

Winter Wheat Grower's Quick Guide



Figure 1. Slake test proxy for water stable aggregates. Left to right: Alfalfa, CCSW(rc)-NT, CCSW(rc)-CT, CCCC-CT, CCSS-NT, and CCSS-CT. NT=No-till, CT=Conventional till, C=corn, S=soybean, W=wheat, rc=red clover. Photo credit: Bill Deen, Univ. of Guelph

Current issue

Soil health (biological, physical, and chemical) has been a popular focus with emphasis on utilizing no-till and cover crops in eastern Nebraska. However, **a more diverse crop rotation is often left out of the discussion as a way to improve soil health.** The corn-soybean rotation is the most widely utilized cropping system in southeast Nebraska. Despite the potential benefits adding a third or fourth crop to this rotation to improve soil health, few farmers in southeast Nebraska have because of various adoption barriers. Winter wheat is a strong consideration to be added to the rotation in southeast Nebraska.

Crop rotation benefits

A diverse crop rotation along with:

- No-till, cover crops, and livestock integration

Two long-term (14 & 15 years) crop rotation studies in the Midwest have shown that **including winter wheat into the corn-soybean rotation** results in the following **improvement in soil health:**

1. **Increase in water stable aggregates** (most sensitive and best single indicator of soil physical health, example in Figure 1)
2. **Higher total nitrogen (N), potentially mineralizable N in soil, and N use efficiency**
3. **Reduced N rates** needed in corn for maximum economic return
4. **Higher yields in corn and soybeans**

These aspects of soil health were increased by adding wheat into the rotation regardless of the tillage system,

conventional and no-till. The dense fibrous root system of wheat and nitrogen derived from wheat root deposits is likely the cause of these measurable differences.

Overcome barriers to adding wheat

- Improve economics by capturing good basis (Lincoln & Fremont), selling straw, growing forage crops after wheat, higher corn and soybean yield in rotation, and USDA program payments
- Improve logistics with only having 1 or 2 fields by using custom drilling and harvesting
- Reduce learning curve of growing wheat through new website, peer-learning group, and working with cropping systems extension educators

Management throughout the year

The winter wheat grower's quick guide for southeast Nebraska is organized by each major portion of the growing season.

► Preplant preparation (Aug. – Sept.)

- Attend the Southeast Nebraska Alfalfa & Wheat Expo: croptechcafe.org/alfalfawheatexpo
- Get the latest UNL variety testing results at cropwatch.unl.edu/varietytest
- Use the head-to-head variety analysis tool at ramwheatdb.com
- **Current variety recommendations:**
 - AP-Bigfoot, CP7017AX, Paradise, Rock Star, Ruth, Siege, SY-Wolverine, Ruth, LCS-Valiant, WB4401, WB4699
 - New to try - AP Prolific & WB4422
- Get certified seed! View variety choices by dealer: necrop.org/publications#seedbook
- Contact seed dealers in August and request fungicide-treated seed.
- Use the Excel-based Crop Tech Cafe Seeding Rate Calculator at croptechcafe.org/winterwheat to help determine total bags/units needed.

► Planting & tillering (Sept. – Dec.)

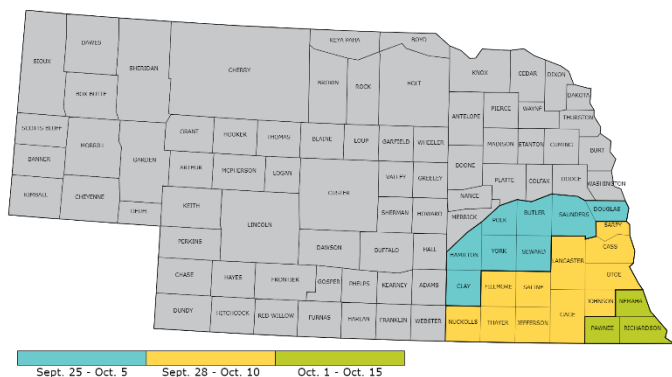


Figure 2. Target planting window by county (variation possible depending on various factors)

- Increase seeding rate from 1.2 - 1.35 million seeds/acre to 1.5 or 1.8 million seeds/acre for two- or three-weeks delays after target window, respectively.
- Plant wheat no-till at 1.5-inches deep in row width of 7.5 or 8 inches. Ensure adequate depth control with down-force and drill weight.
- Fall fertilizer – Nitrogen (10 – 30 lbs/acre), phosphorus (apply if soil test less than 25 ppm at 8" depth), sulfur (20 lbs of S/acre), and chloride (20 lbs Cl/acre). Strongly consider drills with option for starter P (10-34-0) fertilizer.

► Winter dormancy (Dec. – Feb.)

- Attend educational programs offered by Nebraska Extension. View cropwatch.unl.edu to keep up to date on opportunities.

► Greenup & tillering (Feb. – April)

- Assess winter survival and stand at spring greenup, utilize 1/10,000 of grid estimation – learn more at croptechcafe.org/winterwheat
- Apply topdress N fertilizer (include S and Cl if not fall applied). Recommend applying 80 to 120 lbs N/acre for the season (include fall N). Adjust rate and timing based on yield potential, weather, wheat growth, variety, protein market, soil contribution, & other factors.
- Do not apply UAN, ATS, and herbicide as a mix due to risk of serious crop injury. Apply herbicide separately from fertilizer prior to jointing for crop safety. Apply liquid nitrogen when temperatures are in the 70s or lower.

► Jointing to boot (April – May)

- Scout regularly for stripe and leaf rust and spray fungicide to protect leaf area, especially the flag leaf.
- View the weekly UNL Stripe and Leaf Rust Tracking Map at cropwatch.unl.edu/plantdisease/wheat
- Plan for fall, consider soybean/corn planting date, maturity, and herbicide program to allow for timely wheat planting.

► Heading to grain fill (May – June)

- Strongly consider spraying a foliar fungicide within 7 days of early flowering (Feekes 10.5.1) to protect against Fusarium head blight and provide residual activity for rusts. Use Caramba, Proline, Prosaro, Prosaro Pro, Miravis Ace, or Sphaerex. Learn more about ground and aerial application recommendations at croptechcafe.org/winterwheat
- Attend UNL wheat variety trial tours in June. Visit cropwatch.unl.edu for dates and locations each year.

► Harvest (June – July)

- Make adjustments to the combine to minimize harvest losses. Plan ahead! Work with the local equipment dealer or an experienced wheat grower if needed.
- Check local grain bids due to large variation in local basis and trucking cost. Lincoln and Fremont elevators can have a positive basis.
- Bale and sell straw for increased revenue followed by seeding a cover crop. Find current straw price at croptechcafe.org/hay-prices/

► Post-harvest (July – Aug.)

- Consider controlling volunteer wheat and emerged Palmer amaranth/waterhemp prior to planting a forage or cover crop.
- Seed alfalfa in August after wheat versus in the spring after soybeans.
- Switch to seeding a cool season cover crop mixture in early August.

For more information

Nathan Mueller, PhD, CCA
Water & Cropping Systems Extension Educator
Gage, Jefferson, and Saline counties
402-821-2151 or nathan.mueller@unl.edu

Wheat resources for southeast Nebraska at croptechcafe.org/winterwheat