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## Winter Wheat Planting and Fertility Considerations

Proper winter wheat fertility management can help to optimize growth and yield by promoting good fall growth, adequate fall tiller development, vigorous stem elongation and seed head development. Good fall growth plays a pivotal role in determining the following year's wheat yield. Wheat develops through all four seasons, so there are several factors that may limit yield potential. Five factors to consider this fall to help maximize yield potential include: 1) planting into a weed-free seedbed; 2) planting date; 3) seeding rate; 4) planting depth; and 5) fertility management.

Wheat should be planted into a weed-free seedbed, which can be accomplished through fall tillage or herbicide burndown applications. Herbicide chemistries such as paraquat, glyphosate and saflufenacil are good burndown options. Saflufenacil works well on controlling marehail and will provide residual control but should be tank mixed with either paraquat or glyphosate when applied in a burndown application for controlling other weed species. Burndown herbicides will help control emerged winter annual weed species in no-till operations. Scouting throughout wheat development can trigger a timely herbicide application to control winter annual, summer annual and perennial weeds. It is very important to pay attention to wheat growth stages prior to applying herbicides to avoid crop injury. A good resource to consult for herbicide control options in winter wheat, is the 2024 Ohio, Indiana, Illinois, and Missouri Weed Control Guide. <https://tinyurl.com/weedguide24> Always read and follow herbicide label directions before making an application.

Missouri wheat planting dates are set based upon the Hessian fly-free date. This fly free period typically starts at the end of September to the end of the first week of October for northeastern Missouri. The planting window ranges from late September to mid-November in Missouri. Planting too early can lead to over production of fall growth, an increased risk of winter kill, an increased risk of Hessian fly and/or aphid injury, as well as an increased risk of aphid vectored wheat diseases such as barley yellow dwarf virus. Planting significantly later than the fly-free date will lead to poor fall development of the crops root system and poor stand tillering before winter dormancy. The less tillering in the fall, the less grain will be available to harvest the following summer as number of tillers directly affects the number of seed heads produced per individual plant.

Planting population should be between 1.3 and 1.5 million seeds per acre, which equates to between 74 and 119 pounds of seed planted per acre, depending on thousand kernel weight. If ideal planting conditions are present, a lighter seeding rate may be sufficient; however, if poor conditions are present, particularly while using no till practices or if planting is significantly delayed, it is justified to move to a heavy seeding rate.

Wheat should be planted 0.5 to 1.5 inches deep, depending on soil moisture.

Planting wheat too shallow may cause uneven germination and poor stand establishment, especially under dry conditions. Planting too shallow can lead to heaving of seedlings with the freezing and thawing of the soil. Planting wheat too deep may cause leaves to open prematurely underground, reduce adequate tiller numbers, and poor winter survival.

Tillering primarily occurs during the fall between planting and dormancy and again for a month in the spring. Tillering is heavily driven by nitrogen availability. Nitrogen must be in adequate supply before jointing occurs. A 20-pound application of nitrogen supplied through a fall application of monoammonium or diammonium phosphate should supply enough nitrogen for fall growth. A heavy rain within a week or two of planting on sandy soils may lead to nitrogen moving away from the seedling's root zone so another 20-pound application may be helpful. Phosphorus availability is lower in cold weather, so a fall application of nitrogen and phosphorus at the same time is very helpful. Phosphorus and potassium should be applied according to soil test and yield goals. Going into winter dormancy, an ideal number of tillers is 70-100 tillers per square foot. If the stand tiller number falls below 70 per square foot, a spring application of nitrogen at Feekes 2-3 (at green up) is advisable. If tiller numbers are adequate, nitrogen should be applied at Feekes 5 as close to Feekes 6 (jointing) as possible. (for more information see Management of Soft Red Winter Wheat IPM 1022 <https://extension.missouri.edu/publications/ipm1022>)

Applying spring nitrogen at Feekes 2-3 (at green up) in a wheat stand that has adequate tillering will promote excess growth leading to an increased risk of stand lodging and disease. Making split applications of nitrogen may be helpful in reducing nitrogen loss, particularly in sandier soils. For split applications, consider applying 30 to 60 pounds of nitrogen on at Feekes 2-3 (At green up) followed by applying the remainder at Feekes 5 (just prior to jointing). It is important to consider using urease inhibitors when top dressing urea due to its relatively high volatilization rate once it makes soil contact. Total nitrogen application for the entire wheat growing season typically ranges 90 to 150 pounds per acre. Variety, weather, and desired yield will drive nitrogen application rates.

The highest rate of total nutrient uptake, not just nitrogen, is between jointing and flowering. For wheat following a corn crop, a tissue test is advisable to select the proper nitrogen fertilizer rate that needs to be applied. These tissue samples should be taken just before jointing, at the point when there is a small

hollow cavity at the base of the wheat stem. Yield responses to additional phosphorus and potassium fertilizer when soil test levels are adequate are unlikely to be observed.

#### References:

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- Ohmes, A. No date provided. Wheat Management. University of Missouri-Columbia.
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- Vitosh, M.L. 2016. Wheat Fertility and Fertilization. Michigan State University.

Source: *Nick Wesslak, agronomy specialist*

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## Harvest Brings on Stress on the Farm

During harvest season, there are two important phone numbers farmers should remember to call for help – 911 and 988, according to University of Missouri Extension health and safety specialist Karen Funkenbusch.

The 911 number is essential because fall harvest is when too often-fatal farm accidents occur – grain bin accidents and equipment encounters with power lines.

In addition to 911, farmers should commit the “988” Suicide & Crisis Lifeline to memory. The 988 number provides free and confidential support for people in distress, as well as prevention and crisis resources.

The lifeline provides support 24 hours a day, 7 days a week, which is important to farmers. Stress occurs on the farm early mornings when equipment breaks or workers do not show up. It can also occur late at night when farmers lie awake worrying about the days' events. It can happen when weather prevents work or yields or prices disappoint despite long hours of work.

Funkenbusch stresses that everyone plays a role in suicide prevention. Remember the 988 number and share it with family and friends.

MU Extension has compiled mental health resources for consumers and professionals. These resources also

include **free telehealth counseling by a trusted professional who understands agriculture**. Services are available for any Missouri farmer, rancher or immediate family member over 16 years of age. Call Connect.2 Chat™ 573-882-4677 or visit [muext.us/PCSFarmRanch](http://muext.us/PCSFarmRanch) or email [adpsc@missouri.edu](mailto:adpsc@missouri.edu).

Also, a list of resources is available through MU Extension and partners at <https://tinyurl.com/MU-mental-health-awareness>.

**Source:** *Karen Funkenbusch, extension instructor*

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## Preparing Garden Plants for Winter

As fall comes to a close, and gardeners prepare for winter, there are several things that one should do to protect plants. Cover spinach, lettuce, kale and other leafy greens with row cover when temperatures fall below 28 degrees. By covering on cold nights in November and December, the harvest season on these crops can often be extended until the new year. Usually by January, temperatures have reached single digits, and these crops have stopped producing. Keep them covered through the winter. By the end of February, spinach will be ready to harvest again, and will keep producing through mid-May, when the heat causes it to die.

Strawberry plants are susceptible to cold injury. Temperatures below 15° F may damage the roots and crowns of unprotected plants. Repeated freezing and thawing of the soil through the winter months can heave unprotected plants out of the soil and cause considerable damage. Apply 4-5 inches of straw mulch over strawberry beds in late November or early December. Allow strawberry plants to harden or acclimate to cold temperatures before mulching the bed. Remove the straw in mid to late March in northeast Missouri.

Roses, particularly hybrid teas, need winter protection. After several hard freezes, mound soil 6-10 inches around the crown of the plant and place evergreen boughs, straw or other organic material on top. Protect lavender plants with row cover after several freezes, usually by mid-December. The key to protecting lavender, is keeping moisture out of the woody stems. Snow and rain can cause woody stems to split when the moisture freezes. Row cover protects plants from moisture and splitting which will cause the plant to die.

Wrap the trunks of young, thin-barked trees like maples and fruit trees with a light-colored tree wrap. This protects the trees from sunscald injury, also known as Southwest injury. This is an injury that occurs on the southwest side of the tree and cause it to split open. Trees suffering from Southwest injury often die. Native trees do not need to be wrapped. They tend to be hardier and do not suffer from this injury like non-native trees. Use a cylinder of wire mesh to protect the trees from rabbits and other rodents that will gnaw on the bark of the trees when food sources become scarce. The cylinder wire needs to be at least 18 inches tall and be pressed into the ground at a depth of 1-2 inches.

Leave the stalks of dead perennials like coneflower and black-eyed Susans for the birds to feed on, and for beneficial insects to overwinter in the hollow stems. This is opposite of what used to be recommended. Research has found that many bees and beneficial insects overwinter in leaves and dead flower stems. It is now recommended to cut back plants and rake leaves out of flower beds in the spring, unless large and will mat down and suffocate plants when wet.

Many plants provide winter interest in the landscape and can be used to make holiday planters for displays. Red-twigged dogwood, holly, winterberry, cedar, boxwood, buckbrush (also known as coral berry) and many other plants including pines, spruces, junipers that produce cones, berries or pods provide different colors and textures to outdoor holiday container displays.

If growing orchids, water once a week with warm water. This is opposite of what the tag in purchased plants say to do. Some tags in orchid containers will say to add three ice cubes once a week. Orchid roots do not like ice or cold water. Cold water can damage the roots. Avoid getting water in the crown of the plant. Wipe it off if it gets down in it. During the fall and winter, orchids should receive orchid bloom fertilizer. Switch to high nitrogen orchid fertilizer in the spring and summer. Read and follow the fertilizer directions exactly, so not to overfertilize or burn the roots. Orchids also need about a 15-20 degree difference in night and day temperature. This can be achieved by placing the plants outside during the fall. Bring orchids inside when temperatures fall below 45 degrees. Orchids should bloom in February and remain in bloom for about four months. When finished blooming, cut off the flower stalk. Repot orchids in the spring every other year or when roots begin to grow outside the pot.

**Source:** *Jennifer Schutter, horticulture specialist*

## Important Financial Terminology in Agriculture

In the September NEMO Ag Connection newsletter an article shared financial terminology. Following are additional common terms.

Creditor: The party providing or lending the money.

- Credit rating – A judgment of a borrower’s ability to handle credit based on past performance.
- Credit risk – The risk assumed for the possible nonpayment of credit extended.
- Unsecured creditor – A creditor that does not have a lien on any particular property is unsecured.

Current ratio: A liquidity ratio calculated as current assets divided by current liabilities.

Debt: A financial obligation owed to another.

Debt –to–asset ratio: – A solvency ratio calculated as total liabilities divided by total assets.

Debtor: The person who either owes payment or other performance on an obligation such as a contract or note.

Default: The failure of a borrower to meet the financial obligations of a loan or a breach of any of the other terms or covenants of a loan.

Delinquency: – The status of principal and/or interest payments on a loan that are overdue.

Filing: – Giving public notice or disclosure of a lender’s security interest or assignment in collateral.

### Missouri Livestock Symposium

Dec. 6 & 7, 2024

William Matthew Middle School  
1515 S. Cottage Grove  
Kirksville, MO

<https://missourilivestock.com>

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**Northeast Missouri**  
**Ag Connection**  
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