

According to the most recent USDA report released on October 16, about 64% of Kansas wheat has been planted this fall, which is near the 5-yr average of 66%. However, some producers may have delayed planting for different reasons, including harvesting a summer crop during late October or, especially during this growing season, dry soils and waiting for significant precipitation to occur. Planting wheat in late October-early November is within the acceptable range in southeast and far south-central Kansas. In other areas of the state, this is later than desirable, and later than the cutoff date for full crop insurance benefits. Although good yields may still be reached when wheat is planted outside the optimal planting window, late-planted wheat is often subjected to colder fall temperatures and has less time to tiller prior to winter dormancy (Figure 1), which can reduce wheat yield potential and increase the risks of winter injury

Under these circumstances, some management adjustments can be made to try to compensate for the consequences of late planting. These adjustments include:

Increase seeding rate

Late-planted wheat tends to produce fewer tillers during the fall than wheat planted at the optimal time. Fall tillers are generally more productive than spring tillers, contributing more to the crop’s yield potential. Therefore, there is a need to compensate for the reduced tillering by increasing seeding rates. Wheat seeding rates for Kansas vary depending on the precipitation zone, and increase from west to east (Table 1). Likewise, every week planting is delayed from the end of the range of optimal planting date, seeding rates should be increased by about 150,000 – 225,000 seeds per acre (or 10 to 15 lb/acre) in western Kansas, or 225,000 – 300,000 seeds per acre (15 – 20 lb/acre) in eastern Kansas. Final seeding rate should not be above 90-100 pounds per acre in western Kansas and 120-130 pounds in eastern and central Kansas for grain-only wheat production, as extremely high seeding rates can increase the potential for lodging and increase crop water demand early in the cycle, possibly resulting in more severe drought stress later during reproductive stages (this is referred to as ‘haying off’).

Region within Kansas	Seeding rate for grain-only wheat production, assuming optimum planting date			
	seeds/acre		seeds/sq. ft.*	
	Min.	Max.	Min.	Max.
Western	750,000	900,000	17	21
Central	900,000	1,125,000	21	26

Eastern	1,125,000	1,350,000	26	31
Irrigated	1,200,000	1,500,000	28	34

*To determine row length needed for one square foot based on row spacing, divide 12 by the row spacing of your field. For example, if row spacing is 7.5 inches, $12/7.5 = 1.6$ feet, or 19.2 inches of row are needed to be equivalent to one square foot.

Maintain the optimal planting depth (1 to 1.5 inch deep)

Wheat needs at least 4-5 leaves and 1-2 tillers prior to winter dormancy for maximum cold tolerance. Late-planted wheat will most likely have fewer tillers and leaves than wheat planted at the optimal timing, and therefore will be more susceptible to winter kill. It is important to plant wheat at the normal planting depth (1 to 1.5 inches below the soil surface) to ensure good root development and anchorage, as well as good crown insulation by the soil during the winter, increasing the chances of winter survival. Shallow-planted wheat is at greater risk of winter injury. If the seed is placed too deeply, it may not have enough vigor in cold soils to emerge well.

Place starter phosphorus (P) fertilizer with the seed

Phosphate-based starter fertilizer promotes early-season wheat growth and tillering, which can help compensate for the delayed sowing date. Additionally, P is less available under colder soil temperatures, which can result in P deficiency under cold weather conditions. When planting late, producers should strongly consider using about 20-30 lbs/acre of P fertilizer directly with the seed, regardless of soil P levels. This placement method is more effective at that time of year than other application methods. The later the planting date, the more fall root development is slowed. The closer the fertilizer is to the seed, the sooner the plant roots can get to it. The three situations when in-furrow P is considered "money in the bank" are (i) late-planted wheat crops, (ii) wheat crops planted for grazing, and (iii) wheat planted into acidic soils.

Use fungicide seed treatment or plant certified seed

Late-planted wheat is sown into colder soils, which generally increases the time needed for germination and emergence to occur. As a consequence, there is increased potential for seed and soil-borne diseases that affect seedlings and early-season wheat development. Fungicide seed treatment can protect the seed and seedling during the extended time it is subjected to potential seedling diseases, improving stand establishment under poor growing conditions. It is important that the seed treatment thoroughly coat the seeds to ensure good protection. For fungicide seed treatment options, please refer to the most current version of K-State fungicide seed treatment chart available at our Southwind Extension offices.

Variety selection

It is probably too late to make any changes as far as which wheat variety to plant this fall. However, a few points to consider when it is known that wheat will be planted late (e.g. when planning to sow wheat following soybeans) are tillering ability and maturity. A variety that has good tillering ability may offset some of the consequences of late planting, as it might still be able to produce one or two tillers during the fall whereas a low-tillering variety may produce none. Some varieties are known for not tillering well in the spring and requiring good fall tiller production (for example, the variety Everest). Avoid planting these varieties in fields that will be planted late. Also, late-planted wheat is typically behind in development going into the winter, which might translate into slower development in the spring. This delay can result in plants being exposed to moisture stress and especially heat stress during grain filling, reducing the duration of the grain filling period. Thus, selecting an early-maturity variety with good yield potential may offset to some extent the consequences of late planting by decreasing the chances of a grain filling period subjected to warmer temperatures. Many K-State wheat variety trials are planted late after a previous soybean crop. A good way to select a variety to perform under these conditions is to filter through the results of these variety trials and select varieties performing well in your region, when planted late.

For more information on wheat planting, contact Chad, crop production and forage management agent, at any Southwind Extension District office.