KANSAS STATE UNIVERSITY | Extension
Meadowlark District

October 23, 2026

David Hallauer
District Extension Agent, Crops & Soils

The 'Basic' Soil Test: P & K

Phosphorous and Potassium are standard results included in even the most basic soil samples and have been forever. We get a number. We know what that number means based on what we know of crop needs. We apply accordingly – but what do they do?

Phosphorous is probably the nutrient of the two we really focus on, and for good reason. For starters, it's traditionally been the nutrient of the two we find to be deficient more often in our northeast Kansas soils. It's also vitally important to a lot of the plant functions we can visibly observe.

When we see differences in stands in early growth and development or later on in flowering (hastened maturity) or grain production, it could be a result of differences in Phosphorous levels. It's a factor in things we don't see as readily as well, including root development and resistance to drought and cold temperatures. Inadequate P slows carbohydrate utilization and deficiencies of the nutrient can noticeably inhibit leaf area and number.

While we've tended to pay less attention to soil Potassium (K) levels, it's a nutrient of increasing concerns across our crop and forage systems with soil test levels increasingly showing deficiencies. Unlike the more noticeable effects low P soils might exhibit, K has more 'internal' effects including plant enzyme activation and roles in photosynthetic processes. Of particular interest in forage crops is its role in the conversion of nitrogen (N) to protein and in field crops, the value it has in reducing plant disease. Not as visible – just as important.

While a soil sample is relatively inexpensive in the scheme of things, it does take time as well as some attention to detail to make sure you collect one that will give you good results. Even so, the value even a basic soil test can provide for nutrients like P and K is well worth the effort. If you're interested in discussing what collecting a good sample might entail – or what other nutrients you might want to add to these more basic ones - drop me a line.

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Ross Mosteller
District Extension Agent, Livestock & Natural Resources

Fall Calving Nutrition

For those true fall calving cowherds, cows are likely in the very last stages of gestation or early lactation. A dry pregnant cow experiences a shift in nutrient requirements leading up to calving and in the transition into higher nutrient demands of lactation. Providing proper nutrition during this crucial time will influence milk production and reproductive efficiency. It is always important to note this shift in requirements but is especially important in fall as grazing resources tend to trend lower in quality.

The main nutrient considerations are protein (CP) and energy, most easily assessed by total digestible nutrients (TDN). During the last 60 days of pregnancy, cow requirements increase from 48% to 54% TDN and from 7% to 9% CP. Moving into peak lactation, which corresponds with the greatest nutrient demand, a diet containing more energy, 60% TDN and protein, 12% CP is required. Since very few forages available in fall will provide these levels, a combination of forages and supplemental nutrition added to the diet will need to be evaluated to ensure that nutritional needs are met.

There are some basic indicators to help guide in knowing if the cow is getting enough nutrients. Obviously, the gold standard is feed testing and balancing rations, but good observation can tell much. In terms of dry matter intake, a mature cow will typically consume 2% to 2.5% of bodyweight, if forage intake is not limited by poor quality or low availability, both of which become problematic going into winter. Watching the backside of the factory in studying cowpies can tell you basic nutritional status. If cowpies begin to get too firm and stack up, the cow is likely getting deficient in dietary protein.

Body condition score (BCS) can give a good snapshot of nutritional status over time. BCS is measured on a scale of 1 to 9, with 1 being extremely thin and 9 corresponding to extremely fat. A mature cow should maintain a BCS of 5, and first-calf heifers should be in BCS 6 at calving. When BCS falls outside of that range 5 to 6, negative effects on milk production and rebreeding may be observed.

To maintain a 365-day calving interval, a cow must rebreed within 82 days after calving. Cows that calve in BCS 5 to 6 tend to exhibit cyclicity earlier than those that calved in BCS 3 to 4. This is due to the greater nutrition requirements of lactation, where cows may lose some condition to meet the demands of producing milk.

On of the most difficult and expensive things to do is to get a cow to gain body condition during the lactation period. To ensure that cows are in the ideal BCS range for rebreeding, and in turn maintaining an acceptable 365 day calving interval, make sure proper nutrition is provided in the days leading up to calving and throughout lactation. Just a note for spring calving cows with weaned calves, in the opposite plane of nutrition. This can be an excellent time of year to build body condition going into winter.

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Laura Phillips
District Extension Agent, Horticulture

Don't Fall Victim to Fall Pruning

This time of year, there is one question that I get asked a lot: is now a good time to prune my trees? In most instances, the answer is no. The best time to prune your trees is going to be late winter to early spring. Think February or March.

Why not prune in the fall? This has to do with the tree's physiology. In the fall, trees are starting to go dormant, meaning they are moving their water and resources down to their roots for the winter. When a tree is cut, it not only tries to seal the wound, but it may try to make up for its lost limb by sending out new shoots in that area. If we prune a tree right before dormancy, it will try to send out new growth. That new growth will not have time to mature and harden off before winter, and will die back once our frosts hit, stunting the tree's growth. It can also take up valuable resources the tree needs to survive the winter.

While fall pruning is bad, summer pruning is not ideal either. When we cut into a tree, we create an open wound that the tree will try to cover up. If we prune in the middle of the summer, the tree is likely already stressed from hot weather. We do not want to cause further stress on a tree that is trying to make it through tough months.

Additionally, pruning in the summer could leave the tree open to more disease and pest problems. When you prune a tree or woody shrub, you are creating an open wound. Anything that cuts through the bark will also cut through these veins, leaving them open to harmful bacteria and fungus, putting the tree at risk for infection. If we prune our trees in the cold, dry weather means there is less chance of fungus or bacteria floating around to infect the tree's wound compared to our hot, humid summer.

So why not prune in early winter? This has to do with a tree's reaction to open wounds. When we get an open wound, we keep it clean and our bodies know to regrow the skin in that spot, slowly closing the wound. Unlike us however, trees do not heal but seal. They will form a callous tissue that slowly starts to cover the wound and reduce the risk of infection. While they can seal wounds in the dormant season, they recover from wounds faster in the growing season. By pruning right before the tree enters its growing season, we limit the amount of time the tree has an open, exposed wound.

While it is clear that late winter or early spring is the best time to prune your trees, there are a few caveats. Dead or diseased branches can be removed any time of year. Not only are these branches a hazard to building and people, but a proper and controlled pruning cut will do less damage than a rough wound left behind from a branch snapping in the wind. Additionally, removing branches with a disease or insect infestation can prevent the issue from spreading to the rest of the tree.

The other caveat comes for flowering trees. Flowering trees generally set their buds in late summer or fall for the next spring. If you prune a flowering tree in the spring, you are cutting off its flower buds, and you will not get a fully blossoming tree. And these instances you can wait until the tree is done flowering before pruning.

While it might seem easier to forgo pruning altogether, trees that receive proper pruning, especially when they are young, will be sturdier and less likely to fall or take storm damage. If you are new to pruning, you can find videos and resources available online at kansashealthyyards.org or check out the recording of our Garden Hour Webinar on K-State Research and Extension's YouTube Channel from March of 2021 where we talked about tree pruning strategies. You can also reach out to your local extension office for more guidance.

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Teresa Hatfield
District Extension Agent, Family and Community Wellness

No news article this week.

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Cindy Williams
District Extension Agent, Food, Nutrition, Health and Safety

Hunting Down Food Safety

Hunting season is here, and with it comes the opportunity to eat game meat and wild birds. These are nutritious foods, and most are naturally lean because of the animals' diet and high levels of physical activity. (Two exceptions are duck and goose, which have higher levels of fat than other poultry.) Before eating wild game or birds, however, keep in mind special food safety points.

Handling in the field and during processing. Do you know if care was taken regarding safe handling of the meat? Was the animal or bird "field dressed" promptly? Was the meat protected from contamination? Was it cooled quickly, and kept cool during the drive home? If you are a hunter yourself, know how to ensure food safety in handling the meat of game animals and wild birds, both in the field and during processing.

Storage. If you will use it within three days, store game meat in the refrigerator. Keep raw meat and cooked meat separate to prevent cross contamination. Immediately freeze any extra meat. Prevent "freezer burn" by dividing meat into meal-size quantities and using moisture and vapor-proof containers or wrap. Press the air out of the packages before sealing and label them with name of the contents and date. For best quality, use frozen meat within one year.

Thawing. Thaw meat in a refrigerator, then cook the thawed meat within two days. Or thaw it on the "defrost" setting in a microwave oven and then fully cook the meat immediately afterwards. Keep raw meat separate from cooked meats.

Preparation. Cook wild birds to at least 165 degrees F., and game meats to at least 160 degrees F. (Use a meat thermometer to check the internal temperature of the thickest part.) This will reduce your risk of getting a foodborne illness. Wild game tends to be drier and less tender than other meat and often has a very distinctive flavor. To serve wild game that is juicy and tender, use a cooking method that adds a liquid, such as stewing. You can reduce the "gamey" flavor by cutting the fat off game meats before cooking them. You can also mask the flavor by using extra spices or marinades. Marinating will also help tenderize the meat. Marinate all meats in the refrigerator.