

Post Rock Extension District Column

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Crop Production Agent

What are the risks of planting wheat early?

Producers will soon be drilling their 2022 wheat crop and it is always interesting to watch when drilling begins in north central Kansas. Because of our earlier soybean harvest in some fields, producers may be looking to start putting the wheat seed in the ground a little earlier than usual. But waiting may be a better choice!

The **general target date for planting wheat** for optimum grain yields in Kansas is within a week of the best pest management planting date, or BPMP (formerly known as the “Hessian fly-free”) date. If grain yields are the primary goal, then waiting until the BPMP date to start planting is the best approach. Our optimum wheat planting dates for north central Kansas range from September 15 to October 20. The **BPMP dates** for the Post Rock Extension District ranges from September 29 in Jewell and Smith counties to October 4 in Lincoln with Osborne and Mitchell counties in between those dates.

In some years, earlier-planted wheat does best and some years the later-planted wheat does best. For instance, early-planted fields in recent years have had a better final stand as compared to later-planted ones in western Kansas, mostly due to lack of moisture for later planted fields. If fields become too wet to plant by mid-October and stay that way through the remainder of the fall, then producers end up planting much later than the optimum planting date, and this is an incentive to start planting earlier than the BPMP or fly-free date if soil conditions are good. Ideally, producers should not start planting much earlier than the BPMP date, which can seem quite late in some areas of the state.

Below are several problems can arise from planting too early:

⇒ **Increased risk of wheat streak mosaic and related diseases.** Wheat curl mites survive over the summer on living plant tissue of volunteer wheat and certain other grasses. As soon as those host plants die off, the wheat curl mites leave and start searching for a new source of living plant tissue. Dr. Kelsey Andersen Onofre, K-State Research and Extension Plant Pathologist, reminds producers, “Wheat that is planted early is likely to become infested, and thus become infected with wheat streak mosaic, high plains virus, or the Triticum mosaic virus.” The wheat curl mites can normally move about a half mile or sometimes up to 2 miles through the air before dying, so if wheat is planted early, **make sure all volunteer wheat within at least a half-mile is completely dead at least two weeks before planting.** With some fields receiving moisture, it might be a good idea to scout your fields.

⇒ **Increased risk of Hessian fly.** “Over the summer, Hessian fly pupae live in the old crowns of wheat residue,” according to Dr. Jeff Whitworth, K-State Research and Extension Entomologist. After the first good soaking rain in late summer or early fall, these pupae (or “flaxseed”) will hatch out as adult Hessian flies and start looking for live wheat plants to lay eggs on. They are most likely to find either volunteer wheat or early-planted wheat at that time. After the BPMP date, many of the adult Hessian fly will have laid their eggs, so there is generally less risk of Hessian fly infestation for wheat planted after that date. Hessian fly adult activity has been noted through November or even early December in Kansas.

⇒ **Increased risk of barley yellow dwarf.** The vectors of barley yellow dwarf are greenbugs and bird cherry-oat aphids. These insects are more likely to infest wheat during warm weather early in the fall than during cooler weather. There are 25+ species of aphids capable of vectoring barley yellow dwarf of which bird cherry oat aphids and greenbugs are probably the most common in Kansas.

⇒ **Increased risk of excessive fall growth and excessive fall tillering.** Dr. Romulo Lollato, K-State Research and Extension Wheat and Forage specialist, stresses that for optimum grain yields and winter survival, the goal is for wheat plants to head into winter with established crown roots and 3-5 tillers. Wheat that is planted early can grow much more than this, especially if moisture and nitrogen levels are good. If wheat gets too lush in the fall, it can use up too much soil moisture in unproductive vegetative growth and become more susceptible to drought stress in the spring if conditions are dry.

⇒ **Increased risk of take-all, dryland foot rot, and common root rot.** Take-all is usually worse on early-planted wheat than on later-planted wheat. So one of the ways to avoid dryland foot rot is to avoid early seeding. Early planting promotes large plants that more often become water stressed in the fall predisposing them to invasion by the fungi. Early planting of wheat also favors common root rot because this gives the root rot fungi more time to invade and colonize root and crown tissue.

⇒ **Grassy weed infestations become more expensive to control.** If cheatgrass, downy brome, Japanese brome, or annual rye come up before the wheat is planted, they can be controlled with glyphosate or tillage. If wheat is planted early and these grassy weeds come up after the wheat has emerged, producers will have to use an appropriate grass herbicide to control them.

⇒ **Germination problems due to high soil temperatures.** Generally, early planted wheat is drilled in hotter soils, which could be a problem as some varieties won't germinate when soil temperatures are greater than 85°F. “If planting early, it is important to select varieties that do not have high-temperature germination sensitivity and plant sensitive varieties later in the fall,” according Lollato. According to the KSU Mesonet Weather Data Library at our 3 weather stations in Jewell, Mitchell and Osborne Counties, the average 2 and

4-inch soil depth temperatures have averaged 74-75 degrees F. over the last week. So we may be okay this year, with the cooler soil temperatures at this time.

⇒ **Germination problems due to shortened coleoptile length.** Even though we have been fortunate with the cooler air temperatures, Mother Nature could bring a different climate before wheat planting begins. Hotter soils tend to decrease the coleoptile length of the germinating wheat. Therefore, deeply planted wheat may not have a long-enough coleoptile to break through the soil surface and may result in decreased emergence and poor stand establishment. Because of the shortened coleoptile length, it is preferable to dust the wheat in at a shallower depth (3/4 to 1-inch deep) when early planting wheat than trying to reach moisture in deeper layers if soil moisture is absent from the top inch of the soil profile.

If you have further questions on wheat production, contact me at any Post Rock Extension District Office in Beloit, Lincoln, Mankato, Osborne or Smith Center.

Post Rock Extension District of K-State Research and Extension serves Jewell, Lincoln, Mitchell, Osborne, and Smith counties. Sandra may be contacted at swick@ksu.edu or by calling Smith Center, 282-6823, Beloit 738-3597, Lincoln 524-4432, Mankato 378-3174, or Osborne 346-2521. Join us on Facebook at "Post Rock Extension" along with our blog site at "postrockextension.blogspot.com. Also remember our website is www.postrock.ksu.edu and my twitter account is @PRDcrops.