



Ag Connection

Your local link to MU for ag extension and research information

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Farm Chores to Prepare for Winter

Missouri weather can change on a dime, sometimes going straight from summer to winter. Now is the time to prepare for the winter months on the farm.

Body condition scoring of the cow herd is essential. Adding bodyweight is an expensive, uphill battle at this point; however, assessing body condition will help better prepare for the calving season. Females that are too thin going into winter are at the greatest risk of increased dystocia issues, decreased calf vigor and lower colostrum quality and quantity compared to females in adequate or carrying excess condition. Producers should not forget to ensure adequate mineral and vitamin levels, as this impacts calf health, vigor at birth, and sets the stage for immune function and growth for the first few months of life. Inventory and quality test hay supplies. Identify sources of needed nutrients and develop cost-effective feeding programs.

Work with a veterinarian to determine what pathogens may be of concern. Vaccinating against pathogens that cause late-term abortions, such as *leptospirosis*, may be of value. A scour vaccine is becoming a standard in herd health protocols, bringing most value to first-calf heifers or new breeding stock brought into the operation.

Prepare for calving by cleaning out the calving barn and disinfecting equipment. Inventory supplies and consult with a veterinarian to make sure all necessary calving tools are on hand. This might include rust-free OB chains, disinfectant, gloves and over the counter products to administer to a compromised calf, including electrolytes and colostrum replacement. Create and maintain a biosecurity plan to prevent disease outbreaks from entering or spreading on the farm.

Take a trip through the working facility to make sure it is in good working condition. Identify any areas where an added gate or holding pen would increase efficiency. Check alleyways and points of congregation by animals and people for any locations that could become slick or have decreased traction. Salt and sand can be used to melt ice and increase traction in working and housing facilities for both producers and animals during winter weather.

Winter will soon be at the farm. Invest a little time now to save time when it is forty below with blowing snow.

Source: *Heather Conrow, livestock specialist*

Resources: *Body Conditioning Scoring of Beef Cattle* MU guide G2230
<https://extension.missouri.edu/publications/g2230>

Gypsum Facts and Fiction

Gypsum is a soil additive, but the advertised benefits are not well understood. It is a mineral found in everyday items like toothpaste, shampoo, cement, drywall, and molds for dental impressions. Gypsum is often marketed as “soil improver”, “conditioner”, “decompaction”, and for “improving soil tilth.”

While gypsum has some very specific benefits to some soils, not all soils have identical structure or chemical composition. As Shakespeare’s 1596 *The Merchant of Venice* coined the phrase, “all that glisters is not gold.” It is best to understand the soil prior to determining if gypsum is a product that will benefit the soil and be worth the investment.

Gypsum (calcium sulfate: $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$) is not a liming agent in its pure form. For soil pH adjustments, a liming material must contain carbonate (CO_3^{2-}) to neutralize soil acidity by reacting with the hydrogen ions. While some synthetic sources of gypsum have been modified to include some liming materials, calcium sulfate is not a liming agent. It can relieve aluminum toxicity as a replacement ion on soil particles which increases aluminum absorption from the soil solution. Aluminum (Al) toxicity to plant roots typically occurs in soils lower than 4.5 pH where the Al^{3+} becomes soluble in the soil solution.

Gypsum can add calcium and sulfur to the soil. It can add calcium to the soil more quickly because it is more soluble than a lime material. Gypsum as the sulfur source tends to be less soluble than other sources such as ammonium sulfate. Due to the reduction in sulfur dioxide emissions from coal plants since 1990, there has been increased discussion that sulfur may be a yield limiting factor in production agriculture. The University of Missouri Strip Trial Program is currently conducting statewide research utilizing sulfur to determine its effectiveness.

Gypsum improves sodic (saline) soils by removing sodium (Na^+) on the soil exchange site and replacing it with calcium. This desalinization of sodium rich soils can result in improvements in clay soil structure and the soil is less prone to compaction. Adding gypsum to sandy or non-sodic soils is not necessary.

With the exception of arid and coastal regions where salts are high and in areas of southeastern United States where highly weathered heavy clay soils are common, gypsum amendments are typically not necessary. To reduce compaction or any of the other stated benefits (a “soil improver”, “conditioner”, “decompaction”, and for “improving soil tilth”) in nearly any landscape, application of an organic

material is more economically and environmentally sustainable.

Understanding the soil is very important prior to the use of gypsum as a soil amendment. The best way to start understanding the soil is through collecting a representative soil sample. Generally, soil sampling probes and “how to take a good soil sample” guides are available through any Extension Center.

Source: *Todd Lorenz, agronomy specialist*

Soil Sampling Questions and Answers

For more information on soil sampling and fertilizer recommendations contact your local MU Extension Office.



Q – Why should I do a soil test? **A** – To determine the pH, phosphorus and potassium levels in the soil. A soil test can save you money on your fertilizer budget and increase production.

Q – When is the best time during the year to take a soil sample? **A** – A soil sample can be taken at any time during the year, but is it best to do when the soil is moist during the spring and fall.

Q – How often should I take a soil sample? **A** – Fields should be retested every two to four years to keep track of soil fertility changes.

Q – What depth should I go to get a sample? **A** – For an established field such as fescue or orchard grass or the average home lawn, the sample should be a representation of the top four to six inches. For newly established fields, a six-inch depth is required.

Q – How do I take a soil sample? **A** – For fields, collect ten to fifteen samples from each area that you wish to test. Your sample should represent 20 acres or less. Get the samples from random locations to represent the area well. Sample areas of a field separately if they are composed of different topography, such as low wet areas, slopes, hilltops, etc. And, you should test each field, or area of a field, separately that has been or will be fertilized or cropped differently, avoid the edges, waste spots, feeding and watering areas. For a home lawn or garden area, collect samples from six to ten different areas, depending on the size of the area to be tested. Collect a small amount

of the top four to six inches and place in a plastic bucket. When all the samples have been collected, break and mix it all together. Collect your half pint sample from this mixture.

Q – How much soil do I need? **A** – The sample which represents each field or home lawn/garden should be about a half pint. (a cup full works well)

Q – How many samples do I need? **A** – You should test each field separately that has been or will be fertilized or cropped differently.

Q – How long will I have to wait for my results? **A** – From the time a sample is sent to MU Soil Lab from the county office, it will be approximately seven to ten days.

Q – What do my soil test results mean? **A** – A soil test provides two sets of information, what is in the soil, such as the pH (measure of Hydrogen ions present in the soil), organic matter, P, K, Mg, and Ca levels, and a recommendation on the amount of these nutrients needed to grow the desired crop.

Q – From my soil test results, how do I determine the appropriate amount of fertilizer to apply in order to add the recommended amount of nutrient? **A** – Assume your recommendation calls for a supply of N at the rate of 90lbs/acre; you can apply N using urea base at 45% N or ammonium nitrate at 34% N. For example, using urea to supply N at the rate of 90lbs/acre will require $(90\text{lbs/acre} \times 100\%) \div 45\% = 200 \text{ lbs. of urea/acre}$. For more information on determining the appropriate amount of fertilizer to apply contact your local fertilizer dealer or your county extension office.

Q – How do I determine how much limestone I need? **A** – To determine how much limestone you need in tons/acre, divide the ENM requirement on your soil test result by the guaranteed ENM for the liming material to be used.

Q – What is ENM? **A** – ENM is the Effective Neutralizing Material. The ENM for a soil is determined based upon the level of neutralizable acidity and pH.

Christmas tree fun facts:

- ▶ There are approximately 25-30 million Real Christmas Trees sold in the U.S. every year.
- ▶ There are close to 350 million Real Christmas Trees currently growing on Christmas Tree farms in the U.S. alone, all planted by farmers.
- ▶ North American Real Christmas Trees are grown in all 50 states and Canada.



Plan Ahead to Avoid Winter Damaged Plants

Much of the disappointment and frustration of winter damaged plants can be avoided by planning ahead. Select plants hardy to the zone in which they will be planted. Missouri is in zones 5 and 6 on the USDA Plant Hardiness Zone Map.

Consider growing native plants that are adapted to the local climate and soil.

Avoid planting non-native species north of their plant hardiness zone unless unique microclimates in the landscape are such so as to guarantee winter survival. In northeast Missouri, examples of this are Crape Myrtle and Heavenly Bamboo. While these will grow in the southernmost parts of Missouri, they are not hardy in the northern half of the state.

Plan Hardiness Zone Map can be found at

<https://tinyurl.com/zonemap21>

Select an appropriate planting site. When planting broadleaf evergreens that are known to be easily damaged by the elements of winter, like some varieties of rhododendron, azalea and holly, select a location on the north, northeast or east side of a home or building where they will be protected from the prevailing winds and direct sun. These exposures will also delay spring growth, thus preventing late spring frost injury to new flower growth.

Avoid planting in low spots and roof overhangs which can create frost pockets and sites that are likely to experience rapid fluctuations in temperatures. Since heavy snow and ice can cause significant damage to branches and trunks, it is important that plants be placed away from house eaves and other areas where snow or ice is likely to collect and fall or slide onto plants.

Promote healthy plants. Plants that are diseased or nutrient deficient are more susceptible to winter injury than strong, healthy plants.

Provide winter protection to ornamental plants in late fall by applying 2-4 inches of mulch around perennial plants, shrubs and bulb beds. It is best to use organic mulch such as shredded leaves, pine needles, wood chips, shredded bark or gravel. Do not use whole leaves which may mat down and suffocate plants. Bulb beds can be covered with evergreen boughs. Temperatures below 15° F may damage the roots and crowns of unprotected strawberry 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 fall. Allow strawberry plants to harden or acclimate to the cool fall

temperatures before mulching the bed. Southwest injury is a very common type of winter injury to young trees, particularly young, thin barked trees like maples, crabapples and fruit trees. Prevent southwest injury to young trees by wrapping them with a light-colored tree wrap found at garden centers and farm supply stores. When wrapping trees, start at the bottom of the trunk and wrap up, overlapping the wrap. Wrap up to the first branch and then tape it off. Late November or early December is the ideal time to wrap trees. Oak trees and other native hardwood trees typically do not need to be wrapped. White plastic tubes can also be used.



Protect young trees from rabbits who often gnaw on the bark of many woody plants. The best way to prevent rabbit damage to young trees is to place a 1/4" inch mesh wire cylinder around the tree trunk. It should stand 1-2 inches from the tree trunk and 20 inches above the ground. The bottom 2-3 inches should be buried beneath the soil. Small shrubs, roses, and raspberries should also be protected from rodents during the winter months.

Following these tips should ensure that your plants survive the winter.

Source: Jennifer Schutter, horticulture specialist

Wishing you a Merry Christmas and
Happy New Year!

from the Northeast Missouri Ag Staff

Return Service Requested



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