

SEASONS OF FARMING

SPRING

After a winter spent mostly indoors attending meetings, doing paperwork, or servicing equipment, farmers are usually eager to resume fieldwork. But what are those machines out in the field actually doing?

In Eastern Washington, spring comes first in the south. Wheat farmers in Benton and Franklin counties will be out in the fields in March, sometimes even late February if the winter has been mild. Counties in the north, like Grant or Douglas County, are usually weeks behind. Activities are dependent on what crop the farmer will be growing: winter wheat, spring wheat, or leaving the land fallow. In 2022, wheat was planted on 2.3 million acres of Washington land. Of that, nearly 80% was winter wheat.

Winter wheat is planted in the fall to be harvested the next summer. It has the ability to go dormant during the winter and start growing again as the days get longer and the weather warms up. Once the wheat comes out of dormancy, farmers will apply fertilizer and/or pesticides (for insects and diseases) to the growing crop using boom sprayers that can be more than 100 feet wide. The booms — or arms — of the sprayer can be folded to make moving them from field to field easier. Depending on growing conditions and disease pressure, these chemical applications may be repeated as the crop matures.

Spring wheat is planted as soon as the soil has warmed up and the fields are dry enough that equipment won't get stuck. It is harvested that same fall, usually a few weeks after the winter wheat. Weed pressure can be more intense in spring wheat, since the spring wheat doesn't have a head start over weeds like winter wheat does. Because of that, growers may have to prepare the fields prior to planting. That could include using a boom sprayer to

kill the weeds with an herbicide or cultivating the fields with a tractor pulling tillage equipment, such as a plow or a disc harrow. They may also apply a dose of fertilizer before planting.

Once the fields are ready for the spring crop, planting can take place. While there are many different ways to plant wheat, in general, a tractor pulls a hopper full of grain and uses either air blowing through tubes to distribute seed from the hopper to a seed drill or drops the seeds from the hopper down chutes to the ground. Rollers help open the soil where the seed is planted and then closes the soil over top of the seed. Precision planting equipment allows the farmer to control the depth and spacing of the seeds. Fertilizer may be applied at the same time the seed is planted.

It is not unusual for wheat farmers to have to reseed fields of both winter and spring wheat in the spring. Sometimes, winter wheat will fail to germinate in the fall, maybe due to drought or pests, or it will die over the winter, especially during periods of intense cold with no snow cover. In both winter and spring wheat, if it rains before the wheat seed can germinate and reach the surface, the ground can form a hard crust, preventing the seed from breaking through. Farmers will often reseed in this case.

As with winter wheat, growers may have to apply additional applications of fertilizer and pesticides to spring wheat throughout the growing season.

Many Eastern Washington dryland wheat farmers follow a winter wheat-summer fallow schedule where they let fields sit fallow for a period of time to gather and store moisture for the following wheat crop. It is important to control the weeds on those fields so that they don't use the moisture and nutrients intended for the wheat crop. During spring, once planting is done, farmers will spray chemicals, such as Roundup, on their fallow fields or use tillage methods to control weeds. ■



Crop Advisor Q&A

Sam Kimmell has been a crop advisor with The McGregor Company for nine years. He typically works with about 30 farms every year, helping them make planting and crop input decisions. He grew up on a farm in North Idaho, but after high school, joined the Navy. He and his wife returned to Eastern Washington when they bought his wife's family farm in Endicott, Wash. We had some questions about crop advisors and what they did, particularly in the spring.



What is a crop advisor?

Basically, they are experts who take locally developed or globally developed solutions and tailor them to fit specific farms or environments in their local area to help farmers determine what is needed to raise a profitable crop. Really, it is all just problem solving, whether that's an environmental problem, an economic problem, or a logistical problem; it's a daily problem-solving exercise. You have a problem and a solution, and how do you make the two match up?

What do crop advisors do in the spring?

For winter wheat, which is planted in the fall, we begin by looking at the overall health and viability of the crop. With the cold weather and unpredictable winters we've had, often times, there's something new every spring that gets thrown at us, whether that's winterkill or a disease. We will be looking at root development, erosion, environmental factors, and pest pressure. One of the big things we look at in winter wheat is the development of the main tillers to determine if the crop is deficient and needs top dressing (fertilizer). We also do lots and lots of soil tests so we can get an idea of where the nitrogen is sitting in the crop that is in the ground.

What about for spring-planted crops?

With spring-planted crops, the timing is more compressed; we have to do it all at once. We'll do soil tests to see what the health of the soil is, and what the plants will require. We'll decide if we need a herbicide application prior to planting to kill problem weeds. Oftentimes, seeding and fertilizing will take place at the same time. If I'm able to, I will be there when the field is seeded so I can monitor the depth the seed is being planted at and how many seeds are being planted. We'll continue monitoring those fields as the seeds germinate.

As spring progresses, we will be monitoring the health and pest pressure of both fall- and spring-planted crops and

having daily conversations with our farmers about what they and we are seeing.

How do you keep track of all these different fields and what's been done to them?

Like my grandpa said, the best thing about farming is you get to try again every year, and the bad thing about farming is that you have to try every year. I've learned to take good notes. In addition, our industry has a rich history, and you are often dealing with a farmer who has generations of previous experience and knowledge about their land.

What kind of education do crop advisors usually have?

An ag or science degree is helpful, but not required. If you are considering an agronomy career, just jump in. The industry changes so fast, tenacity, a strong work ethic, and a willingness to learn far outweigh any lack of experience.



What kind of technology do crop advisors generally use?

We have tools to help the process, but nothing replaces getting out there to see the fields in person. For four to five months out of the year, I live in my pickup truck and four-wheeler. We use quite a bit of software for record keeping. If you work with 30 farmers covering 80,000 acres of crop, you will never remember what's happening on each acre. Record keeping on a field-by-field basis is probably one of most important things we do. ■

Pesticide Perspectives

Are pesticides good or bad for consumers, and what goes into pesticide safety?

By Jennifer Ferrero

Wheat fields in Washington can be home to many insects, weeds, and diseases. Producing quality food crops requires intervention. Many factors are at play in the realm of safety for humans and the environment, including using insecticides, herbicides, or fungicides. In this article, we refer to all these types of products generally as “pesticides.” It’s a complex picture that affects global crop output from the state and our long-term environment and economy. The big questions for consumers are whether pesticides are bad, whether they are necessary, and how pesticide use, or non-use, impacts our economy.

In Washington, the use and application of pesticides are well-researched, supported, and regulated. Ensuring safety for humans, the environment, and long-term crop sustainability is a function of government, the farming community, university researchers, and third-party players like the Washington Grain Commission (WGC).

As food-buying consumers, we ingest published information from the ever-expanding media regarding pesticides like Roundup and other chemical interventions and wonder if they are bad for us.

Washington State University (WSU) has a deep infrastructure in researching what’s bugging our crops. The WSU Extension Dryland Cropping Systems Team offers disease,

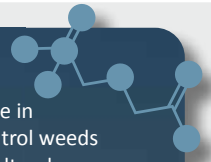
soil and water, insect, and weed resources for wheat farmers and the collective industry. They deal in wheat and small grains and collaborate with educators and faculty. According to smallgrains.wsu.edu, “Together, they work to efficiently coordinate and deliver educational information and resources to dryland crop producers. The team includes specialists in plant pathology, entomology, weed science, soil fertility, economics, agronomy, variety selection, and communications.” In other words, they take a science-based approach to understanding and supporting crop producers.

Ben Barstow, a 30-year grower, commissioner, and chairman of the WGC, also takes a scientific approach to farming. Barstow has a bachelor’s degree in plant protection from the University of Idaho, a master’s degree in entomology, and is interested in the chemistry of soil and plants. He also maintains a private pesticide applicator’s license for Washington.

Barstow said crops, weeds, insects, and diseases change or evolve from season to season, as does their susceptibility to pesticides. “These all are living organisms that continue to evolve and change,” he said. When Barstow started farming, “There was a steady flow of new chemistry that we could count on to solve pest problems,” referring to the new pesticides discovered and commercialized between the end of WWII and the 1980s. He said only one new product has been released since then, and “what worked five years ago is probably not going to work five years down the road” due to ongoing evolution. He said that pest control products have been vilified, and none of the growers he knows like to use them, but everyone wants to produce safe, clean, high-quality food.

“And we need pest control products to do that. Everyone is looking at alternatives besides chemistry to control these things. I’d rather use a disease-resistant wheat variety and not use a fungicide; that’s an extra cost,” he explained. Barstow has leaned on using new wheat varieties bred for disease and pest resistance but said it is not a replacement for using pesticides. But he also uses these products safely as directed by the pesticide label.





Glyphosate is EPA approved for use in products such as Roundup® to control weeds in both agricultural and non-agricultural settings.

- 1974 ○ Glyphosate was first registered.
- 2009 ● U.S. Environmental Protection Agency (EPA) initiated registration review for glyphosate.
- 2015 ● EPA reexamined the carcinogenic potential of glyphosate.
- 2021 ○ The latest biological evaluation was released in November.

What is ROUNDUP?



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The Washington State Department of Agriculture (WSDA) manages the safe use of pesticides in Washington. They offer the required licensing and recertification for growers along with pesticide compliance programs. There are four key program managers for pesticides in the WSDA; we spoke to two of them: Christina Zimmerman and Scott Nielsen. They help educate, license, and regulate state pesticide use. Zimmerman’s role includes initial licensure and continuing recertification of pesticide applicators, distributors, consultants, and structural pest inspectors. Her program administers pesticide licensing exams, maintains exams, and accredits courses for continuing education credits.

There are 33 exams in the state, with six available in Spanish. Zimmerman said her program has 10 staff members and oversees 24,000 active licensees in Washington. Nielsen’s group has about 20 staff members, including field investigators, quality assurance, administration, and others.

Nielsen’s compliance staff conducts inspections and complaint investigations of pesticide storage, distribution, and applications across the state and enforces state and federal regulations.

Becoming licensed and maintaining a license for the safe use of pesticides comes with coursework, continuing education credits, and testing. Also, those licensed may be subjected to an audit of their practices by WSDA.

Both Zimmerman and Nielsen said the management and regulations are for human health and environmental protection. They said that if not used safely, per the label, and with personal protective equipment, pesticides can impact health and the health of others, including the agricultural community and others in the supply chain. Because they regulate pesticide use, it helps water and soil stay safe and contributes to the safety of the applicators, laborers, and their families. ▶

Is ROUNDUP safe?



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Labels change as new knowledge is collected. *It is important for growers to follow **label instructions 100% of the time.**

Fear often overrides the message that glyphosate is safe when used in accordance with its current label.

“The U.S. Environmental Protection Agency (EPA) continues to find that there are no risks to public health when glyphosate is used in accordance with its current label.”

What is the EVIDENCE?



Due to its widespread use, trace amounts of glyphosate residues may be found in various fresh fruits, vegetables, cereals, and other food and beverage commodities. However, these trace amounts are not of concern for the consumer.

EPA conducted a highly conservative dietary risk assessment for glyphosate that evaluated all populations, including infants, children, and women of child-bearing age. EPA scientists performed an independent evaluation of available data for glyphosate and found:

- 1 No risks of concern to human health from current uses of glyphosate.
- 2 No indication that children are more sensitive to glyphosate.
- 3 No evidence that glyphosate causes cancer in humans.
- 4 No indication that glyphosate is an endocrine disruptor.

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“The greatest risk is to the person mixing and loading the sprayer because they are handling the concentrate,” Barstow echoed. “But the toxicity of the concentrate on some of these products is similar to table salt. Everything else is exposed to the diluted volume.”

He shared that GPS guidance greatly reduces pesticide overapplication when farmers spray a field. “It’s a huge improvement. With GPS-guided and controlled sprayers, if the boom overlaps where you have already been, it stops spraying — it saves 5-7% of a pesticide product. Cost-wise, buying the GPS equipment only takes two to three years to pay off.” Barstow loves having the GPS guidance because it eliminates guessing and overapplication. He tells his grandkids, “It’s like driving Mario Kart all day long ... except there are no explosions.” New tractors and combines are self-driving using satellites, complex computer systems, and the Internet.

“We use herbicides designed to kill plant cells,” Barstow said. Being able to disrupt the chemistries of certain cells but not others is the science of pesticides, herbicides, and

insecticides. The chemical pathway targets of herbicides are often not the same chemical pathways found in human or animal physiology. “Animals won’t be harmed by many of the herbicides being used. Animals like mice, birds, dogs, and cats don’t care.”

Barstow uses modern wheat varieties. He also uses certified seed. He said herbicides are still used, but he uses them safely and per his licensure with the state. He said that Roundup is only active when sprayed on plants; it becomes inert once it contacts the soil. Also, each year, he assesses the chemistry of his soil to determine which inputs and exactly how much of each to apply. Getting the input variables right is part of the formula that maximizes our yield and economic potential, allowing the U.S. to be a top contributor to dinner tables around the globe.

Barstow said bakers and wheat flour millers need high-quality wheat with consistent performance to produce consistent food products. He is proud to grow safe, dependable, and reliable high-quality wheat that helps feed the world. ■

