



Wheat Management to Maximize Yield Potential

Need Adequate Stands for Top Production

- Stand establishment is critical for achieving high yields and having good weed control. Seeding rates should consider the amount of seeds per acre rather than pounds of seed per acre. Rates from 1.2-1.8 million seeds per acre should be acceptable depending on tillage and planting date.
- Stand establishment of 27-35 plants/ft² with 3-5 tillers/plant is optimal. To maximize potential yield, there should be at least 40 heads/ft², with the optimum numbers between 60 and 80 heads/ft². Final stands of 15-18 plants/ft² or less are candidates for replanting to corn or soybeans.
- Rule of thumb for yield potential: 1.3-1.6 bu/acre per head/ft².

Nitrogen Management

- Wheat uses 1.1-1.5 pounds of nitrogen for each bushel of expected yield and utilizes 70-75% of the total nitrogen requirement between Feekes growth stages 6 and 10 (Photos on next page). The greatest amount of nitrogen should be available at that time.
- 70+ tillers/ft², apply nitrogen at Feekes growth stage 4-5 (prior to jointing).
- 100-140 lbs/acre of nitrogen spring-applied is recommended.
 - High rates of nitrogen may cause lodging in certain varieties. Avoid overlaps in application.
 - If a high rate of nitrogen is planned, consider a split application of 40 lbs/acre before green up and another 60 lbs/acre at Feekes growth stage 4-5 (prior to jointing).
- Do not delay nitrogen application on a marginal stand of wheat. If stands are thin and tiller counts are low, an early application of nitrogen can induce tillering and consequently increase the number of heads/ft². In this situation, a split application may help. Apply 60 lbs/acre of nitrogen for a first application (before greenup) and another 40 lbs/acre at Feekes growth stage 4-5 (before jointing).
- A split application of nitrogen is suggested and has shown positive yield results, especially on light or sandy soils.
- Nitrogen application rates may be reduced if fields have a history of manure application.
- If a stand is destroyed, credit 50-75% of applied nitrogen to a subsequent corn crop (depending on growth stage).
- **What form of nitrogen should be used?** The form of nitrogen is not as important as how accurately it is applied. Apply a uniform rate across the entire application width and avoid application methods that may burn the leaves which could reduce yield (such as 28% solution applied with herbicides). Common forms of nitrogen used include: ammonium sulfate, urea, and 28% solution.

Table 1. Recommended topdress nitrogen fertilizer rates for wheat at various yield levels and soil textures.

Cation Exchange Capacity	Nitrogen Rate when Yield Goal (bu/acre) is:					
	30-44	45-54	55-64	65-74	75-85	>85
meq/100 g	lbs/acre					
<6	50	60	70	80	90	100
6-10	40	50	60	70	80	100
11-30	30	40	50	60	70	90
>30	20	30	40	50	60	60

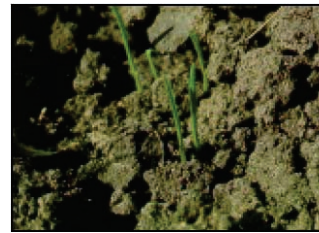
Source: Purdue University

Pest Management

- **Insects:** Scouting is critical. If aphid populations exceed thresholds (10 per foot of row with early green up and good conditions) a treatment should be applied to protect from barley yellow dwarf virus (BYDV).
- **Diseases:** A good crop with high yield potential and high wheat prices will increase the probability of an economic benefit to fungicide application. 100+ bu/acre wheat is thick and does not get a lot of air movement within the canopy—a perfect environment for disease if the weather also remains wet and provides a favorable environment for disease.
- Apply DuPont™ Aproach® fungicide at 3-4 fl oz/acre between tillering and jointing for early-season disease control/suppression.
- For optimal yield and flag-leaf disease control, apply DuPont™ Aproach® Prima fungicide at 6.8 fl oz/acre at Feekes stage 9.
- **Weeds:** Start clean, stay clean! Keep fields clean early and do not let weeds get too big. Use a burn down herbicide well before planting in no-till environments to eliminate weeds and volunteer corn. Use multiple tillage passes in a conventional tillage program if needed to start clean. The best weed control after seeding is a good stand of wheat.
- Recommendation: Quelex® herbicide with Arylex™ active. Apply 0.75 ounces of Quelex herbicide per acre to actively growing wheat from 2-leaf to flag leaf emergence stage. For best results, apply when weeds are actively growing in the 2 to 4 leaf stage or less than 4 inches tall. Be sure to read and follow all label directions.
- Do not apply a total of more than 0.75 oz of Quelex herbicide per acre per season. Consider the fall weed management program before proceeding with spring treatments.
- Consult your local Pioneer sales professional or Corteva Agriscience crop protection representative for local, specific recommendations.

Feekes Scale

Stage	Scale
Tillering	1-5
Stem Extension	6-10
Heading	10.1-10.5
Flowering	10.5.1-10.5.4
Ripening	11.1-11.4



Seedling emergence
Feekes 1.0



Beginning of tillering
Feekes 2.0



Tillers formed
Feekes 3.0



Beginning of erect growth
Feekes 4.0



Leaf sheaths strongly erect
Feekes 5.0



First node visible
Feekes 6.0



Second node visible
Feekes 7.0



Flag leaf visible
Feekes 8.0



Ligule of flag leaf visible
Feekes 9.0

Source: Texas Agricultural Extension Service; The Texas A&M University System.



Boot stage **Feekes 10.0**

- 10.1 Awns visible; heads emerging through slit of flag leaf sheath
- 10.2 Heading ¼ complete
- 10.3 Heading ½ complete
- 10.4 Heading ¾ complete
- 10.5 Heading complete
 - 10.5.1 Beginning flowering
 - 10.5.2 Flowering complete to top of spike
 - 10.5.3 Flowering complete to base of spike
 - 10.5.4 Kernels watery ripe



Ripening stage **Feekes 11.0**

- 11.1 Milky ripe
- 11.2 Mealy ripe
- 11.3 Kernel hard
- 11.4 Harvest ready