already stacked against us, and there are some things we have no say over, like redistricting. The one thing we can do is support legislators that have agriculture in their districts and moderate legislators from urban districts, regardless of party affiliation, who are friendly to agriculture.

The funds in our PAC (the Washington Wheat PAC) come solely from grower donations, and our lobbyist makes suggestions about where best to distribute those funds (pending committee approval). In most cases, the funds will be distributed as campaign donations. Many of the other ag sectors, such as potatoes, tree fruit and dairy, also have PACs.

Don't like the idea of donating to a candidate from a different party? Because of redistricting, we are seeing fewer legislators from rural areas, and legislators from urban areas aren't as familiar with agriculture. Another very important reason for building up a robust PAC is that it helps create long-term relationships no matter what side of the aisle a legislator sits on. If we want to have a say in what happens in Olympia, we have to reach out to legislators we might traditionally have passed by.

It's a sad fact, that in today's political climate, you have to "pay to play," and we are falling behind.

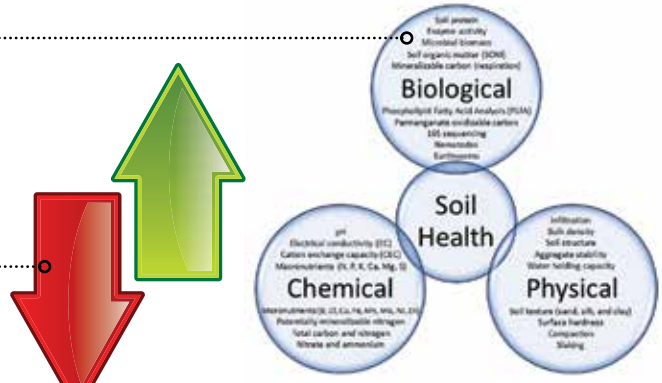
Not convinced? Think about Gov. Inslee's buffer bill. We were able to get it stopped this year—barely—but we are predicting it will be back, and we'll need ag-friendly legislators to help us stop it again (or at least make it less harmful to farmers). Our bill that would have created a seasonal exemption to ag overtime never even got a hearing because there weren't enough ag-friendly legislators in committee to support it. Remember a few years ago when a senator made the statement that farmers didn't pay taxes? Or the legislator who linked Washington growers to slavery and human trafficking?

It's time for the wheat industry to step up our game and support our PAC. Recently, many farmers have done just that, and I encourage you to do the same. If you would like to donate (and any amount is appreciated), your check may be sent to the Washington Wheat PAC, PO Box 184, Ritzville, WA 99169.

The bottom line is if we want to hand down our farms to the next generation, we have to make sure the people in government have a better understanding of what we do and why. ■

Cover photo: There's lots of questions and concerns about carbon markets and using soil carbon as offset credits. Two speakers at the 2021 Tri-State Grain Growers Convention gave presentations on the issue. See what they have to say beginning on page 26. All photos are Shutterstock images or taken by *Wheat Life* staff unless otherwise noted.

Inside This Issue



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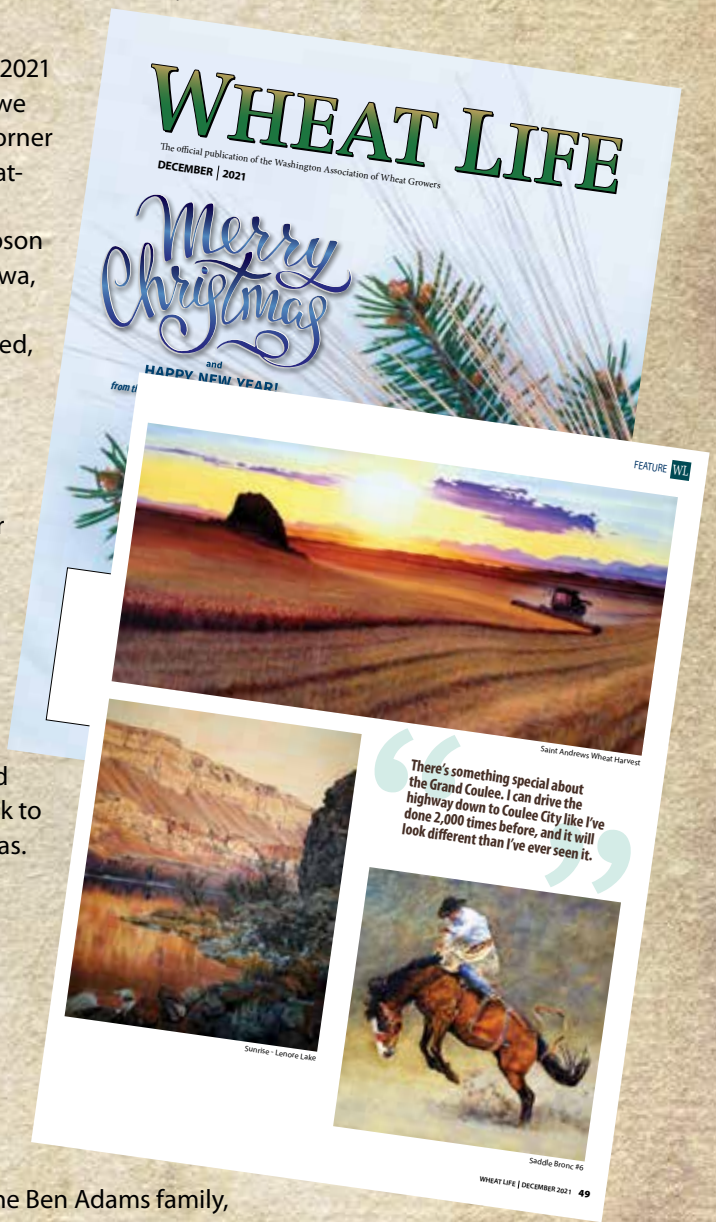
Dialogue

Share your comments with us via email at editor@wawg.org or mail them to 109 East First Avenue, Ritzville, WA 99169-2394. Please keep your submissions less than 300 words.

Story on Coulee City artist paints a picture of family

Dear Editor:

We were very excited first about your story on Don Nutt (December 2021 issue of *Wheat Life*) and then to find at the top of page 49 the painting we commissioned from Don Nutt of our family farm. The scene from the corner of St. Andrews Road and U.S. Highway 2 was the homestead of our great-grandfather, Charles Hobson, which was acquired through a land grant dated April 4, 1894, during the presidency of Grover Cleveland. Mr. Hobson along with his father, Dr. William Hobson, left their home in Fairfield, Iowa, to settle in Coulee City, where Mr. Hobson operated a pharmacy for a short time. The grant was probably just one of several the family received, and this parcel remained in our family until last year.



As mentioned, Don chose to paint the scene as he felt it should be, not from any photograph we might have in our collection. So we have this wonderful scene of a recent harvest with Haystack Rock in the background, thereby providing a scene of the past and the present. For us, personally, the picture represents more than 100 years of farming. And who else but Don could capture the farm as the sun descends over the purple shades of the Eastern Cascades and with the amber waves of grain ready for harvest using a John Deere combine.

Our grandmother, Grace Hobson Reavis, was born on the Fourth of July in 1897 in Coulee City, the second of three children born on the plains of Eastern Washington. Unfortunately, Charles Hobson would die in 1901. Shortly thereafter, her mother moved the young family back to Fairfield only to move again when an uncle insisted on moving to Kansas. (We liked to ask grandma what it was like to travel by covered wagon, to which she would very sternly tell us they took the train). Grandma Grace eventually went to work for a Standard Oil pipeline company that had built a magnificent six-story building in Independence, Kan. There, many years later, she married my grandfather, an accountant at the now Sinclair Pipeline Company. She lived out her life and outlived her younger sister and her brother (a veteran of World War I in the Philippines and the occupation of the Port of Vladivostok in Russian Siberia).

Though we no longer own the farm, having sold it to a member of the Ben Adams family, there is still a plot in a cemetery north of U.S. 2 on St. Andrews Road within the boundaries of another section. Abandoned and with the stones knocked down, that place will always mark the spot of an industrious group of folks from Iowa who came to work and farm and thereby help build the agricultural industry of Eastern Washington into a worldwide operation that feeds the world.

Our thanks to the editor and Don Nutt for a wonderful article about a great artist whom we met by chance that day we visited Coulee City for the first time a few years ago.

James L. Reavis, Jr.

Round Top, Texas

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Please check level of membership

☐ Student $75
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☐ Landlord $125
☐ Industry Associate $150
☐ Family $200 (up to 2 members)
☐ Partnership $500 (up to 5 partners)
☐ Convention $600
☐ Lifetime $2,500

Name

Farm or Business

Address

City

State Zip

Phone Fax

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County Affiliation (if none, write state)

Circle all that apply:
Producer Landlord Individual Industry Rep. Business Owner Student Other

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Or call 509-659-0610 and use your credit card to enroll by phone.

Thank you to our current members

We fight every day to ensure that life on the family farm continues to prosper and grow.
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If you are not a member, please consider joining today.

LEVELS OF MEMBERSHIP

	Greensheet Newsletter	*Wheat Life* Magazine	National Wheat Grower Newsletter	Annual Harvest Prints	WAWG Convention Free Registration	One Vote per Member
Producer/Landowners (Voting Membership)						
Grower or Landlord $125	X	X	X			X
Family $200 (2 family members)	X	X	X			X
Partnership $500 (1-5 family members)	X	X	X	X		X
Convention $600 (2 individuals)	X	X	X		X	X
Lifetime $2,500 (1 individual)	X	X	X	X		X
Non-Voting Membership						
Student $75	X	X	X			
Industry Associate $150	X	X	X			

WAWG's current top priorities are:

- ✔ **Preserving the lower Snake River dams.**
- ✔ **Fighting mandatory climate/carbon regulations.**
- ✔ **Lobbying the state Legislature for a seasonal overtime exemption.**
- ✔ **Maintaining a strong, reliable safety net by preserving crop insurance and making sure farm commodity programs work.**
- ✔ **Maintaining a safe, sound transportation system that includes rail, river and roads.**

If these priorities are important to you, your family and your farm operation, join WAWG today and help us fight.

More member benefits:

- Greensheet ALERTS • WAWG updates
- Voice to WAWG through opinion surveys
- National Wheat Grower updates
- State and national legislative updates

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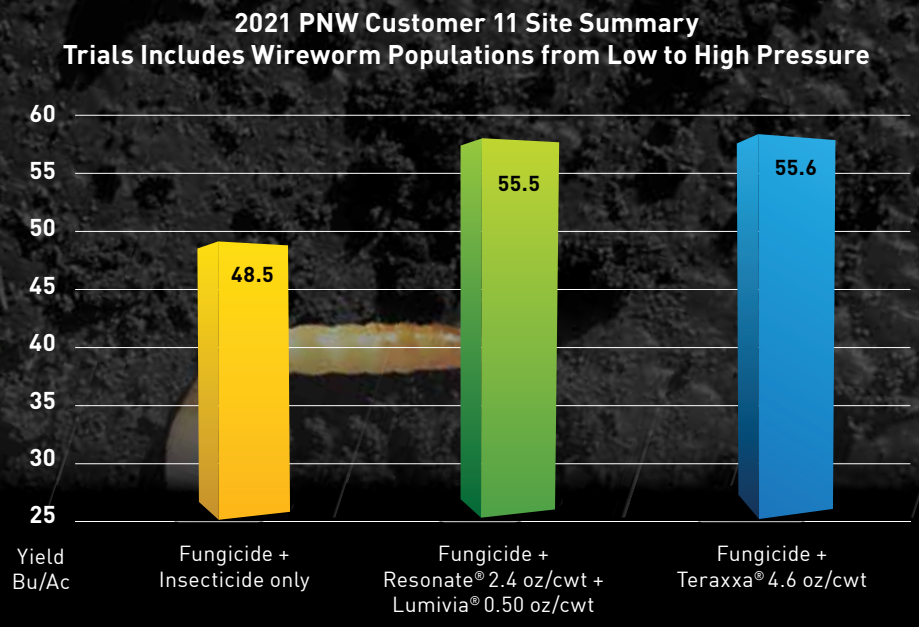

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WAWG at WORK

ADVOCATING FOR THE WHEAT FARMERS OF EASTERN WASHINGTON

Growers hear FSA staffing, committee plans

Meeting season continued for the Washington Association of Wheat Growers (WAWG) as board members met last month for their monthly state board meeting where they discussed county conditions and heard updates.

Jon Wyss, the newly reappointed state executive director of the Farm Service Agency (FSA), called into the meeting, telling growers he was proud to be back. He acknowledged that the state office has some challenges to address as a number of sign-ups are coming down to the wire amidst staffing issues in several county offices. March 15 is the sign-up deadline for the Agriculture Risk Coverage (ARC) and Price Loss Coverage (PLC) program. The Conservation Reserve General (CRP) sign-up ends on March 11. Wyss said the state office is hearing concerns about the CRP rental rates in some counties, and that's something he'll be looking into. One of his first priorities is to get the state committee fully staffed, and he asked growers for recommendations of people who might be interested in serving (see page 56).

Travis Martin, an FSA district director, also called into the board meeting. Martin said the state is behind last year in the number of producers who have completed their ARC/PLC sign-ups. There was some confusion earlier in the year about what producers who weren't changing last year's election needed to do. Martin said even if producers aren't changing their election, they still need to complete enrollment, including collecting all applicable signatures by the March 15 deadline. Failure to complete enrollment, which is different from election, means the farm will be ineligible for payments for the 2022 fiscal year. Producers should contact their local FSA office as soon as possible if they have any questions.

WAWG lobbyist Diana Carlen gave a state legislative

AG EXPO 2022. The annual Spokane Ag Expo/Farm Forum returned to the Spokane Convention Center after being virtual only in 2021 due to COVID. While traffic was a little lighter than usual, school attendance on FFA day was much higher than expected. The Washington Association of Wheat Growers' (WAWG) booth provided industry information, educational opportunities, invited new members and gave away wheat swag. The grand prize of a smart TV went to Kaitlin Smasne of Fairfield, Wash. WAWG would like to thank the volunteers and our Wheat Ambassadors for working the booth for the three days of the event.

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update. The big news in Olympia was the release of a transportation revenue package by Democrats. She said there were good and bad things in the package. It doesn't rely on a gas tax increase, but there aren't that many projects in it that would benefit Eastern Washington. It does rely, in part, on increased fees for driver's licenses and license plates.

The ag lobby is watching another tax-related item in the transportation revenue package, one that would put a tax on exported fuel. Besides the fact it may violate the federal Commerce Clause, Carlen said another concern is if other states start levying their own export taxes on products in the future. The ag lobby is also monitoring House Bill 1117, which would require public projects to incorporate a net ecological gain standard. There is some question whether or not that standard would apply to projects funded with public dollars, like the Voluntary Stewardship Program.

Although the much-aligned buffer bill ultimately did not pass out of its legislative committee, Carlen is still concerned that elements of it may appear in other bills. There is also the likelihood it may be revived in future legislative sessions. Michelle Hennings, WAWG's executive director, told the board she has been attending grower meetings across Eastern Washington, explaining the potential impacts of the buffer bill and demonstrating its potential reach with a preliminary map of the state's waterways.

"I've been able to explain to a substantial number of growers how bad this bill is for agriculture. There's a lot of legislation being considered at both the state and national levels that could potentially have an extremely negative impact on growers, and they need to be aware of those efforts and how serious of a threat they are to family farms," she told the board. "Besides the buffer bill, I've also provided an extensive update on our efforts to protect the Snake River dams. I feel like these presentations have been extremely successful, and I've been getting some great feedback from farmers."

In national legislation, the group discussed wheat as a cover crop and pilot programs relating to climate concerns that are being considered. One of WAWG's continued priorities is preserving the lower Snake River dams and educating the public on the benefits the dams provide. The study supported by Washington Gov. Jay Inslee and Sen. Patty Murray looking at potentially removing the dams is expected to be released in May.

In county issues, most counties reported little to no snow cover with decent stands of winter wheat that are starting to come out of dormancy. Producers are concerned about the availability of inputs and seeds. All counties reported dry conditions and the hope for a wet spring.

The next state board meeting is scheduled for March 8. ■

Counties hold February grower meetings

Both Columbia and Whitman county wheat growers met last month to discuss county business.

Columbia County

Approximately 25 growers from Columbia County attended a county wheat growers meeting last month, both virtually and in-person, to discuss county concerns and business.

Representatives from Northwest Grain Growers presented useful information on insect and disease pressure, effective herbicide and pesticide chemistries and seed treatment packages, wheat varieties and the availability of seed. Growers were encouraged to get their spring seed orders in as soon as possible.

Drew Lyon, interim chair of Washington State University's (WSU) Department of Crop and Soil Sciences, provided a weed update and a progress report on WSU's hiring and new initiatives like the Washington Soil Health

Columbia County growers heard updates from various industry stakeholders at last month's county meeting

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Initiative. Washington Association of Wheat Growers (WAWG) lobbyist Diana Carlen called in with a state legislative update. Lori Williams, WAWG program coordinator, discussed upcoming grower seminars, and local representatives from the Farm Service Agency and the Natural Resources Conservation Service gave program updates and reminded growers of important deadlines.

Whitman County

During their meeting last month, Whitman County wheat growers continued an earlier discussion about the lack of staffing at the county Farm Service Agency (FSA) office. Over the past year, the office has lost nearly half of their seasoned staff due to retirements and promotions, leaving wheat growers concerned that the lack of experienced personnel will hamper their ability to get signed up for programs before the deadlines. FSA District Directors Travis Martin and Geremy Nelson called into the meeting to talk to growers. Martin and Nelson will be acting as co-county executive directors for the time being, and the agency is using a national "jump team" and other county offices to fill in at the Whitman County office. Martin and Nelson reported that Adams and Lincoln counties are facing similar situations. One bit of encouraging news was that the FSA state executive director position has finally been filled. Jon Wyss was recently reappointed to the position and was slated to start on Feb. 14.

FSA reported that only 33 percent of Whitman County growers had signed up for the Agriculture Risk Coverage and Price Loss Coverage programs, and the sign-up deadline is March 15. The other major deadline facing growers is the March 11 Conservation Reserve Program sign-up deadline. Currently, there are no plans to extended the sign-up deadlines, so growers are encouraged to contact their local FSA office as soon as possible.

Country growers decided to draft a letter to the Washington Association of Wheat Growers' state board of directors to highlight their concerns over FSA staffing.

Tim Murray, chair of the Department of Plant Pathology at Washington State University and an Extension plant pathologist, talked about stripe rust, saying that because of the dry fall and late seeding, there was reduced disease potential, but if the spring forecast for cool, wet weather comes true, stripe rust could become an issue. The mild winter weather in February has brought some winter wheat out of dormancy, leaving it vulnerable to any late season cold spells. Murray also discussed Fusarium head blight, saying it isn't currently a significant danger, as it mainly affects corn.

Gary Bailey and Ben Barstow, Washington Grain Commission (WGC) commissioners, talked about the job openings at the WGC and the Wheat Marketing Center in Portland. Barstow also talked about the need for rural Washington to have more representation and influence in state politics, especially with Western Washington legislators. He encouraged growers to consider supporting the Washington Wheat PAC, which donates to the campaigns of ag-friendly politicians. ■

ARC/PLC enrollment required for 2022 eligibility

The Agriculture Risk Coverage (ARC) and Price Loss Coverage (PLC) deadline is quickly approaching. Failure to make a valid election and enrollment for the 2022 program year by March 15, 2022, will result in ineligibility for the 2022 crop year payment. To complete election and enrollment, all signatures must be submitted by the March 15 deadline.

There was some confusion in a previous announcement that if there is a failure to make an election for 2022, it would result in the farm defaulting to the election made in the 2021 program year. While it is true that the farm will default to the prior election if an election is not made by March 15, the farm may also become ineligible for payments for the 2022 fiscal year if enrollment is not complete by the upcoming deadline. Election and enrollment are two separate actions that apply to all ARC/PLC contracts. All farms must complete enrollment, including all applicable signatures, by March 15, 2022. If you have already signed up for ARC/PLC and chose to modify your election, you may do so until the March 15 deadline.

Please contact your local Farm Service Agency office to schedule an appointment today. ■

WAWG signs letter to governor, legislature on salmon recovery

A group of Washington state agricultural organizations sent a letter to Gov. Jay Inslee and state House and Senate leaders offering suggestions on actions that would significantly increase riparian enhancement and protections for salmon.

"Our farmers have implemented conservation on their lands for decades and generations with help and in partnership with local conservation districts, local watershed and salmon enhancement groups, in partnership with many tribes, and state and federal agencies. Many of these conservation programs have never been fully funded," the letter said. ▶

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Some of the suggestions include funding for the Voluntary Stewardship Program and the Conservation Reserve Enhancement Program; funding for coordinated resource management that would establish goals between local parties for riparian restoration in several watersheds and river basins; funding for small forest landowners who are required to leave timber that protects fish habitat; funding to address a backlog of Family Forest Fish Passage Program projects that assist small forestland owners in removing culverts and stream obstructions; and funding to expand the Commodity Buffer Program.

Besides the Washington Association of Wheat Growers, other signatories include the Washington State Farm Bureau, Washington Friends of Farms and Forests, Western Washington Agricultural Association, the Washington State Dairy Federation, Washington Winegrowers Association and the Washington State Cattlemen's Association. ■

Are you receiving your ALERT?

With their annual membership, Washington Association of Wheat Growers members can receive industry updates through the weekly digital Greensheet ALERT via email. If you are not receiving this ALERT, either we don't have your current email address, or our ALERT is going into your spam folder. Call our office at (509) 659-0610 to make sure we have your current email address. ■

WAWG thanks members

The Washington Association of Wheat Growers would like to thank each and every member of our organization. You, the members, keep the organization strong. The grassroots WAWG is built on keep the leadership, committees and board members moving forward in a positive way. Without your support and activity, WAWG would not be the efficient and effective organization it is today. Thank you for your time and support.

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PNW CANOLA GROWERS

RUBISCO SEEDS
Hybrid Canola

BREAKING YIELD BARRIERS

Winter Canola Hybrids KICKER | MERCEDES | PHOENIX CL | PLURAX CL

Kicker: Top yielding conventional hybrid, 2020 & 2021 PNW Winter Canola Trials. Excellent winter hardiness and resilience to pod shattering. Good drought tolerance. Medium maturity.

Mercedes: #1 reference winter canola hybrid for yield and oil in the PNW since 2012. Vigorous fall establishment and early season cold tolerance. Responds to lower seeding rates relative to OP canola. Medium maturity.

***Phoenix CL:** Two-gene Clearfield hybrid with proven performance in the PNW. Superior cold tolerance. Vigorous fall growth helps overcome insect feeding. Early maturity. Enhanced pod shattering resiliency. High yield potential.

***Plurax CL:** Two-gene Clearfield hybrid with early maturity. High cold tolerance. Vigorous fall growth above and below ground. Prostrate fall crown development. Excellent yield and oil content. Strong pod structure.

PNWVT	2018	2019	2020	2021
Control Varieties		lbs/ac (rank)		
Athena	4,084 (10)	4,344 (18)	4,015 (15)	3,698 (12)
Dwarf Essex	3,413 (28)	--	3,698 (23)	3,279 (27)
Ericka	2,865 (30)	3,829 (25)	3,516(25)	3,219 (28)
Rubisco Seeds' Hybrids			*Data courtesy of University of Idaho*	
Kicker	–	–	4,792 (1)	4,701 (1)
Mercedes	4,933 (1)	5,145 (1)	4,419 (6)	4,359 (3)
Plurax CL	4,708 (2)	4,959 (2)	4,717 (2)	4,465 (2)
Phoenix CL	4,636 (4)	4,900 (4)	4,611 (3)	4,043 (5)
PNWVT Mean	3,956	4,470	4,085	3,726
LSD (p=0.05)	326	287	253	228
C.V. (%)	14.7	12.4	12.3	10.6

* **Phoenix CL & Plurax CL compatible within Clearfield wheat rotations.**
Strong cross tolerance to Imi / SU herbicides. Can be sprayed post emergence with Beyond herbicide.
SU or SURT Canola cultivars are not viable in a Clearfield rotation. (50% yield reduction in soils containing IMI residues, independent research Caldbeck Consulting.)

- **Earn Non-GM premiums in addition to optimizing yields**
- **Locally based research on germplasm and agronomy**
- **All hybrids developed with a strong focus on shatter tolerance**
- **All seed is certified Blackleg free. Organic growers, please inquire**
- **Secure Early Season Discounts by May 1, 2022 (Ask your retailer)**

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POLICY MATTERS

Legislature heads into home stretch of session

By Diana Carlen
WAWG Lobbyist

We are on the home stretch of this year's 60-day session. Legislators continue to work long hours to meet the final deadline of March 10, when the session adjourns (budgets were still moving through the legislative process as of *Wheat Life's* printing deadline).

Senate's proposed supplemental capital budget

The Senate's proposed supplemental capital budget spends $94.8 million in available bond capacity, $561.6 million in ARPA State Fiscal Recovery Funds balance and $290.3 million for the initial available Infrastructure Investment and Jobs Act (IIJA) grants.

Of particular interest to the agricultural community, the proposed budget includes $3 million for the Voluntary Stewardship Program (VSP) and $2 million for the Farmland Protection and Land Access Program, which provides farmland conservation easements to protect farms from development and make them more affordable to underserved and first-time farmers and ranchers. The budget also includes funds intended to address supply chain challenges and the inflammatory cost of materials.

House's proposed supplemental capital budget

The House proposal also makes sizeable investments in housing and homelessness, water, education and behavioral health. The budget is comprised of $77.4 million in bonding capacity and $1.42 billion from a variety of other fund sources, including $263.8 million from the IIJA. Notable highlights include:

- $2 million for the Farmland Protection and Land Access Program to reduce the conversion of high priority agricultural land at risk of development and to increase farmland access by historically underserved producers.
- $9 million shifted from the 2021-23 operating budget to the capital budget to facilitate the water banking pilot program.
- $17 million for projects related to salmon recovery.

Democrats release supplemental operating budget proposals

On Feb. 21, the House and Senate each released their respective supplemental operating budgets. The current biennial operating budget spends $59.1 billion. The Senate supplemental proposal increases the budget to $63.7 billion, while the House supplemental proposal increases the budget to $65 billion. Neither budget proposal raise taxes, but neither offers any significant tax relief either.

The Senate and House supplemental operating budgets were passed out of their respective fiscal committees on Feb. 23. The amended budgets include a couple of key changes that were welcomed by agriculture. Specifically, both the Senate and House removed the $709,000 appropriation to the Department of Ecology to complete a comprehensive review of the water resource management statutes. Additionally, the Senate Ways and Means Committee amended the budget to include a new $500,000 appropriation to the Washington State Commission on Pesticide Registration for research to develop alternatives for growers currently using organophosphate pesticides.

The House also included a new appropriation of $6 million for the VSP.

House committee passes transportation package

The Move Ahead Washington transportation package continues to move forward, although one of the most controversial parts of the legislation, a $.06 per gallon tax on exported fuel, may be on the chopping block. Rep. Jake Fey (D-Tacoma), one of the co-sponsors of the bill, has said he is reconsidering his support for the tax after it came under heavy fire from Republican lawmakers and neighboring states. There were also concerns the proposed tax violated the federal Commerce Clause.

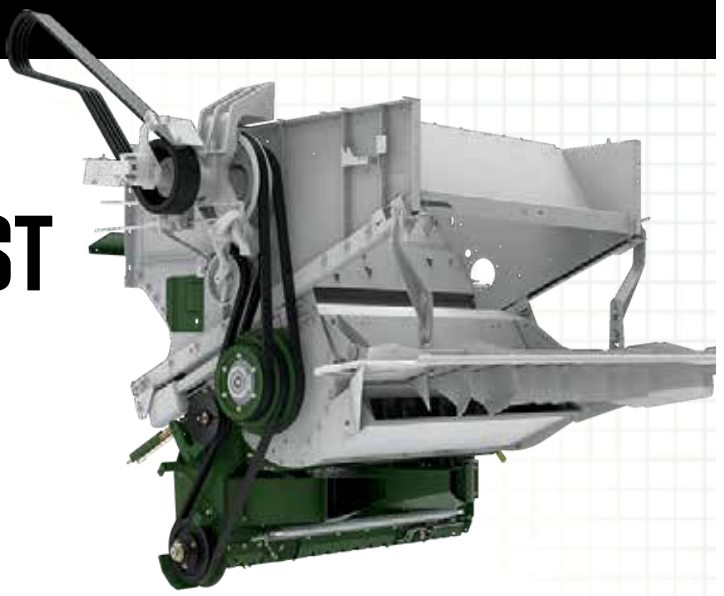
The Idaho House of Representatives unanimously adopted a resolution in opposition to the fuel export tax. Gov. Kate Brown of Oregon published an op-ed in the *Seattle Times* asking lawmakers to "put the idea of a fuel tax back on the shelf." In addition, two bills were introduced in Alaska in retaliation to Washington's fuel export tax proposal.

Energy code legislation passes cut-off

One of the last remaining pieces of Gov. Inslee's policy priorities to decarbonize the building sector continues to move forward. House Bill 1770, sponsored by Rep. Davina Duerr (D-Bothell), proposed a "net-zero ready" requirement for all new construction beginning in 2034. This means each project must reduce energy use by 80 percent; use all-electric equipment and appliances; implement

REDEKOP

WEED CONTROL BEGINS AT HARVEST



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electrical panel capacity and wiring for solar panels; and incorporate electric vehicle charging and battery storage. Additionally, the bill would allow local jurisdictions to adopt a new statewide "reach code" for residential construction, which cities, towns and counties are currently preempted from doing.

The Senate Environment, Energy and Technology Committee significantly pared down the bill as it passed out of committee. The amended bill removed the "net-zero ready" requirement, instead focusing solely on the bill's reach code provisions. The narrowed scope of the bill was done to skip being referred to the fiscal committee, leaving some critics worried that prior requirements may be added back into the bill during floor debate.

Net ecological gain bill continues to move

On Feb. 24, Engrossed 2nd Substitute House Bill 1117 passed out of the Senate Housing and Local Government Committee. The bill, sponsored by Rep. Debra Lekanoff (D-Bow), has been viewed as a partial revival of the governor's riparian buffer bill. The bill would integrate salmon recovery planning into local comprehensive plans under the Growth Management Act. Under the proposal, public projects would be required to achieve net ecological gain, a term that remains undefined in the legislation. Net ecological gain would, however, impose a stricter standard than the current no-net loss obligation.

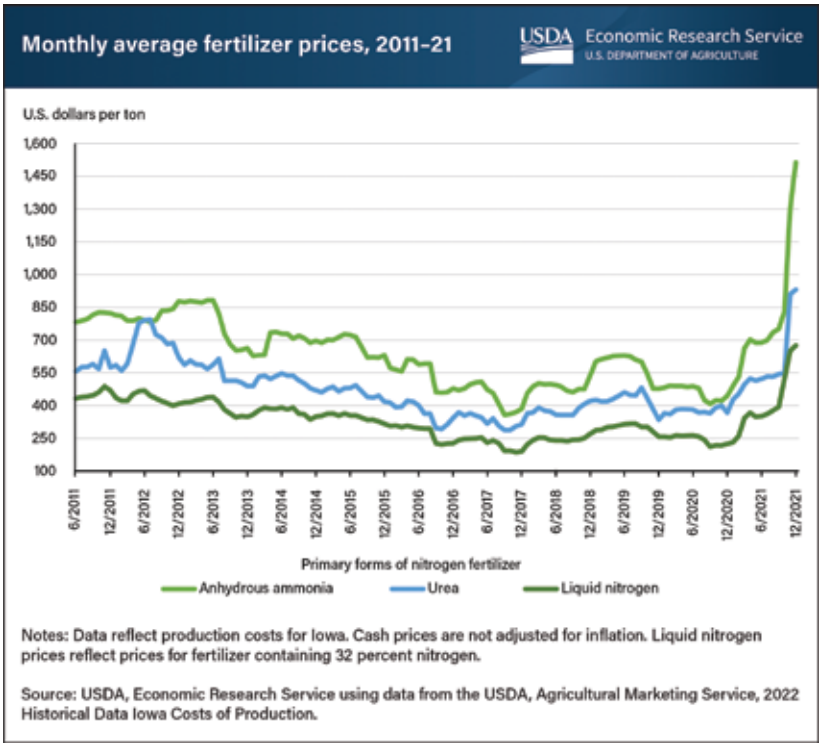
During executive session, the Senate Housing and Local Government Committee adopted Sen. Liz Lovelett's (D-Anacortes) amendment requiring compensatory mitigation apply to all facilities and limiting the net ecological gain language to Western Washington. Ag groups continue to have concerns with whether or not this legislation will impact voluntary programs, such as the VSP, and the broad discretion that is given to the Department of Fish and Wildlife to define "net ecological gain."

Ergonomics regulation makes cut-off

This session, the legislature is faced with legislation that repeals the prohibition on regulating ergonomics enacted by the voters in 2003. Under House Bill 1837, the state would now be able to regulate work-related musculoskeletal disorders and ergonomics.

The bill has remained a contentious issue this session, facing a nine-hour House floor debate (lasting all night) that ended in a narrow 50-48 passage. The bill has received strong opposition from numerous business organizations, including agriculture, construction and building organizations. The bill passed out of the Senate Labor, Commerce and Tribal Affairs Committee on a party-line vote. As amended in committee, the Department of Labor and Industries (L&I) is only authorized to develop ergonomics rules for one industry per year until 2027. The first industry that L&I may consider rules for is janitorial services. ■

Fertilizer prices spike ahead of spring planting season



Nitrogen fertilizers are a key component in the production of field crops. Fertilizer constitutes an average of 36 percent of a farmer's operating costs for corn, 35 percent for wheat and 30 percent for sorghum, according to estimates in U.S. Department of Agriculture's Economic Research Service's (ERS) 2020 Commodity Costs and Returns data product, published in October 2021. Given the importance of applying fertilizer to meet yield goals for most field crops, a rapid escalation in fertilizer prices affects a wide variety of farming activities and decisions. Data for Iowa production costs—used as a proxy for U.S. expenses because of Iowa's central location and its importance in field crop production—indicate a steady decline in fertilizer prices from 2013 through 2017 before gradually rising through 2019. In late 2021, fertilizer prices began to spike alongside rising prices of natural gas—a primary input in nitrogen fertilizer production. By December 2021, average monthly spot prices of natural gas at the Henry Hub distribution hub in Louisiana, as published by the U.S. Energy Information Administration, were 45 percent higher than in December 2020. U.S. farmers use three primary forms of nitrogen fertilizer: anhydrous ammonia, urea and liquid nitrogen. ERS estimates an annual price increase of 235 percent for anhydrous ammonia, 149 percent for urea and 192 percent for liquid nitrogen (32 percent) as of December 2021. This chart is drawn from ERS' January 2022 Feed Grains Outlook.

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How loess, a bit of luck shaped Eastern Washington landscape

By Callie Ogborn
Content Coordinator, KR Creative Strategies

If you've been living in the Northwest long enough, you have probably heard the Ice Age Floods story—2,000-foot-deep Glacial Lake Missoula drained catastrophically into Idaho, Washington and Oregon, permanently scarring the landscape and wreaking havoc for eons. More than 15,000 years have passed since these monstrous events, but the evidence is still all around us, as shown in Washington's bountiful wheat crop and the incredible soil that makes it possible.

The proof is in the dust! You've seen it, right? This superfine, silty, windblown sediment is called loess (don't try to pronounce it because even geologists can't agree.) Loess is the Goldilocks of soils, with perfect-sized particles for growing crops. It is hundreds of layers thick in the Palouse Hills. Washington's plentiful agriculture is the result of millions of years of geology, a little bit of luck and just the right soil for the job.

How did this loess sediment end up blanketing Eastern Washington? For the answer, let's go back 100,000 years to the Pleistocene epoch, when enormous, continent-sized sheets of ice covered most of the northern U.S. The crushing weight of the Cordilleran Ice Sheet ground the bedrock into silty glacial flour and left it behind. This happened over and over for millennia, until one day...catastrophe struck.

At the end of the last Ice Age, several massive glacial lakes existed in America. Glacial Lake Missoula (above) sat in the Bitterroot Valley in Montana as the Clark Fork River backed up against a dam of ice formed by the Purcell Trench lobe of the ice sheet. Eventually, the ice dam broke open, sending thousands of tons of water, trees, rock and debris flowing across the landscape at speeds of up to 70 miles per hour. The first flood was the biggest, carving the Grand Coulee and the Columbia River Gorge. Geologists use core samples from the Astoria Fan in the Pacific Ocean to estimate that the ice dam failed, refroze and failed more than 80 times. All that water and glacial silt had to go somewhere.

The cataclysmic aftermath of the floods scoured away the topsoil down to the basalt bedrock, carving the Channeled Scablands—literal scars on the Earth (left). Water pooled into deep channels and gullies, with the silty, glacial sludge settling on the bottom. Over the next few thousand years, the planet warmed, evaporating the lakes and leaving behind the dusty, fertile loess.

But wait. According to the map, the Palouse didn't even experience the floods! That's correct. It's the reason why southeast Washington is such an agricultural powerhouse today with all its wineries and wheat fields. Because the floods didn't scour the topsoil away, the soil in the Palouse is 250 feet thick in some places. Instead, the powerful winds from the Cascades whipped the dry, fertile loess deposits into dunes, creating the rolling hills we see today. ■

Create a lasting legacy and remember the Washington Wheat Foundation in your estate planning. Visit wawheat.org.

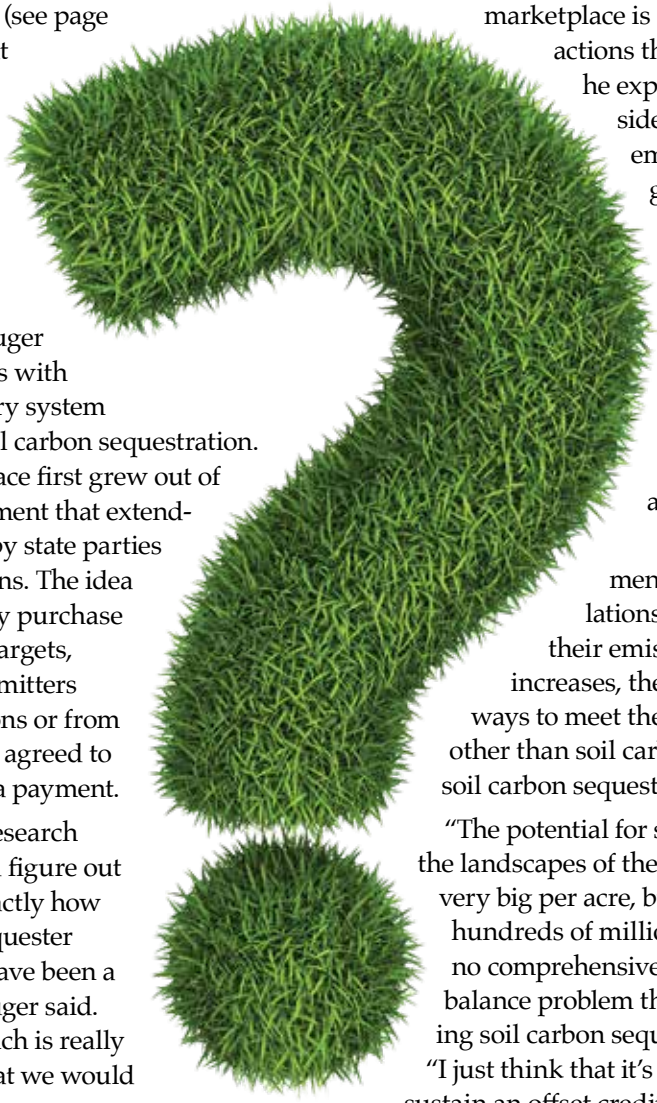
Washington Wheat Foundation Meetings are scheduled for **June 5 and Oct. 3, 2022**, at the Wheat Foundation Building in Ritzville, Wash.

Coolish on carbon

ARE AGRICULTURAL CARBON OFFSET MARKETS SUSTAINABLE OVER THE LONG TERM?

By Trista Crossley
Editor, Wheat Life

At December's 2021 Tri-State Grain Growers Convention, two break-out sessions tried to clear the air concerning carbon markets. Shelby Swain Myers, an economist from the American Farm Bureau, looked at the developing national carbon market programs (see page 30), while Chad Kruger, director at the Washington State University (WSU) Center for Sustaining Agriculture and Natural Resources, talked about why he's skeptical that agricultural carbon offset markets will be sustainable over the long term.



In a follow-up conversation, Kruger explained the issue, as he sees it, is with carbon offset credits in a regulatory system where the credits are based on soil carbon sequestration. The concept of a carbon marketplace first grew out of the 1997 Kyoto Protocol, an agreement that extended an earlier international treaty by state parties to reduce greenhouse gas emissions. The idea was that emitters could potentially purchase "offsets" to meet their emissions targets, those offsets coming from other emitters who had directly reduced emissions or from third parties—like farmers—who agreed to sequester carbon in exchange for a payment.

"The idea was that with more research and better instruments, we would figure out how to answer the question of exactly how much soil carbon a farmer can sequester with precision. I think that may have been a little bit of wishful thinking," Kruger said. "I think that the marketplace, which is really about contracts, was assuming that we would be able to treat soil carbon the same way you could treat a regulated smokestack or tailpipe. For a smokestack, you could calculate exactly how many tons of CO2 equivalent for every ton of coal or oil you burned. I think we know a lot more about soil carbon now than we did 20, 25 years ago in terms of what the options are for increasing soil carbon, how to do it, how to potentially measure it in different ways, and even how to predict it within a range. But soils are a dynamic system, and it's just not as conducive to a contracting type of world as smokestacks and tailpipes are."

Kruger believes that any program for measuring and quantifying soil carbon is going to have to accept a little less precision because of the dynamics of the system, and that can be a turn-off for some. While the carbon marketplace is currently centered on voluntary actions that can tolerate that variability, he explained that as the regulatory side starts ratcheting down on emitters, those emitters are likely going to desire a higher and higher quality of carbon to ensure that they are meeting their regulatory compliance. "Quality" may simply be a valuation consideration, where severe price discounts are levied against soil carbon as assurance that targets are actually met.

In fact, Kruger thinks the moment emitters come under regulations that say they "must" offset their emissions and compliance liability increases, they'll go looking for different ways to meet their emissions reductions targets other than soil carbon; however, the potential for soil carbon sequestration is too big to discount.

"The potential for soil carbon sequestration across the landscapes of the globe is a big number. It's not very big per acre, but when you start aggregating hundreds of millions of acres, it's huge. There is no comprehensive solution to the global carbon balance problem that doesn't include increasing soil carbon sequestration," Kruger explained. "I just think that it's going to be very difficult to sustain an offset credit strategy over the long run as regulatory systems mature."

One of the problems that needs to be solved is the measurement and verification of soil carbon—how does a farmer forecast what they will potentially sequester, and how does a farmer prove what they've actually sequestered? Kruger thinks Pacific Northwest researchers have gotten pretty good at the estimating capabilities— particularly in the dryland grain systems closest to the major

land-grant universities.

"Once you break out of that area, you see a pretty steep decline in the breadth and depth of our understanding of how to estimate soil carbon sequestration across the region and production systems," he explained. The universities have been working to fill these gaps. For instance, a soil scientist was recently hired in Mount Vernon to study soil health and carbon dynamics in annual and perennial cropping systems in the northwest part of the state.

Another issue with estimating the amount of soil carbon sequestration is that when a change is made to the soil, such as moving to a no-till system, there can be a fairly big, fast response that slows over time. Even so, it takes many years to see significant changes in soil carbon levels. One challenge with this is single point-in-space/time studies or sampling strategies don't necessarily produce a comprehensive or accurate picture of soil carbon dynamics, and the results don't always track with the "phenomenon" that a farmer may experience after making a management change.

In his convention session, Kruger used a bathtub analogy to explain that farmers need to make sure they've plugged the drain to stop losing carbon before they start trying to increase what's coming into the bathtub. At some point, farmers will hit an equilibrium where inputs and outputs balance each other. Although Eastern Washington farmers have already made big strides towards reaching that equilibrium through changing tillage methods and, especially, stopping soil erosion, after more than a century of farming, there are very few cultivated soils that are anywhere close to what they were precultivation.

"If it took us 100 years to lose half the water that was in the bathtub, maybe it will take us 100 years to turn that around. Maybe we can speed it up a little bit, but I think we need to be practically realistic that it took us a long time to get where we are at. It's probably going to take a long time to go the other way, and we don't really know whether we can reach, or even exceed, precultivation levels of soil carbon," he said.

While carbon tends to get the spotlight, farmers might find greater immediate value in focusing on other greenhouse gases, like nitrous oxide. Kruger said in studies looking at reducing nitrous oxide emissions, researchers have found that the potential amount of money a farmer could save by not over-applying nitrogen was "an order of magnitude" more valuable than the potential carbon credit value.

"I see that as, really, let's not get so fixated on carbon offset credits in a marketplace. Maybe there will be some opportunities there, but likely, there's going to be more opportunities or more ways that we could value and monetize some of these sustainable practices," he explained. "I think farmers can and will get compensated for carbon sequestration. It just may come through a broader array of mechanisms that are more tolerant of the inherent variability of soil carbon than offsets in a regulatory marketplace."

Chad Kruger, director at the Washington State University Center for Sustaining Agriculture and Natural Resources, gave a break-out presentation on carbon offset markets at the 2021 Tri-State Grain Growers Convention in December.

People often equate carbon sequestration with soil health, but Kruger says they aren't the same thing. Generally speaking, when a farmer improves soil health, they see an increase in soil carbon sequestration, but soil carbon isn't the only indicator—and may not even be the best indicator—of improved soil health.

"I think there needs to be a lot more work on the soil health front to put more meaning and value on what are the best indicators for the production system and region, and what do they tell us on the soil health front," Kruger said. "But generally speaking, if you zoom out to the 30,000 foot view, I think it's pretty safe to say increased soil health or improved soil health will result in increased soil carbon sequestration. But I think this raises the question, is the objective increasing soil carbon or is that an ancillary? When you are looking at the question from a soil health perspective, you are starting to think about a whole bunch of additional things that focus on the value to the producer."

Carbon markets are part of a broader suit of programs called ecosystem services markets or environmental services markets. Kruger hopes that in the long run, the

public starts to take more of an eco-services lens to these positive agricultural practices instead of focusing solely on carbon.

"I think the value proposition of having working farms with farmers doing the very best they can do based on what we know how to do, that has to be a value that at some point in time gets monetized," he said.

There's a lot of research being done around the Pacific Northwest on climate, agriculture and natural resources. Producers can visit agclimate.net for the latest news. ■

Costing out carbon markets

MORE QUESTIONS THAN ANSWERS ON NATION CARBON MARKETS

By Trista Crossley
Editor, Wheat Life

At December's 2021 Tri-State Grain Growers Convention, **Shelby Swain Myers**, an economist from the American Farm Bureau Federation, looked at the developing national carbon market. Her takeaway was that while there may be a financial opportunity for agriculture, there are still more questions than answers.

According to Myers, agriculture is responsible for 10 percent of overall greenhouse gas emissions. But when you take into account the forestry industry and other agricultural carbon sinks that are estimated at -12 percent, the net total for agriculture is on the minus side of the equation (-2 percent). That creates a product that other industries can use to offset their own emissions.

"They are the buyers. You all are the suppliers," Myers said. "The problem this puts agriculture in, though, is that, yes, we are really great carbon sequesters, but our practices have environmental benefits beyond sequestering carbon. We've got to find ways for the incentives to not only pay for the offset carbon greenhouse gas emissions, but also pay for the additional environmental benefits these practices have in mitigating other greenhouse gas emissions. We can't do this on our own, and we can't do this for free."

Carbon markets are seen as a way to incentivize conservation efforts. Currently, they are voluntary, incentive-based national markets designed to bring buyers of ecosystem asset credits together with sellers on a platform that facilitates the exchange. Payments are either based on outcomes, such as increases in soil carbon or improved water quality, or on a pay-for-practice model.

"Pay for outcome means you are going to be paid either on a dollar per credit or dollar per metric ton of whatever greenhouse gas you are sequestering," Myers explained. "The pay for practice says they will pay you upfront to implement certain practices, say $3 per acre for strip-till, no-till, etc. That doesn't mean they aren't going to come out on the back end and measure what's been sequestered. It's just a matter of how to you want to be paid."

In order to make the system work, those outcomes will need to be certified, quantified and verified. In other words, there will need to be a way to certify that the practice happened the way it was supposed to. The environmental benefit on that soil will have to be quantified, which will likely happen through data collection, such as soil samples. Finally, it all has to be verified by a third party.

"One of the leading issues is how to verify the outcomes consistently and economically," Myers said. "There is so much uncertainty right now in the verification and the standards of what makes a carbon credit a carbon credit."

An emerging issue is what to do about early adopters of conservation practices—farmers enrolled in the Conservation Stewardship Program, Conservation Reserve Program, cover crops, buffer strips, etc.—because they are already contributing to the status quo, and most buyers are looking for carbon sequestering opportunities that improve on the status quo. Myers said some programs are attempting to compensate early adopters by looking at a producer's efforts for the past five years. The rub, however, is the producer has to provide the necessary data, including receipts. Another proposal being discussed is having the U.S. Department of Agriculture make a one-time payment to early adopters. Providing the ability to pay for multiple environmental benefits that sequester other greenhouse gases besides carbon dioxide could be another way to include early adopters.

Some of the other questions and concerns around carbon markets include:

- Rural broadband access, because all of the current programs are online.

- Data privacy issues, as companies purchasing carbon credits will be checking to make sure the practices specified by the contract are happening. That monitoring will likely include using satellite images.
- A producer's farm management software has to be compliant with other parties' software platforms. A producer should also be aware of how and with whom their data is being shared.
- The majority of contracts Myers has seen have been long-term contracts (more than five years). Tenants will need landlord confirmation that they will be in operating control of the land for the duration of the contract. Additionally, tenants who lease from a trust will need to have everybody in the trust sign off on the contract.
- Growers are paid on the back end of the contract the majority of the time (except for some paid for practices), so what happens if a producer doesn't sequester carbon the way the model said they would? What about early termination?
- There are likely to be extra costs to the producer, such as soil sampling costs for verification and lawyer or accountant fees. Those need to be taken into consideration when calculating the producer's share of the "carbon" dollar.

"Whether you agree with it or not, the opportunity is here, and it is currently voluntary," Myers said. "This has been completely private-driven, and government is looking for ways to complement it from a public-private partnership standpoint. What this does and what this conversation starts is the ability to avoid a mandate, or in the sense of global competitors, avoid import/export taxes. There is a whole lot of money to provide incentives, and it's important it remains voluntary." ■

National spotlight

BENTON COUNTY GROWER TAKES HELM OF NATIONAL WHEAT ORGANIZATION

This month, Benton County wheat grower **Nicole Berg** will step in as president of the National Association of Wheat Growers (NAWG). Berg has a long history of advocacy for the wheat industry, especially in Washington state, where she served as president of the Washington Association of Wheat Growers (WAWG) in 2013/14. Besides her NAWG duties, Berg currently serves as co-chair of WAWG's National Legislation Committee.

What does it mean to you, in terms of responsibilities, to be NAWG's president?

I believe it is a great honor to be elected as the 2022/23 NAWG president. Being president of a national association comes with many responsibilities, especially as we are on the eve of the next farm bill. But I'm looking forward to the opportunity to lead NAWG and provide a unique perspective from my region as we continue to improve the farm bill programs, be engaged in the sustainability conversations and work with our partners to bolster trade for the wheat industry. The farm bill plays a very important role in a producer's business plan, and I have always wanted to have more of an influence for us wheat growers.

How has the wheat industry and NAWG changed since you started going through the NAWG chairs?

The wheat industry has gone from historically low prices in comparison to expenses to the current prices. The farm bill and the $5.50 reference price was one of the main reasons I wanted to help tell the wheat story. I was looking at my cash flow, and $5.50 is below cost of production. In the 2018 Farm Bill, NAWG and WAWG worked very hard to make changes, but it was a tough hill to climb because of the costs of the bill.

In 2019, NAWG adopted a strategic plan that resulted in updated mission and vision statements and the identification of four key lines of business on which the organization will focus on in the years to come. It was a great effort to make sure all the NAWG member states are moving in the same direction. When I started on the NAWG board, I saw several areas that allowed for improvement, and over the years, NAWG has come together with a unified voice that advocates and benefits wheat growers across the nation.

Do you have any specific goals for your presidency?

To continue to work to protect our farm programs and crop insurance system, which plays a vital role for wheat growers throughout the U.S. Additionally, I would like to build a strong coalition with other national organizations to advocate for timely reauthorization for the farm bill ahead of its expiration in 2023

To work with our partners at U.S. Wheat Associates to advance a trade agenda that continues to find new market opportunities and promote U.S. wheat exports.

To protect key infrastructure that helps provide a safe, affordable and reliable transportation network for moving commodities to market. This includes pushing back on proposals that favor removing the lower four Snake River dams.

Climate and sustainability are priorities of the Biden Administration, which is why NAWG is working hard with our wheat producers on the topic. Wheat producers already implement many environmentally friendly practices to their farming methods and are having a positive impact on the environment and have increased resource-efficient practices in land, water and energy use. We continue to advocate for policy that is voluntary, incentive-based, market-based, ensures that farmers benefit from any program and that any program must recognize and account for the varied growing conditions in which wheat is grown across the country—not all practices work in all regions.

With a membership of 20 different states, how do you effectively represent such a diverse group that sometimes has competing priorities and needs?

I recognize that being president of a national association means representing wheat growers across our entire nation, and I will work to advance policies that benefit all of those growers. As president, I will work with our committees to pursue policy to ensure a better future for

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Is there a role for industry (chemical, equipment, input, seed companies) in NAWG?

Our vision is advancing wheat through advocacy, alliances and innovation, which includes working with all members of the value chain to promote public policy that contributes to the success of wheat farmers.

The run-up to the 2023 Farm Bill coincides with your presidency. What are some of the obstacles Congress is likely to have to deal with in order to actually get a farm bill written on time?

One of the obstacles is educating new members of Congress who have never voted on a farm bill about its importance for rural America and their contributions to feeding the world. Currently, we are headed into an election year, which will play a role in determining who heads up the House and Senate agriculture committees, but NAWG has strong relationships with members from both sides of the pollical aisle.

How will NAWG make sure the wheat industry has a seat at the table during farm bill talks?

NAWG has a strong working relationship with the U.S. Department of Agriculture and the four corners of the ag committees, and we are confident we will have a seat at the table during the farm bill process to represent the interests of wheat growers from across the country. Wheat is grown in 40+ states and is one of the main food crops in America. Today, U.S. farmers grow about 50 million acres of wheat, providing food for hundreds of millions of people at home and abroad. Wheat growers' impacts to the nation allows NAWG to have a strong and heard voice on the Hill and opens the door for us to be a part of these conversations.

You also sit on the Federal Crop Insurance Corporation Board of Directors. What insights have you gained into how crop insurance is developed and managed?

Crop insurance is a critical risk management tool for wheat producers. Like any other important tool on the farm, it needs periodic maintenance and "sharpening" to increase its utility and effectiveness. ■

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CHAIRMAN

WASHINGTON GRAIN COMMISSION

By Mike Carstensen

Smut, erosion, snow mold…Grandpa Henry faced many challenges back in the day. He also experienced many improvements stemming from research. Three big ones include fertilizer effectiveness, new cropping systems and variety breeding advancement. A major contributing factor to crop improvement is the research that the Washington Grain Commission (WGC) funds through your annual checkoff dollars.

In 1991, the WGC endowed its first research faculty position with Washington State University (WSU) to leverage our producer contributions with other federal grants or funding opportunities. Since then, we have added five additional endowed research faculty positions, called endowed chairs. Each have a specific research focus, title and funding that ranges from one to five years, or sometimes more. The WGC meets annually with WSU for a day-long endowed chairs review to provide each researcher the chance to present a progress report. It also gives the WGC the opportunity to provide feedback and recommendations to WSU to ensure that research remains aligned with the current challenges and developments in the small grains industry.

One researcher I'd like to highlight is Dr. Zhiwu Zhang. His recent project combines high-tech drones and cutting-edge artificial intelligence to help farmers detect stripe rust before it's even visible to the human eye. I encourage you to read Dr. Zhang's *Wheat Life* article from the February issue at https://bit.ly/3JyiqCd.

This is some really cool, Transformer-level stuff. His collaborative work positions the WSU/U.S. Department of Agriculture's Agricultural Research Service team as a world leader on this topic. As this new technology can be scaled up, it stands to save all kinds of time, energy and (most importantly to farmers) money, from reducing inputs to preventing yield loss.

Dr. Zhang has other grants, too, and he has proven himself a leader in research—not just at the College of Agricultural, Human and Natural Resource Sciences, but he ranks #27 university-wide on the WSU "notable researchers" list. On behalf of the WGC, I would like to extend a sincere thank you to Dr. Zhang and his collaborators for the progress he has led in the last several years and the work he continues at WSU.

This has been a challenging year. The WGC had to make some tough decisions on the recommendations made to WSU as a shift is needed to best serve our state's producers. While the WGC continues to fund Dr. Zhang, WSU will be transitioning the Washington Wheat Distinguished Professorship that he has held to focus on soil health going forward. Since this professorship is designed to focus on an emerging issue for a brief period (three to five years), the WGC expressed support to WSU in focusing the Washington Wheat Distinguished Professorship to prioritize research centered on soil acidity, carbon and nitrogen. By using this professorship, WSU can leverage these funds and use this as a recruitment tool when hiring a soil chemist.

Research has brought us a long way. Despite the ongoing challenges, I am thankful for the extra tools in our tool kit to keep our fields productive and for the researchers who keep an eye on quality. This connection between research and overall crop quality came full circle the week after our endowed chairs review, when the Western Wheat Quality Lab (WWQL) in Pullman hosted the Pacific Northwest Wheat Quality Council.

This council provides a forum for private and public wheat breeders to provide their wheat varieties (at some stage prior to release) to a selection of millers and bakers, domestically and internationally, to have those collaborators mill and bake with the varieties. The bakers then provide direct feedback on the merits of individual breeding lines and more general information relating to the technical requirements of wheat end-users.

The WWQL also does an analysis of the varieties, and this collective feedback allows breeders to better define long-term objectives for developing high-quality, high-producing future varieties and breeding lines that would satisfy the end-use demands of the industry. The results don't necessarily mean that a private or public entity will hold a variety back from release, but the effort is to try to enhance the quality of wheat produced in the western states and promote the development of superior cultivars. These flour tests are supported by the wheat commissions of Washington, Oregon, Montana and Idaho in cooperation with the WWQL.

A few years ago, feedback from overseas customers was added to connect breeders to what international customers need. In addition, the falling number workshop is now an opener to the annual event, as this challenge became a critical need for our researchers to address.

This direct line of communication allows our researchers to stay current with the needs of wheat farmers, processors and flour users; or, in other words, connects the dots between our collective research efforts and the long-term profitability and competitiveness of Washington small grains. ■

TOP 10

Wheat Pests & Diseases in the Pacific Northwest ranked by highest potential economic cost to farmers

For more information visit the web pages for WSU Wheat and Small Grains, WSU Infectious Disease, WSU Pest Management Resources, University of Idaho, and USDA-ARS.

1 STRIPE RUST

- *Puccinia striiformis*
- Damages the plant's skin (epidermis) allowing water to escape and reduces photosynthesis
- Winter and spring, can occur at anytime but greatest damage occurs on the flag leaf in spring
- All systems
- Plant resistant varieties, spray foliar fungicides

2 HESSIAN FLY

- *Mayetiola destructor*
- Larval feeding can stunt plants, reduce yields and cause lodging
- Spring and summer
- Late-planted spring wheat, direct seeding, spring wheat adjacent to winter wheat
- Plant resistant/tolerant varieties, delay winter wheat seeding, avoid spring wheat after winter wheat, crop rotation and destruction of volunteer wheat, seed treatments; start sampling when tillering begins; target ovipositing adults with foliar insecticides when 20% of tillers in winter wheat, or 38% of tillers in spring wheat are infested

3 CEPHALOSPORIUM STRIPE

- *Cephalosporium gramineum*
- Infects roots and colonizes the water-conducting tissue (xylem), resulting in less water movement
- Winter; disease begins in fall, but greatest damage occurs during heading
- All systems, but usually more prevalent in conventional
- Plant tolerant varieties, practice good crop rotation (3 years between winter small grain crops), and avoid early seeding

4 EYESPOT

- *Oculimacula yallundae, O. acuformis*
- Lesions occur in leaf sheaths and true stem in the lower 1-2 internodes of the stem resulting in reduced water and nutrient movement and weakened stems that can fall over and lodge
- Disease begins in fall, but greatest damage occurs after stem elongation begins in spring
- Winter wheat; all systems, but usually more prevalent in conventional
- Plant resistant varieties, spray foliar fungicides before stem elongation begins

ICON KEY

- Scientific name
- How it impacts crops
- Time of growing season impacted
- Type of cropping system most susceptible
- What farmers can do about it, and when

WASHINGTON GRAIN COMMISSION

WASHINGTON STATE UNIVERSITY EXTENSION

5 FUSARIUM FOOT ROT

Fusarium culmorum, F. pseudograminearum

Crown and root decay results in reduced water and nutrient movement

Winter; damage becomes apparent after heading as dead standing stems

All, but most prevalent in summer fallow systems

Cultural practices like delaying seeding and fertilizing for expected yield potential are the only control measures

6 WESTERN FIELD WIREWORM

Limonius infuscatus

Wireworm feeding can kill plants, reduce numbers of tillers and yield

Mid-April to the end of July, but can occur throughout the year; larvae can live 1-10 years in the soil

Spring wheat followed by winter wheat

Scout using modified solar bait traps or use a shovel; rotate out of winter wheat to a non-susceptible crop, a firm seed bed at planting can limit wireworm movement and damage; conventional tillage, seed treatments

7 RHIZOCTONIA ROOT ROT

Rhizoctonia solani, R. oryzae

Causes a cortical rot of roots resulting in smaller and less efficient root system

Winter and spring; symptoms can be observed throughout the season. Infections that occur earlier in the season result in greater damage

Most prevalent in reduced tillage systems

Manage green bridge (volunteer)

8 GREENBUG

Schizaphis graminum

Causes necrosis from feeding

Fall

Winter wheat

Delay fall seeding of wheat until aphid populations decline to minimize the risk of Barley Yellow Dwarf Virus (BYDV); choose to plant tolerant cultivars; control grassy weeds, including volunteer cereals, within and near wheat production fields; use seed treatments or foliar insecticides

9 ENGLISH GRAIN APHID

Sitobion avenae

Frequently colonizes the heads of wheat causing little injury except when present in large numbers (more than 80-100 per head)

Fall

Winter wheat

Delay fall seeding of wheat until aphid populations decline to minimize the risk of BYDV; choose to plant tolerant cultivars; control grassy weeds, including volunteer cereals, within and near wheat production fields; use seed treatments or foliar insecticides

10 CEREAL GRASS APHID

Metopolophium festucae cerealium

Feeding induces a distinctive chlorotic reaction in wheat leaves causing them to turn yellow

Fall

Winter wheat

Choose to plant tolerant cultivars; control grassy weeds, including volunteer cereals, within and near wheat production fields; use seed treatments or foliar insecticides

This ranking is based on the prevailing scientific knowledge for insects and diseases having the greatest potential to cause economic damage (crop value) in the Pacific Northwest. Sources: **Tim Murray**, Rosalie and Harold Rea Brown Distinguished Endowed Chair, Department of Plant Pathology, Washington State University (WSU); **Dale K. Whaley**, Assistant Professor, Integrated Weed Management/Agriculture, WSU Douglas County Extension. Design by **Meg Comito**.

REVIEW
WASHINGTON GRAIN COMMISSION

USW programming report

U.S. Wheat Associates (USW) provided an overview on recent efforts to promote U.S. wheat abroad at its 2022 Winter Joint National Association of Wheat Growers/USW Board Meeting in January. The long-range planning committee reported that virtual programming is helping to reach more customers. USW is the export market development organization for the U.S. wheat industry. USW activities in more than 100 countries are made possible through producer checkoff dollars managed by 17 state wheat commissions and cost-share funding provided by the U.S. Department of Agriculture's Foreign Agricultural Service.

In 2019, prior to the pandemic, USW reached more than 5,000 customers on the ground. In 2020, there were 296 virtual programs reaching 11,000 people, and programs have reached more than 13,000 people in 2021. USW expects that going forward, virtual and in-person programming will exist together. Read more at https://bit.ly/usw-activity21 and look for more details on how the Washington Grain Commission helps USW promote the world's best grains in an upcoming *Wheat Life* series. ■

Promoting wheat-based foods for 50 years

The Wheat Foods Council (WFC) is celebrating its 50th anniversary this year, with events planned in coordination with its summer meeting in Charleston, S.C., June 20-44. During the WFC winter meeting in January, attendees got a preview of the plant-forward focused WFC Chef Seminar at the Culinary Institute of America in Napa, Calif., April 11-13, featuring four top experts who will cover the plant-forward food movement, sustainability, managing supply chains and successfully innovating product offerings. WFC core outreach strategy continues to be going after "audience multipliers," including personal trainers, chefs of large foodservice companies and registered dietitians. You can check out their extensive library of videos promoting wheat-based foods online at https://bit.ly/3J5MXXT. The Washington Grain Commission is an active supporter of the WFC. ■

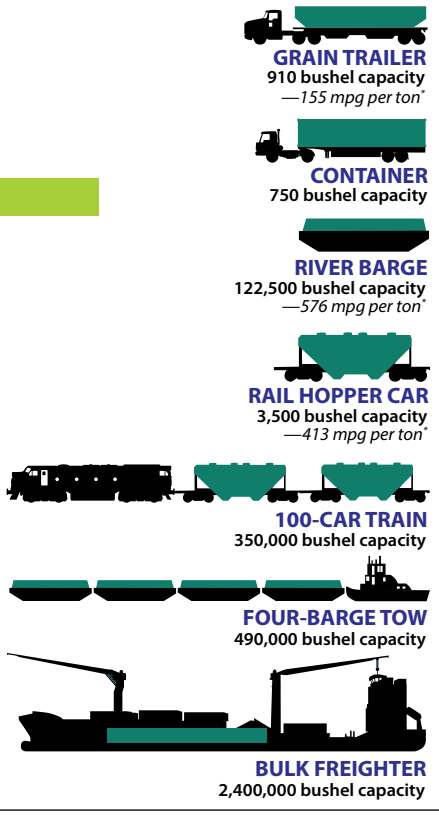
WHEAT MOVES

60% Grain trailer ▸ River barge ▸ Four-barge tow

37% Grain trailer ▸ Rail hopper ▸ 100-car train

3% Grain trailer ▸ Container

- *About 90 percent of the wheat produced in Washington is exported. 75 percent of our wheat goes to Asia.*
- *60 percent of Washington's wheat travels by barge on the Columbia-Snake River System.*
- *37 percent of Washington's wheat travels by rail hopper.*
- *3 percent of Washington's wheat travels by grain trailer or container.*
- *Washington has five grain shuttle train loading facilities.*
- *Barging wheat from Idaho and other points on the Snake River is one of the most efficient and environmentally-friendly ways to move the food we grow to market.* ■



PNW gets favorable, long-term forecast

PHOTO BY MATTHEW WEAVER/CAPITAL PRESS.

"You will be the lucky folks as we go towards spring." This is what weatherman, **Dr. Art Douglas**, concluded in his address as the opening keynote speaker at the Spokane Ag Expo and Farm Forum on Feb. 1, sponsored by the Washington Grain Commission. The address included a report on the current state of world weather and crops. Looking forward, Douglas took the current weather patterns observed across the globe and correlated like patterns from the past several decades of weather years to project what will likely play out through spring and summer of 2022.

"In the very best recent years we've stayed La Niña," Douglas said. "But when those patterns switch to El Niño during the summer, that correlates with some of the worse recent years for Pacific Northwest (PNW) farmers. We are at a tipping point."

However, what Douglas sees so far for this year doesn't look anything like what last year looked like. Ultimately, his outlook for the PNW was cooler and wetter than normal for the spring and continued cooler-than-normal conditions into the summer. This is contrast to what other parts of the country should expect.

"The PNW is out of phase with the rest of the U.S.," Douglas said, which means the Great Plains can expect another dryer-than-normal spring and summer. ■

Economist expects decline in farm income

"(PNW) net farm income didn't expand like the rest of the country," said the Spokane Ag Expo and Farm Forum keynote speaker **Dr. T. Randall Fortenbery** on Feb. 2, explaining most of the growth was from the corn and soybean markets. National net farm income increased last year for the third year in a row; however, Fortenbery expects this to decline in 2022 based on his predictions for lower prices for most crops, higher input prices and government payments dropping significantly with the end of pandemic-response payment programs.

His agriculture economic update included a look at the improved environment for international trade, despite the ongoing lag in trade with China for several commodity groups this year, like wheat and apples. Tensions between Russia and Ukraine are being watched closely. This is a big wheat-producing region. Conflict may cause disruptions in supply chains. This would exacerbate already high prices on chemicals and fertilizer, which could end up posing significant challenges for Pacific Northwest farmers. Vietnam and South Asia were highlighted as the biggest market growth opportunities.

Wheat acres will be up this year, according to recent projections. And as far as what prices will do, Fortenbery said the downward risk outweighs the upward potential. ■

Getting data out of the cab

Wheat Life talked to The McGregor Company last month for some insight on using data to inform precision agriculture practices (read the article online at https://bit.ly/3sOZaJJ). This year at the Spokane Ag Expo and Farm Forum, producers found out that there's an app for that. The Climate FieldView session walked attendees through how to use the free, web-based platform for tracking data on your farm. The app can produce PDF reports farmers can use for conservation programs or audit purposes. Farmers keep all the rights to their data and choose with whom they share information.

The digital data management and analysis platform was originally developed by session speaker Jeff Hamlin and software development partners based in San Francisco. The startup was purchased by Monsanto and has become widely used in the U.S. in the corn and soybean markets. The platform has been steadily expanding its capacity for other row crops, including wheat. Bayer acquired Monsanto in 2018 and is offering the app for free at https://bit.ly/3utSPGp. Expanded capabilities are available to those with a Bayer PLUS account; others can use the additional options for $99 a year. Farmers can also purchase a universal translator for less than $300 that plugs into the diagnostic port of most equipment, connecting to an iPad in the cab via Bluetooth for automatic data collection and input that allows multidevice access across an entire farming operation. ■

Soil health in dryland agriculture

GOAL IS TO SUPPORT MULTIPLE SOIL FUNCTIONS AND MINIMIZE DEGRADATION

By Dani Gelardi
Soil Health Scientist, Washington State Department of Agriculture

What is soil health?

Growers who have been managing soils for decades may be surprised by the recent emergence of "soil health." Instead, they remember when it was referred to as "soil fertility," and the primary goal was to manage soils to support crop growth. Growers may also remember when soil fertility was replaced by "soil quality." Then the motivation shifted to managing soils, given inherent soil properties, to support crop growth and minimize degradation. The shift from fertility to quality paved the way for thinking about soil sustainability. It also made room for tailoring management to the unique properties of different soils, from the slope of the land to the texture or organic matter content of the soil. This latest phase—soil health—has pushed our thinking about soils beyond agriculture. The goal is now to steward soil ecology, given inherent soil properties, to support multiple soil functions and minimize degradation. Soil health recognizes that soils have a function beyond crop growth. They filter air and water, store carbon and can reduce the effects of climate change, contain cultural significance, support recreation and provide wildlife habitat. But of course, they grow crops! And in the process, they ensure food security and thriving rural economies.

Soil health also newly recognizes the living nature of soil and the important role that microorganisms play in soil functioning. This focus on biology has led to many new kinds of soil tests, which seek to identify and measure the quantity, activity and role of soil microbes. These biological measurements have been added to an already large list of soil health indicators (Figure 1). There are the traditional tests for soil chemistry, which include pH, electrical conductivity (EC) and macro- and micronutrients. There are also physical tests, which include water holding capacity, texture and measures of compaction such as bulk density. Together, these biological, chemical and physical indicators can help us understand more about the health of a soil, and how well the soil can perform its various functions.

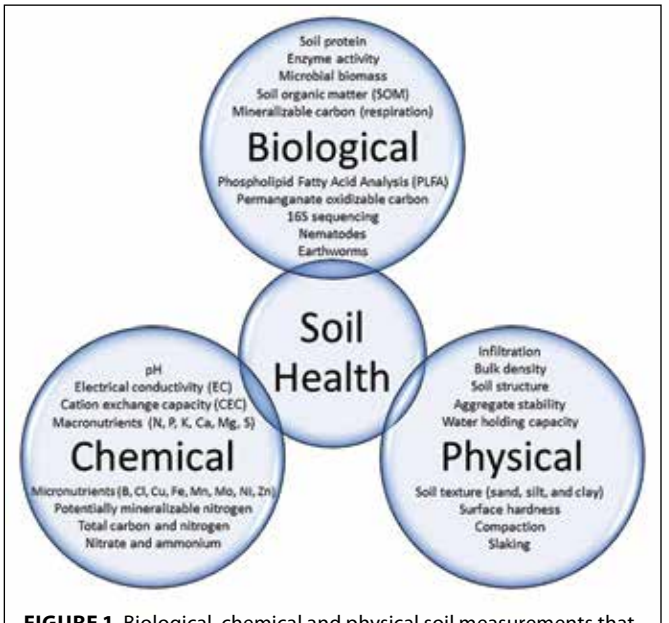


FIGURE 1. Biological, chemical and physical soil measurements that may help us understand soil health and functioning.

What soil health measurements should I monitor?

The Washington Soil Health Initiative (WaSHI), a partnership between Washington State University (WSU), the State Conservation Commission (SCC) and the Washington State Department of Agriculture (WSDA), has set out to answer this very question. In a program called the State of the Soils Assessment, WaSHI partners are measuring the biological, chemical and physical properties of soils across the state. To date, more than 100 fields in dryland agriculture have been sampled, with 200 more planned for 2022. WaSHI partners intend to find out which soil health measurements are most meaningful for Washington producers. Do some tests correlate with yield better than others? Are some measurements irrelevant in a dryland context? "Soil health scoring curves" are currently available to help producers determine if their soils are above or below average for specific

measurements. However, these curves are largely based on corn and soy fields across the Midwest. Using data from the State of the Soils Assessment, WaSHI partners are calibrating these curves for Washington-specific climates and cropping systems. Scoring curves for dryland agriculture are currently under production.

What can improved soil health do for my farm?

After an extensive, two-year needs assessment, the Washington State Soil Health Roadmap (https://bit.ly/soil-health_WSU1) was released in October 2021. In this document, dryland producers described soil management challenges that reduce crop yield and soil sustainability: wind and water erosion, low water holding capacity, compaction due to the adoption of no-till practices, low fertility, acidification and pressure from weeds and disease. While the focus on soil health may be new, WSU researchers have been studying these problems for a long time. A 2021 research article estimated that 17.1 percent of winter wheat and 19.4 percent of spring wheat in Washington is lost due to weeds, costing producers around $139.3 million in lost revenue over 10 years.[1] A 2019 study from Oregon State University showed that weed pressure can be significantly reduced by intensifying crop rotations or growing a spring crop instead of fallowing.[2] Covering the soil surface[3] and increasing the time in which live roots are present[4] may also improve soil health parameters, such as water-holding capacity, fertility and resistance to erosion. Soil erosion creates air quality problems, as well as a loss of fertility and soil carbon. In another example of improved soil health management, a 2020 WSU study demonstrated that leaving full stands of wheat, canola or chickpea residues can reduce soil loss by 53 to 73 percent.[5]

PHOTO BY LESLIE MICHEL, WASHINGTON STATE DEPARTMENT OF AGRICULTURE.

While growers and researchers are clear on the soil management challenges in contemporary dryland production, more and more is being learned about possible solutions. These solutions may include crop intensification and alternative residue management, or practices like cover cropping, integrating livestock or adding compost or lime. Many questions remain about these practices, however—what dryland regions will they work best for? How much will they cost to implement? How long until the investment pays off? Through research, outreach and extension, WaSHI partners are working on answers to these questions as well.

What's next for WaSHI and dryland production?

By linking State of the Soils data with grower survey responses, WaSHI partners are looking for trends in what management strategies lead to "high" or "low" soil health scores. WSDA also hopes to estimate the economic costs and benefits of different practices, and whether specific strategies helped reduce the impacts of the 2021 drought. This survey will be issued in early 2022, and all Washington wheat growers are encouraged to respond. Check the WSDA website (https://bit.ly/3B36w0d) in early spring for more information. Ultimately, data from this and other WaSHI projects will support Sustainable Farms and Fields (https://bit.ly/3GsRWA8). This SCC-led program will offer grants to make it easier and more affordable for growers to experiment with practices that increase soil carbon and improve soil health. ■

[1]Cambridge University. 13 September 2021 https://bit.ly/3JeuPLd
[2]Oregon State University. 1 March 2019 https://bit.ly/3gxpeU0
[3]USDA. Soil Health: Principle 1 of 5– Soil Armor https://bit.ly/3358vEF
[4]USDA. Soil Health: Principle 4 of 5 – Continual Live Plant/Root https://bit.ly/3HCuSQG
[5]Washington State University. December 2020 https://bit.ly/3HCUq03

Clearing the deck

CLEARFIELD SPRING WHEAT VARIETIES OPEN WEED CONTROL, ROTATION OPTIONS

By Mike Pumphrey
O.A. Vogel Endowed Chair of Spring Wheat Breeding and Genetics, Washington State University

Washington wheat growers and the entire wheat-based industry have been adapting to the seemingly ever-increasing number of varieties of wheat to choose from. We have a unique challenge and opportunity in the Pacific Northwest (PNW), where all market classes of wheat can be produced reliably, including spring and winter types. Much of the wheat production area in Washington is in a rotation that includes winter wheat as a keystone crop, followed by spring wheat in a multiyear cycle. Rotational crops need to fit in a system where each crop contributes to and improves the overall productivity of the system.

Herbicide-tolerant varieties of winter wheat, specifically Clearfield™ varieties, have impacted typical rotation practices due to restrictions caused by the persistence of Beyond™ and other Group 2 ALS-inhibiting herbicides in soils in the PNW. Many acres in the PNW have been treated with Group 2 herbicides, which include Imidazolinones (IMIs) used on legume crops as Pursuit or Raptor, or as Beyond in Clearfield wheat, and may persist in our soils from months to years, based on herbicide chemistry, soil chemical and physical properties (particularly pH and organic matter content), moisture and temperature. So, even more spring wheat varieties are needed due to the need for Beyond-tolerant spring wheat.

The need for Clearfield spring wheat varieties has been recognized for more than a decade in Washington. In 2022, that demand seems clearer than ever.

"There's more demand this year due to the drought last year and concerns about Beyond carryover. Unfortunately, we have very little to sell. Usually IMI (tolerant) spring wheat represents 3-5 percent of our total spring wheat sales, but with poor seed production yields last year, it's a double whammy," said Kyle Renton, seed and agronomy manager at Pacific Northwest Farmers Cooperative.

Clearfield varieties of spring wheat must contain two genes for Beyond tolerance, referred to as CL+, CLP or CL Plus, to be approved for release. Combining that requirement with the absence of CL+ breeding efforts in

Wheat varieties with either no Clearfield tolerance genes (plot at front right), one Clearfield tolerance gene (center) or two tolerance genes (left) show clear differences in injury after application of an experimental rate of Beyond equal to 2X the approved label rate in combination with a methylated seed oil adjuvant.

This 2-gene Clearfield spring wheat breeding trial near Dayton clearly shows the terminal injury to control lines that lack Beyond tolerance, about 14 days after spraying with the herbicide.

the Washington State University (WSU) spring wheat breeding program prior to 2010 has meant that it has taken nearly a decade of breeding efforts to catch up with this market need.

"With the shifting window of seeding time and the popularity of winter Clearfield varieties, Clearfield spring wheats are needed and are becoming a pivotal part of farmers' yearly production plans. Not only the wheat itself, but minimizing chemical residual plant backs as well," Ritzville-based wheat grower and Washington Grain Commissioner Mike Miller noted. Miller further explained that "a Clearfield spring wheat will provide farmers more flexibility in their production plans to combat the growing presence of resistant weeds."

The WSU spring wheat program released our first CL+ variety in 2019, Net CL+, a hard red spring wheat that is top performing and broadly adapted across Washington production areas. Net CL+ is among the highest yielding hard red spring wheat varieties across all dryland production areas, with excellent test weight, grain protein concentration higher than other varieties with similar yield potential, Hessian fly resistance, very good adult plant stripe rust resistance and is one of the highest end-use quality varieties available. In 2021, approximately 9,000 acres were seeded in Washington due to seed availability after a year of seed-dealer multiplication in 2020.

Hedge CL+, a spring club wheat variety with a JD background, was released in 2020, initially multiplied in 2021, and seed is available in limited quantity in 2022. Hedge CL+ has performed equal or better than JD based on three-year averages in all dryland production zones. As essentially a JD twin variety with CL+ traits added, Hedge CL+ has nearly identical maturity, height, straw strength, rust resistance, test weight, protein, end-use quality and other measured traits. WSU Variety Testing Program trials are not conducted on fields with known recent Beyond treatment, so yield differences due to carryover tolerance are not intentionally accounted for in this yield data and other traits measured.

The WSU spring wheat breeding program is poised to release a CL+ soft white spring (SWS) wheat variety in winter 2022. WA 8354 CL+ is a promising variety candidate with Ryan and Seahawk parentage, aluminum tolerance, stripe rust and Hessian fly resistance, excellent test weight, very good straw strength and early-medium maturity. WA 8354 CL+ was among the highest yielding SWS wheats in 2020-2021 in WSU breeding and variety testing program trials in the less-than-16-inch precipitation zones.

Ian Burke, WSU professor and J. Cook Endowed Chair of Wheat Research, believes that such varieties of spring wheat will provide "a nice tool for all rainfall zones to throw at difficult winter annual grass weed problems and for rotational flexibility when growing winter Clearfield wheat." Clearfield spring wheat could also be used in a facultative role, where spring wheat is seeded during the winter. Winter seeding allows for management of fall annual weeds, particularly downy brome, while minimizing the impact of lower spring wheat crop yield in the low rainfall zone.

The goal of the WSU spring wheat breeding program is to provide wheat variety options for these situations that fit into diverse rotation systems, across diverse production areas. At the same time, we believe that there should be equal or better performance compared to conventional spring wheat varieties even in the absence of soil residual herbicide.

Continued support from Washington wheat growers through the Washington Grain Commission has allowed us to develop and release Clearfield spring wheat varieties, pursue spring wheat varieties for the CoAXium™ system and breed conventional varieties in each relevant market class to keep rotation options and management practices flexible and pursue market opportunities. ■

US wheat exports continue to soften

T. Randall Fortenbery
Professor and Thomas B. Mick Endowed Chair School of Economic Sciences, Washington State University

The export picture for U.S. wheat continues to soften as we head into the final quarter of the 2021/22 marketing year (the fourth quarter is March 1 through May 31). At the start of the marketing year (June 1, 2021), the U.S. Department of Agriculture (USDA) estimated we would export 900 million bushels of wheat this year. By the start of the second quarter (Sept. 1), that had been reduced to 875 million bushels. At the start of the third quarter, it was reduced to 840 million bushels. In the February 2022 World Agricultural Supply and Demand Estimates (WASDE), it was reduced to 810 million bushels, a reduction of 10 percent from the initial estimate.

Figure 1 shows the history of USDA export forecasts on Sept. 1 of each year compared to the actual export volume at the end of the marketing year. Note that USDA is generally overly optimistic concerning wheat exports early in the year compared to the actual export volume experienced. Over the last 11 years (including the current year), USDA has over-forecast actual wheat exports seven times (or 64 percent of the time). Based on the current export progress, I will not be surprised to see another export reduction of 10 million bushels or so prior to the end of the current marketing year. Based on wheat shipments through late February, we are not on pace to hit the 810-million-bushel estimate from the February WASDE.

Figure 2 shows total U.S. wheat exports through Feb. 10 this year compared to the same time period last year. Note that the only wheat class whose year-to-date exports exceed last year's is soft red winter wheat. The largest year-over-year increases in U.S. soft red purchases came from China (an increase of 103 percent), Mexico (an increase of 38 percent) and Nigeria, who bought no U.S. soft red wheat last year but through Feb. 10 this year, has taken delivery of 1.5 million metric tons. Much of the volume improvement this year represents increased wheat feeding globally as coarse grain prices were significantly higher early this year compared to last.

A very important market for U.S. wheat last year was China. By the end of the 2020/21 marketing year, they had purchased about 17 percent of total U.S. white wheat exports and 13.2 percent of all U.S. wheat exports. From Figure 3, you can see most of the Chinese imports of U.S. wheat happened in the fourth quarter last year. However, I do not

Figure 1: U.S. Wheat Exports-World Outlook Board Forecasts

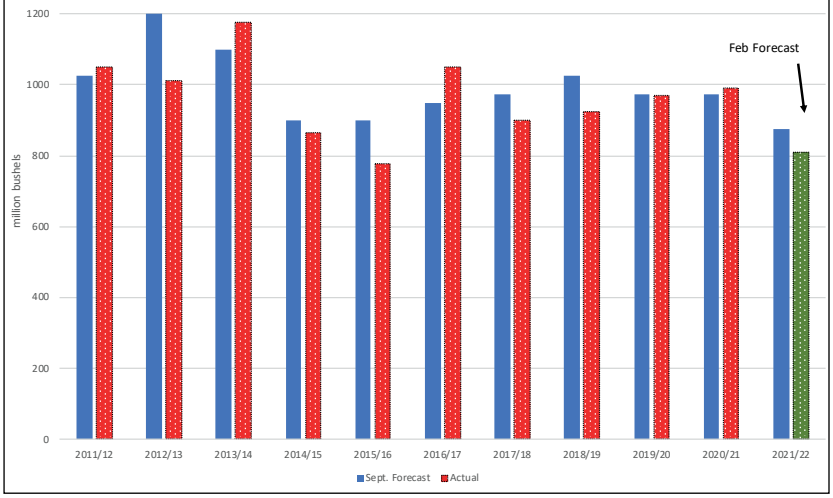
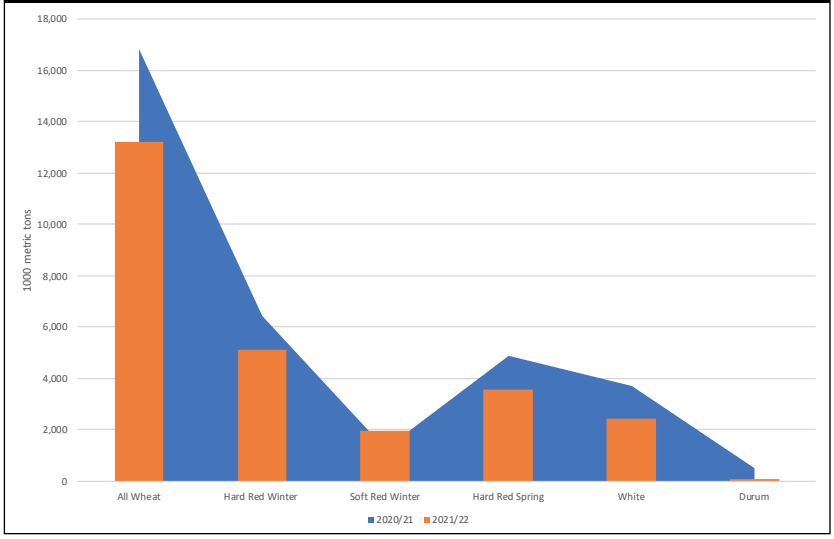


Figure 2: U.S. Wheat Exports (through Feb. 10 each year)



believe that will occur this year.

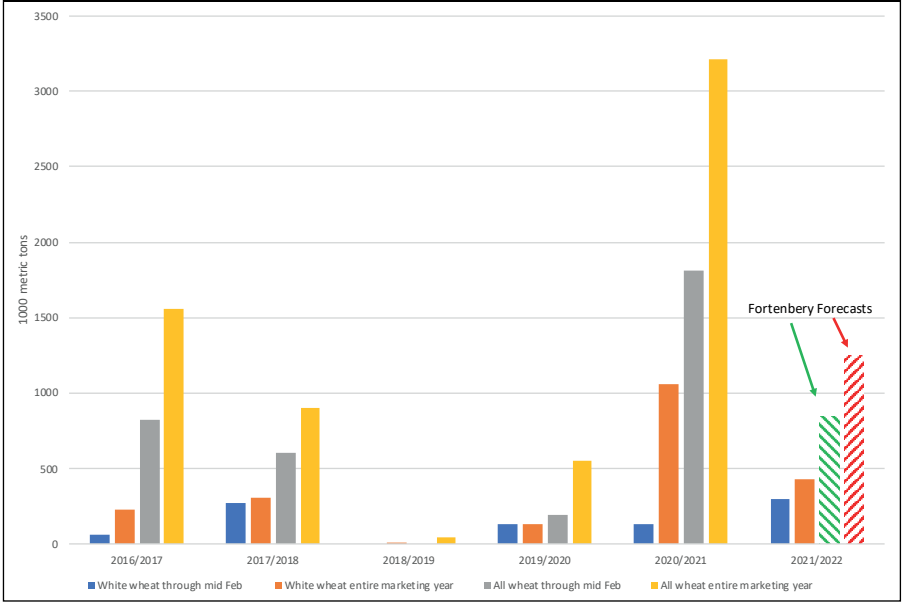
Figure 3 shows my current forecasts for total wheat and white wheat exports from the U.S. to China for the 2021/22 marketing year. They are based on actual exports through mid-February this year. Notice that total wheat exports to China this year are well behind where they were at this time last year. While white wheat exports are a bit above last year's mid-February pace, I also believe they will fall short of last year's total in the current marketing year.

In the couple of years preceding the tariff trade wars, China purchased about 5 percent of our total wheat exports and a similar percentage of U.S. white wheat exports. I believe we will be returning to that level this year, and this influences the current marketing year export forecasts in Figure 3.

Despite USDA's downward revisions in the expected U.S. marketing year wheat export forecast the last few months, wheat prices have remained in a quite consistent trading range since the end of November. Futures prices for July delivery of soft red winter wheat traded between about $8.20 and $7.40 per bushel from Nov. 30 through the third week of February. This suggests that market participants may have been skeptical of USDA's total wheat forecast for a while, and the disappointment in exports relative to the USDA forecasts is already priced into the market. Thus, even with another reduction or two in the total export forecast, short-term price risk resulting from disappointing exports may be muted.

While futures prices have stayed within an $0.80 or $0.90 cent trading range over the last several months, they have been quite volatile with double digit moves in both directions being quite common. Pacific Northwest (PNW)

Figure 3: U.S. Wheat Exports to China



cash markets, on the other hand, have been much more stable. Cash prices for soft white wheat in Portland have generally held between $10.75 and $11 per bushel since the end of November.

As of this writing, futures prices for new crop soft red winter wheat were trading about even with old crop futures prices (the July 2022 contract is considered the first futures contract for new crop), but cash prices offered to PNW soft white producers for new crop are well below current old crop prices. This reflects the expectation that basis levels in the PNW (basis is local cash price minus nearby futures prices) will return to more normal levels following the 2022 harvest compared to the record or near-record levels experienced this year.

Portland basis (Portland soft white price minus the Chicago soft red futures price) has been running between $2.50 and $3.30 per bushel for 2021 harvested soft white since late February. The basis variation essentially matches the futures price variation over the same time period, meaning cash prices are not nearly as volatile as futures in the current market environment. Cash prices are not rising dramatically when future prices rally, but they are also not dropping much when the futures market loses $0.20 a bushel in a single trading day.

Basis offerings for next summer's crop were running about $2.50 per bushel less than the basis offerings for the 2021 crop, meaning forward cash prices for next summer are only about $0.50 above futures prices for next summer and fall delivery. While this is quite unattractive compared to the basis offerings in the current marketing year, they are closer to normal and not likely to match this year's levels unless we have another very poor soft white wheat crop. As a result, producers looking to forward price part of next year's crop need to evaluate whether the prices offered for new crop are attractive compared to the last several years' prices and not compare them directly to prices currently offered for the 2021 crop. ■

Randy Fortenbery holds the Thomas B. Mick Endowed Chair in Grain Economics at Washington State University. He received his Ph.D. in Agricultural Economics from the University of Illinois-Urbana/Champaign.

Estate tax woes

WHICH IS WORSE? FEDERAL OR STATE'S ESTATE TAX?

By Paul Neiffer

CPA, CliftonLarsonAllen

Farmers in Washington state face an extra tax at death that most other farmers in the U.S. do not. That is a Washington state estate tax. Oregon also has this tax, along with about 15 other states, primarily in the Midwest or back East. Even California no longer has an estate tax.

A married couple can currently be worth up to $24.12 million and owe no federal estate tax. However, the state of Washington could easily impose an estate tax of over $4 million on the same amount. This means that most farmers in Washington need to worry about the state estate tax more than the federal tax.

Let's review how Washington state might tax your estate.

We take the total net estate value on a worldwide basis. It is not simply just Washington state assets. We then subtract any deductions and exemptions. Once the net final estate value is determined, we determine the total amount of Washington estate tax.

However, certain assets are not subject to this tax, even if you are a Washington state resident. For example, farmland located in other states are exempted. This means we multiply the total amount of Washington estate tax by the ratio of assets subject to tax.

Assume your estate has a total value of $10 million and $3 million of it is land in Oregon. Seventy percent of the total Washington estate tax is owed to Washington. You may also owe tax to Oregon.

One benefit for Washington farmers is that most farm assets are exempted from the tax if you are a qualified farmer. All of the qualifications are beyond this column, but assuming the land and farm's assets have been farmed in the family and they comprise at least 50 percent of your net estate, these assets should not be subject to the estate tax.

Many farmers also leave all of their assets to their spouse when they pass, since they know the surviving spouse can then elect portability and have their unused lifetime exemption amount "ported" over to that spouse. When the spouse passes, their lifetime exemption amount will be the combined amount and be able to offset the federal estate tax. However, Washington state does not have portability, and this can substantially add to the Washington state estate tax.

Let's assume that Bill and Sue are worth $24 million. Bill passes away in 2022 and leaves everything to Sue. Sue then passes away in 2023. There is no federal estate tax, however, Sue's estate will now have an extra $12 million subject to the Washington highest 20 percent tax rate or an extra $2.4 million.

Our planning goal is to gift nonfarm assets during lifetime to keep your estate under $2.2 million (the current Washington state exemption). Anything over that will be subject to tax for your heirs.

We discussed these issues at one of last month's Agricultural Marketing and Management Organization's event in Walla Walla in more detail. Make sure to review this with your tax advisor. ■

ARC or PLC?

Randy Fortenbery, a Washington State University agricultural economics professor, is well known for his presentations on the markets. He appeared last month in a 2022 Agricultural Marketing and Management Organization (AMMO) seminar, but he also writes a regular column in *Wheat Life*, which in this issue, is very similar to his AMMO presentation. So rather than repeating ourselves, we'll refer you to his column on page 46, for what's happening in the export markets.

Fortenbery also talked briefly about the Price Loss Coverage (PLC) and Agriculture Risk Coverage programs, and since the enrollment deadline is quickly approaching (March 15), we wanted to share his thoughts there.

Before election either ARC or PLC, Fortenbery suggested growers look at the December futures contracts for soft red winter wheat.

"Why December? It's halfway through the marketing year. So, it's really the market's best guess about what the soft red winter wheat price is going to be for the entire marketing year, in my opinion," he said. "If I look at where it was recently, that's $7.80, and I predict what the U.S. national cash price is going to be (it's usually below the futures price), I'm saying we are still going to have a price between $6.50 and $7.10, $7.20 for the 2022/23 crop. If I'm right, PLC won't come anywhere close to paying."

However, ARC may not pay either, if prices are high and the crop yield is at least average.

"But anything can happen in the next 18 months, so I could be very wrong by the end of this," he added. "That's the best guidance I have. Look at those futures price for December delivery when you get ready to sign up and think, if the futures price is $7,80, that'll end up being a cash price of, in our area, probably a dollar lower, and am I comfortable with that?" ■

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In the weeds

WSU WEED SCIENTIST EXPLORES ALTERNATIVE WEED CONTROL METHODS IN LARGE-SCALE CROPPING SYSTEMS

By Lisa Specht
For Wheat Life

Along with marketing information (see page 52), weed resistance was also discussed at one of last month's Agricultural Marketing and Management Organization's seminars.

Weed scientist **Drew Lyon**, a professor in Washington State University's Department of Crop and Soil Sciences, spoke to growers remotely on the latest developments in Harvest Weed Seed Control (HWSC), an "alternative weed-control approach for large-scale cropping systems." His presentation included a slideshow produced by Dr. Michael Walsh, director of weed research at the University of Sydney's Plant Breeding Institute.

Weed resistance to herbicides has been leaping ahead of scientists' available resources to control them. Traditional methods of herbicide application and reapplication have resulted in increased resistance in many weed species. Globally, herbicide resistance has exploded, particularly in the past three decades. Not only have more weed species become resistant to stalwarts of the herbicide industry, such as 2,4-D and glyphosate, but also an increasing number of individual species are adapting to become unaffected by newer, ALS-inhibitor herbicides and multiple mechanisms or modes of action. In addition, less herbicide options are available for producers as profits for herbicide manufacturers dwindle and generic labels proliferate, and few replacements are in the research and development pipelines.

Weeds make seed, and resistant weeds make resistant seed. Lots of it. Producers spend loads of money and labor all season to eradicate weeds from their fields and give their crops a fighting chance, then scatter the enemy's seed abroad from the combine's rear at harvest, to dig in for next year's assault.

Annual ryegrass was planted in Australia to feed sheep, but became a huge problem when the land was retasked to wheat production. To attack these and other pernicious weeds, Australians developed HWSC systems to target weed seed in the chaff fraction of combines. Direct baling of chaff and narrow windrow burning are used to address chaff and straw. Chaff lining, chaff tramlining, chaff carts and impact mills have been developed to deal with chaff alone. All methods seem to work about the same, said Lyon, with plant densities dropping by as much as 60 percent in some fields. He said around 75 percent of Australia's growers were using some form of HWSC in 2019. Narrow windrow burning is currently the preferred system, employed by 43 percent of growers, where a chute concentrates chaff in or between wheel tracks where it is (carefully!) burned after harvest. However, concerns with burning have resulted in a shift towards chaff lining and chaff tramlining in recent years, with impact mills also becoming more popular despite their high cost.

For further information, see "Harvest Weed Seed Control: Applications for PNW Wheat Production Systems" at pubs.extension.wsu.edu/harvest-weed-seed-control-applications-for-pnw-wheat-production-systems. ■

Caution: Market opportunities ahead

AMMO presentation explores challenges, potential of Southeast and South Asia markets

By Trista Crossley
Editor, Wheat Life

In the past decade, South and Southeast Asia have become one of the U.S. wheat industry's most important markets, accounting for nearly a quarter of all U.S. wheat shipments. Despite some significant challenges over the past year, **Joe Bippert**, assistant regional director for U.S. Wheat Associates (USW), believes there is still plenty of room for growth in the region.

"As we look at the year we just got through, back in 2021, I would say there have been significant challenges between COVID, drought and significant inflation. All this was felt, not only here in the United States, but this was felt as we look at the region in Southeast Asia. But with these challenges, we also see a lot of opportunities," he said.

Bippert was speaking virtually to more than two dozen listeners as part of the Agricultural Marketing and Management Organization's 2022 seminars.

While wheat consumption in the region has steadily increased since 2009/10, the last two years have seen imports slow. As the COVID variants emerged, travel has been restricted, and the loss of tourism has slowed many of the region's economies. Export prices have increased, thanks to last year's drought in the U.S. and Canada, and rising inflation is making products more expensive for consumers. There's also increased competition from Australia, although that country has also seen a sharp decline in the quality of their exportable wheat, Bippert said.

USW, which is the export market development organization for the U.S. wheat industry, has been able to capitalize on the poorer quality of Australian wheat by emphasizing the high quality of U.S. wheat and using regional technical experts to educate millers on the best uses for each of the different classes of U.S. wheat. USW has also committed to keeping the U.S. wheat industry as transparent as possible.

"Our inspections that we have through FGIS (the Federal Grain Inspection Service) and WSDA (the Washington State Department of Agriculture) highlight that we want to let customers know exactly the type of wheat they're getting. We also want to give them real time updates (so) they will be able to know what is coming down the line and adjust their decisions," Bippert said.

COVID has also impacted how USW is marketing U.S. wheat in South and Southeast Asia, but in a positive way. With travel restricted, USW has turned to webinars to connect with those customers. Bippert said not only has that move been effective and allowed USW to reach a wider audience, but it's also more economical and convenient for customers because they don't have to travel or take time off to attend meetings. Even after travel restrictions loosen, blending webinars with more traditional programs is likely to be part of USW's long-term strategy.

"It helps us get information out in a very timely way that allows them to get real time information, which is especially helpful when we have some of these challenges like we've seen in the last year," Bippert explained.

Other parts of USW's long-term strategy for South and Southeast Asia include a greater focus on technical training, cultivating regional teams and maintaining perspective on key markets. Bippert said USW wants to create an "all of the above" service for core markets, which include the Philippines and Thailand, and regain traction in the swing markets of Indonesia, Vietnam and Malaysia. Those markets have seen declines in wheat sales in the past year due to COVID, inflation, increased prices for wheat and economic downturns.

"We want to look at ways to reduce demand elasticity and see more constant sales in those areas," Bippert said.

USW wants to increase opportunities for U.S. farmers by expanding into upcoming markets in the region. Bippert said that over the next decade, Asia's consumer class is likely to continue to grow. Indonesia's consumer class is forecast to surpass Japan and Russia's. The Philippines'

consumer class will pass most of Europe's. USW will also be looking at opportunities to expand U.S. farmers' presence in Bangladesh; that country's consumer class is poised to make the biggest leap over the next decade.

Finally, USW wants to help drive consumption. The organization is using social media to highlight the health advantages of U.S. wheat through their "Go Wheat" campaign in the Philippines, where the trend is shifting from wheat being seen as an indulgent food to being a staple food. ■

Growers hear latest on incentive programs

By Nate Gallahan
State Public Affairs Specialist, Natural Resources Conservation Service

The U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) and Farm Service Agency (FSA), along with the Washington State Conservation Commission (WSCC), teamed up Feb. 10 and 11 to bring Eastern Washington wheat growers the latest incentive programs and Climate-Smart information available for, and supporting, their operations.

More than 50 producers attended the two events, which were hosted by the Washington Association of Wheat Growers (WAWG) as Agricultural Marketing and Management Organization (AMMO) workshops.

"Events like this are really important to help producers understand the wide range of programs and initiatives available to them," said Roylene Comes At Night, NRCS Washington state conservationist. "By working together with the wheat growers and other producers across the state, we can build climate-smart solutions that improve their operations' resilience and profitability and open new market opportunities."

In Spokane, Wash., Travis Martin, Farm Service Agency district director, updated growers on the status of the agency's programs, with an emphasis on the Conservation Reserve Program. Martin was speaking as part of the Agricultural Marketing and Management Organization's 2022 schedule.

The veteran state conservationist, with more than 32 years with the NRCS, opened the workshops by discussing Climate-Smart Agriculture and the various practices and principles. Then, Alison Halpern, the scientific policy advisor for the WSCC, provided an overview of the new Washington Sustainable Farms and Fields grant program. Travis Martin, a district director with FSA, followed with a status of programs with an emphasis on the Conservation Reserve Program (CRP). Finally, after lunch, Greg Zwicke, an NRCS air quality engineer, and Dr. Adam Chambers, the NRCS's national environmental markets specialist, discussed Carbon Farm Planning and the COMET Farm and COMET Planner tools.

"We greatly appreciate the time all of these agencies have taken to provide our members with this information," said Lori Williams, WAWG outreach coordinator. "Having these experts take two days out of their busy schedules is not lost on us. It was a great event, and I'm sure the producers walked away with a lot of helpful information." ■

Growers reminded of ARC/PLC deadline; signatures needed for eligibility

The Agriculture Risk Coverage (ARC) and Price Loss Coverage (PLC) deadline is quickly approaching. Failure to make a valid election and enrollment for the 2022 program year by March 15, 2022, will result in ineligibility for the 2022 crop year payment. To complete election and enrollment, all signatures must be submitted by the March 15 deadline.

There was some confusion in a previous announcement that if there is a failure to make an election for 2022, it would result in the farm defaulting to the election made in the 2021 program year. While it is true that the farm will default to the prior election if an election is not made by March 15, the farm may also become ineligible for payments for the 2022 fiscal year as well if enrollment is not complete by the upcoming deadline. Election and enrollment are two separate actions that apply to all ARC/PLC contracts. All farms must complete enrollment, including all applicable signatures, by March 15, 2022. If you have already signed up for ARC/PLC and choose to modify your election, you may do so until the March 15 deadline.

Please contact your local Farm Service Agency office to schedule an appointment today. ■

FSA seeks state committee recommendations

After more than a year without a Farm Service Agency state executive director, Jon Wyss has been reappointed to the position. He called into the Washington Association of Wheat Growers' February board meeting and told producers that building out the state committee is on his short list of things to do.

"We are looking for candidates that wish to apply to serve. There are four vacant positions, and if people are interested in applying, we would love to have them apply to fill the role," he said later the same day in a telephone interview.

Wyss previously served as the Washington state executive director from June 2019 to December 2020.

State committees consist of up to five members and work with county committees to administer various programs, including state agricultural conservation programs, production adjustment and price support programs, livestock programs, Agricultural Market Transition Act programs and other programs assigned by the Secretary or Congress. State committees also conduct reviews and hear appeals. They are authorized to take corrective action if a county committee or county office employee fails to make an authorized program accessible and available to producers, fails to carry out a program according to regulations and directives or does not provide the public with timely and reasonable service. State committees, in conjunction with the state executive director, also determine certain local program and administrative policies.

For example, prior to 2020, little cherry disease wasn't fully defined in the Tree Assistance Program (TAP) as a qualifying disaster for Washington farmers. Wyss said the state committee was able to work with the national office to make it eligible for TAP. Closer to wheat country, the state committee is also involved in helping set Conservation Reserve Rental rates and hearing appeals from farmers who disagree with the rates.

Committee members are appointed by the agriculture secretary for one year. They generally meet once a month and are paid an hourly rate. In the absence of a state committee, the state executive director or the acting state executive director can step in and perform the functions of the state committee. To be eligible to serve on the state committee, candidates must be involved in agriculture.

Interested parties should email a cover letter and their resumes to jon.wyss2@usda.gov as soon as possible. Those resumes will be forwarded to the national office.

"(The state committee) is an important role in the state," Wyss said. "We are looking for recommendations of names that farmers think would be good to be on the committee." ■

"We are looking for candidates that wish to apply to serve. There are four vacant positions, and if people are interested in applying, we would love to have them apply to fill the role."
—Jon Wyss, State Executive Director, Farm Service Agency

Research agronomist, station director retires

Bill Schillinger served wheat farmers for 29 years at the Lind Dryland Research Station

By Kevin Gaffney
For Wheat Life

Finding one's career path can be difficult and circuitous. It certainly was that way for **Bill Schillinger**. His journey included 10 years of working in agricultural development around the world in Asia and Africa before landing the position that would define his lifetime of work. After 29 years of conducting research, overseeing projects and writing grant proposals and scientific journal papers, Schillinger has eased out of the Washington State University (WSU) Lind Dryland Research Station, retiring in January.

There is a degree of irony in the fact that Schillinger grew up on an Odessa wheat farm only about 20 miles north of the Lind Station. While he is reticent about it, it could be argued that it was providence for hundreds of regional farmers that he decided not to stay in Odessa and take over the family farm. Decades of critical progress in developing effective methods to protect and conserve soil, the most precious farming resource, might otherwise never have been accomplished.

Like most Eastern Washington farm kids, Schillinger worked on the family farm from an early age. He was operating a Massey Harris model 27 combine and a Caterpillar crawler tractor by the age of 12.

"Running farm equipment at that young age made me feel really grown up," recalled Schillinger. "Our farm of family-owned and leased land was medium-sized for that time in the 1960s. Of course, the size of farms and machinery back then seems amazingly small compared to today."

After Schillinger graduated from Odessa High School in 1970, he studied biology and communications at college while working on the farm during the summers. He earned a bachelor's degree from Eastern Washington State College in 1974. Rather than return to the farm after college, Schillinger decided to join the Peace Corps, serving in Nepal from 1975-1977.

"I was a little naïve, I suppose. I chose Nepal with visions of sipping tea and looking at the beauty of the Himalayan mountains in the distance," explained Schillinger. "Reality hit when they placed me in the plains region in southeast Nepal, near India. It was incredibly hot and humid, and it was a long distance away from those beautiful mountains. I worked with 50 Nepalese farmers to produce certified wheat seed for the Nepal Ministry of Agriculture. During the monsoon season, we grew certified rice seed. I was responsible for supervising all aspects of seed production, collection, cleaning, bagging and storage."

Farmers grew the seed on what were considered large plots of up to five acres. Schillinger would travel to each farm over two districts several times each growing season on his 90cc Honda Trail motorbike. The seed mostly went up into the hill country on the backs of porters for three to 10-day trips in 100-pound sacks. There were no roads in the hills, just foot trails.

"Ours was the only source of certified wheat and rice seed in the entire eastern region of Nepal," noted Schillinger. "The government sold the seed to

These dollars will be used to support candidates that understand what is critical to our industry and the livelihood of our members

Political advocacy is something many of us think we can never get involved in; the Washington Wheat PAC is out to change that.

The Washington Wheat PAC is a nonpartisan political action committee that is dedicated to supporting ag-friendly candidates.

The Washington Wheat PAC pledges to promote and support elected officials from all parts of the state that positively influence agriculture.

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Washington farmers are losing ground politically! The ability to protect our interests is slowly dwindling. Washington wheat producers need elected officials who know and understand the industry. Without these relationships our ability to remain competitive is at risk. During the legislative session, thousands of bills are introduced; many not favorable to farming. Now is the time for the industry to join together and proactively influence legislation that directly impacts the Washington wheat producer.

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Please send form along with payment to PO Box 184, Ritzville, WA 99169. Checks should be made out to the Washington Wheat PAC.

hill farmers at a subsidized low cost because the farmers were poor. The average farm size in the hills was one-third of an acre."

After his service in Nepal, Schillinger was admitted into the University of California, Davis where he earned a master's degree in agronomy. He met and married his wife, Valerie, while attending UC Davis.

Upon completion of his master's degree, Schillinger accepted a career position as a foreign service agricultural officer with the U.S. Agency for International Development (part of the U.S. State Department). He served his posting in Cameroon in West Africa, where he managed two multimillion-dollar, U.S.-financed agricultural research projects. It was during this time that he ascertained that the scientists conducting the field research were receiving more satisfaction from their work than he was as their manager.

With his wife's approval, Schillinger resigned from the Foreign Service to study agronomy and soils at Oregon State University, earning his doctorate in 1992. He was hired by WSU soon after.

Schillinger had barely arrived at WSU when Bob Papendick, a soil scientist with the U.S. Department of Agriculture's Agricultural Research Service who became his mentor, threw him into a new, grant-funded federal program called the Columbia Plateau PM10 Project.

"It was almost intimidating, being brand new on the job," said Schillinger. "But we had this new, ongoing project that gave us $400,000 per year to combat wind erosion and blowing dust in the drylands. I was very excited to be part of it. Papendick's research and grantsmanship achievements were legendary. In addition to securing long-term funding for the PM10 Project, he had also secured grant funding for the renowned Solutions to Environmental and Economic Problems (STEEP) program."

Schillinger learned quickly how to successfully compete for grant funds available from federal and numerous other sources. He will be passing on several ongoing grant projects to the new professor-scientist at Lind. Most of them involve long-term cropping systems experiments at the Lind Station and in farmers' fields.

"Dryland farmers have made good progress over the past several decades in reducing wind erosion in the drylands. I applaud their efforts, but there is always much more that can be done," he said.

The Lind Station was established in 1915 at the request of wheat farmers in the region after consecutive years of severe drought in 1911 and 1912, explained Schillinger. This caused crop failures and severe wind erosion of soil. Many farmers were forced out of business and left the area.

"The situation was truly dire. Due to terrible crops and low residue, there were frequent, zero-visibility brownout dust storms. The remaining area dryland wheat farmers approached WSU (then Washington State College) and requested help," he said.

Adams County provided 320 acres to locate the station on, and WSU agreed to provide at least one full-time professor/soil scientist, plus adequate technical support at the new research facility. The research is still carried out on that same 320-acre property, and the Lind Station serves as a hub for numerous field experiments conducted in farmers' fields throughout the dryland region.

The station also owns another 1,000 acres that borders the original acreage. (Then-Representative) Sen. Mark Schoesler of Ritzville sponsored a bill that transferred ownership of the acreage from the Washington Department of Natural Resources to the WSU Lind Dryland Research Station.

"We define low rainfall as less than 12 inches annually. The Lind Station receives 9.6 inches annually, on average. Most farmers in the drylands practice a wheat-fallow rotation," Schillinger said. "I strongly encourage as few tillage operations as possible and, when feasible, no tillage. One big change in the past 30 years is that farmers now mostly leave their stubble standing over the winter rather than chiseling the ground in the fall."

Schillinger is also a fan of rotation crops, especially winter canola, winter peas and winter triticale. He said there is some promising research for producing bread flour-quality triticale that would make it a valuable food crop, instead of only a feed crop.

"We have conducted a lot of research and published many papers on these new winter crops in the past 15 years," he explained. ▶

In the 1990s, the future of the Lind Station was uncertain. Farmers came together and created a special endowment to ensure the continuation of the station.

Schillinger mentioned other noteworthy endowments over the years, including those established by Otto and Doris Amen, Ed and Arlene Heinemann and Mel and Donna Camp. All of these endowments are ongoing, with only the interest earned each year being used to benefit the research and facility-improvement needs of the station.

In addition to the scientist/director faculty position, the station has four full-time technical and administrative staff and one part-time professional worker. Several of them have been at the Lind Station for more than 20 years. Schillinger believes that these dedicated staff members will be a big plus as WSU rapidly moves forward to refill the Lind faculty position.

In his faculty position at WSU, Schillinger has performed numerous outside consulting assignments for the Food and Agricultural Organization, the United Nations, the World Bank and other institutions. He has completed assignments in Senegal, Gambia, Thailand, India, Nepal, Uzbekistan, Kazakhstan, Canada and Russia. Schillinger and his wife live in Cheney and are looking forward to having more time to travel. They have two grown children, Mark and Kathryn.

His last paid day on the job may have been in January, but Schillinger will be finishing up projects and writing research papers for at least six months.

"In addition, I will certainly be available to assist the new Lind Station scientist/director as they may request," said Schillinger.

For more about the station, visit lindstation.wsu.edu. ■

When flour was SACKED

NEW EXHIBIT AT THE MAC EXAMINES ART IN THE FORM OF PACKAGING | BY TRISTA CROSSLEY

It's usually the items inside a sack that are interesting, but a new exhibition at the Northwest Museum of Arts and Culture (MAC) is taking a look at what the sack itself has to say.

Golden Harvest: Flour Sacks from the Permanent Collection will be on display through Oct. 30, 2022, and features 40 to 50 flour sacks from around the region. The sacks date from about 1900 to the 1940s, a time when modern advertising was starting to be developed. The flour sacks were a way for mills to promote themselves or a specific brand of flour. Most of the collection came from a 1972 donation when one of the last operating flour mills in Spokane closed. As far as the museum knows, this is the first time the collection has been displayed to the public.

"The flour sacks provide such a fascinating window into the early flour milling and wheat growing industries in this region," said Valerie Wahl, recently retired collections curator for the MAC. "That period of time covered so much change in agricultural methods, flour milling methods and transportation. There was so much happening, and the sacks give a peak into that."

Thanks to its railroad links and placement next to some of the most fertile, wheat-growing regions in the U.S., Spokane has a long history in the flour milling industry. In fact, according to Dana Bowne, an independent textile researcher who did the research for the exhibition and wrote the script, Spokane was considered the seventh largest milling center in the U.S. around the turn of the 20th century. She said the exhibition is designed to make people aware of how important the wheat industry has been—and still is—to Spokane.

"When I first opened this box of flour sacks, I was intrigued. Then, the more I got into it, the more I saw how the story affected so much of Washington state's growth and the region. I was surprised at how far reaching it was," Bowne said.

Flour sacks began replacing barrels as flour containers in the later 1800s, when the sewing machine made it possible to sew a sturdy sack that could hold flour. Flour sacks dominated the industry until the 1940s when paper sacks,

Flour sacks were often used as clothing and other household items, especially by rural women. ©2022 Dean Davis

which were introduced 20 years earlier, became the main form of packaging.

Many of the sacks were meant for exporting flour to other countries, and Bowne said the imagery on the sacks bound for those countries is much different than the sacks bound for domestic use.

"What I find especially exciting are the sacks that were meant for export. Today, up to 90 percent of Washington wheat is exported, but I didn't realize that they started shipping flour out of Washington in the 1860s," Bowne said. "We've got about two dozen sacks meant for export to other countries—China, Japan, the Philippines and El Salvador—and I think they all date from 1912-1932. The graphics are fascinating. The archives have quite a bit of information about the export industry, and I didn't realize just how long it had been such an important part of the wheat industry."

Part of the exhibition will focus on the use of flour sacks as clothing and other household items, which was especially common in rural areas. In the 1920s, when paper sacks began to make in-roads into the milling industry and threaten one of the cotton industry's sources of revenue, Bowne said there was a real effort to reach out to urban women via pamphlets and publications promoting the use of flour sacks. The Depression and the Dust Bowl years accelerated this trend.

"We actually have a dress from the 1880s, and the bodice is lined with pieces of sacks from the very first roller mill in Washington Territory, which was here in Spokane. We have quilts. We have a nightgown, an apron and a dishtowel, all made out of recycled flour sacks," she said.

Other parts of the exhibition include sections on wheat farming, wheat milling and artwork inspired by wheat country. Artwork and vintage photographs from the MAC's archive and the Jordan Schnitzer Museum of Art at Washington State University will enhance viewers' experience.

"It (the show) could have been just about the flour sacks, but there's so much more to the story that it really became much more multilayered in terms of the content and the

In order to confuse the competition, Spokane flour mill owners often sent coded telegrams to brokers in Hong Kong to arrange shipments. ©2022 Dean Davis

Some of the 40+ flour sacks that are currently on display at the Northwest Museum of Arts and Culture. ©2022 Dean Davis

Eastern Washington story," Wahl said.

One of the things that surprised Bowne as she began her research was how competitive and cut-throat the milling industry was. In the late 1800s, California was the major supplier of flour to Asia until Northwest mill owners muscled their way in. In those days, business was done by telegram, mainly to brokers in Hong Kong. The telegrams were easily monitored, so Spokane mill owners used a secret code.

"You would specify the date and how many bushels were being shipped, how many sacks, the brand of flour, all in a code. You wouldn't be able to understand the telegram if you didn't have the code," Bowne said. "That was fascinating when I found those. So we have some of those code books on display, and a few pages are open so you can see how it worked.

"Obviously, Washington's wheat farmers have always been dependent on weather, but they've also been dependent on the international market from the beginning, and that was a real surprise. I thought that was a more contemporary issue, but it turns out, it's really been the situation all along, except for some interruptions, like during war."

Besides a better understanding of the importance of the wheat and the flour milling industry in the state and regional economy, Bowne and Wahl hope visitors will also come away from the exhibition with a appreciation for the artistic quality of the flour sacks as well as the works of art that are on display.

The Northwest Museum of Arts and Culture is open Tuesday through Sunday, 10 a.m. to 5 p.m., and every third Thursday from 10 a.m. to 9 p.m. The museum is at 2316 West 1st Avenue in downtown Spokane's historic Browne's Addition. For more information on the museum and the exhibition, visit their website at northwestmuseum.org. ■

(Above) Part of the exhibit covers wheat farming in Eastern Washington, including this well-worn pair of boots. (Below) Items from Centennial Flour Mills. ©2022 Dean Davis

THE BOTTOM LINE

Future uncertainty will require careful management

By Dr. David M. Kohl
President, AgriVisions, LLC

The financial bottom line will be a key element in any farm and ranch game plan in 2022 and beyond. While the past two years have been both financially and mentally challenging, managing through uncertainty has had a silver lining. Prices for many commodities increased dramatically prior to inflating costs, which resulted in a positive margin for many producers. Coupled with generous government payments, the last two years were the strongest economically for some producers since the commodity super cycle from 2008 to 2013.

Moving forward, inflation, uncertainty in prices and multiple interest rate increases will require intensified management. A three-pronged approach of managing input costs and roller-coaster prices will be a tall order. The Federal Reserve has forecasted three and possibly four interest rate increases in 2022. This will require a closer examination of how a 50, 75 or 100 basis point increase in interest rates will impact debt structured on a variable rate, and how it will impact cost of production and breakevens.

On the input side, sticker shock is challenging most businesses and, to some extent, consumers. Both the consumer and producer price index have been tame since the mid-1990s with inflation generally under 5 percent. Now, inflation rates are above 5 percent with a duration of nearly one year. While not at levels experienced during World War II or post-World War II in the 1970s where inflation was 15 percent, these increases have been challenging. Many people are questioning how long this period of inflation will last. As long as there are oil and energy supply and demand imbalances, supply chain issues and labor shortages with wage increases, inflated costs will be in the management playbook.

On the revenue side, monitor the weather in the major production regions of the globe for signals of market price increases. Next, changes in trade deals on the export side and geopolitical or military challenges of major world powers will ultimately have an effect on your management strategies.

What can you do as an individual agriculture producer to position yourself for the best possible financial outcome?

First, develop a projected cash flow with a wide array of financial sensitivity outcomes given different cost, production and price scenarios. If you have multiple enterprises, make sure you develop and refine your enterprise budgets. More than half of producers anonymously polled during a recent seminar indicated that conducting enterprise analysis was one practice that placed them ahead of the curve.

In your budgets, each line must be carefully scrutinized in an inflationary environment. Recently, some producers have mentioned that after conducting their analysis, they actually eliminated marginal or less productive ground, irregular fields, landlords that gave them hassle or enterprises that did not align with their future goals. A best practice each year is to not only consider what you want to grow, but also what you need to eliminate.

A best management tool for the financial bottom line will be a projected cash flow that is monitored more than once a year. Some individuals are now monitoring not only quarterly, but monthly and, in some cases, weekly. This is what allows them to adjust operating strategies and actions as conditions change. Remember, both good and bad decisions compound over time, but in an inflating environment, the differences accelerate at an exponential rate.

A risk management plan will be a high priority in 2022 and beyond. While speculation and greed may have paid in the last two years, following a disciplined marketing and risk management plan will pay dividends in the economic cycle ahead. Following the process with a focus on knowing your break-even cost of production in an inflationary environment will be a key for success. Some of you may want to go it alone. While that is okay, I find that the top-level managers who utilize the assistance of advisory teams often have a broader view.

Finally, your bottom-line analysis

requires a close examination of your balance sheet. Should losses occur, what is your backup plan? The answer is usually working capital, which is current assets minus current liabilities. Hopefully, in your business strategy, you were able to build some reserves for margin adversity in the past couple of years. A current ratio above 1.5 to 1 or working capital divided by expenses greater than 25 percent would provide for some of that reserve.

While challenging and uncertain, the economic environment ahead can be advantageous for the good manager.

In this part of the economic cycle, following the process and focusing on those small profit windows can result in a favorable bottom line. ■

Dr. David Kohl is an academic hall-of-famer in the College of Agriculture and Life Sciences at Virginia Tech in Blacksburg, Va. Dr. Kohl is a sought-after educator of lenders, producers and stakeholders with his keen insight into the agriculture industry gained through extensive travel, research and involvement in ag businesses. This content was provided by Northwest FARM CREDIT SERVICES

Donny "Papa Red" Winberg with his grandson, Merritt Heitstuman (3), who was helping with harvest on Heitstuman Farms in Pomeroy. Photo by Hannah Winberg.

Making friends after a long day of harvesting at M&P Farm. Photo by Crystal Sellers.

Asa Morgan (2) taking a break during harvest 2021 on the Palouse. Photo by Holly Morgan.

Your wheat life...

Email pictures to editor@wawg.org. Include location of picture, names of all people and ages of all children.

Raegan Mae Appel (4) checking papa Jim Hughes' wheat near Winona. Photo by Natalia Marie Photography.

A rainbow in Waitsburg. Photo by John McCaw.

Nick Johnson Farms in Oakesdale. Photo by Nick Johnson.

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For more information on Anchor 3L ST contact a member of the Albaugh Seed Treatment Technology Team. Jay Stroh (Jays@albaughllc.com), David Winston (Davidw@albaughllc.com), Lee Stewart (Lees@albaughllc.com) or Ed Driskill (Driskill@albaughllc.com).

Refer to the product label for complete directions and instructions.

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