



Ag Connection

Your local link to MU for ag extension and research information

<http://aqebb.missouri.edu/aqconnection>

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The Results Received Are Only as Good as the Sample Submitted

Soil testing is a process which measures the nutrients available in the soil to support plant growth. The results are interpreted and recommendations made for the limestone needed to adjust soil pH and the level of soil nutrients which should be applied based on the desired level of plant production or yield. Using the soil tests results, fertilizer and limestone recommendations can be made to ensure an economical level of fertility and soil pH are provided.

Having the soil analyzed for nutrients, is the only way to know what is readily available to growing plants. Nutrient deficiencies prevent crops from performing at peak level. Applying too much fertilizer or lime can have a negative effect on plant growth as well. Over application of fertilizer is not only a waste of money, but it can have a detrimental effect on the environment if nutrients runoff into surface water or leach through the soil profile into groundwater.

Soil samples should be taken every three to five years and should be collected at the same time each year to avoid seasonal variations. Wait at least three months after the application of phosphorus or potassium fertilizer, limestone or manure before sampling.

The key to getting an accurate soil test report is collecting a representative soil sample for submission. A few ounces of soil are tested to determine the fertility of several million pounds of soil in the field. One sample should represent no more than 20 acres. Divide large fields into smaller, similar areas based on soil type, topography and historical differences in management. Avoid "hot spots" that have the potential for higher nutrient concentration, such as an old homestead or livestock feeding area, field edges along gravel roads, or an area where limestone was piled in the past.

Use a clean, plastic bucket to collect 15 to 20 soil cores for each sample. Travel in a zig-zag pattern across the field to randomly collect soil. When using a soil probe, push it into the ground six to seven inches deep. Avoid sampling too shallow which can overestimate the fertility of a field, especially a no-till field or pasture. Discard any plant material that is on the top of the soil core and any soil that is more than seven inches deep. Uniform sampling is important to obtain accurate results and recommendations. When using a soil auger, more care must be taken to ensure sampling depth is uniform. Remove debris such as rocks and plant roots. Mix thoroughly and fill the sample box or bag with about one pint of soil.

A typical soil test will analyze the sample for phosphorus, potassium, calcium, magnesium, organic matter, pH, cation exchange capacity, and neutralizable

**Don't Guess,
Soil Test**

acidity. Recommendations for fertilizer and limestone are calculated based upon the crops being grown and their expected yield. Additional tests can analyze soil for micronutrients, nitrates and particle size.

These MU Extension publications are available on line or at county MU Extension offices:

Soil Sampling Pastures

<http://extension2.missouri.edu/g9215>

Soil Sampling Hayfields and Row Crops

<http://extension2.missouri.edu/g9217>

Source: *Valerie Tate, agronomy specialist*



Maintaining Biosecurity for Livestock

Methods of biosecurity include management practices coordinated to control and eliminate new diseases from entering the farm. This is the least expensive and most effective means of disease control available to farmers and producers. Since vaccines are not able to completely eliminate diseases and treatment is only a means of reducing losses, biosecurity is the primary mode of action to halt the spread of diseases and other ailments both on and off the farm. Most bovine diseases are spread through five principal modes of transmission; saliva, urine, manure, cattle blood and exhaled air. It is imperative to reduce interaction and contact of animal to animal or even animal to object and then object to animal. Controlling movement of animals on the farm and quarantining new animals, reduces transmission. Additionally, cleaning facilities and disinfecting prominent areas will greatly reduce contamination.

Diseases in cattle and other livestock predominately take place through animal to animal contact. Therefore, placing incoming cattle to the farm in isolation for 30 days greatly reduces spread. The preferred site should be well drained and, in an area, where wind direction is directed away from other livestock. Animals should be monitored for signs of possible disease and should be dewormed and vaccinated. Those animals which appear to be sick need to be further quarantined from all other animals until signs of sickness have dissipated.

Newly acquired animals should be placed together in separate areas until immunity has reached a minimum threshold. Those animals placed in quarantined and in separation should only be handled after all other

livestock has been touched to reduce sickness in healthy animals.

Biosecurity is most effective when importing livestock onto the farm is controlled. Diseases have many modes of transference including: human contact, insects, rodents, birds and even vehicles. Farm gates should be locked and entrance areas should be posted. Vehicles which have been on other farms should not be allowed in barn lots or pastures. To reduce possible entry of pathogens, farms should have one entrance and visitors should wear clean clothing and footwear free of manure. Those handling animals should thoroughly wash his or her hands after handling each animal. Other animals such as dogs should be kept in areas away from both animals and feed. A key component of biosecurity is an effective program related to control of pests. This can include fly traps, baits, screens and even fences to reduce nocturnal animals.

Eliminating germs and other pathogens are the primary means of disinfection. The most prominent means of transference happens through chutes, needles, dehorers, and castration utensils. For best management practices, it is important to discard disposable equipment after each use. For other equipment, boiling water should be used for sterilization. Then it should be dried and placed in air tight plastic bags. For a disinfectant to work, the area must first be cleaned with soap and water and then rinsed since saliva and manure render disinfectants ineffective. The most popular and less expensive disinfectant is chlorohexidine which can be found under many brand names.

Utilizing an effective biosecurity program on your farm is the least expensive and most successful means of improved herd health. Using isolation and control of animal movement to and on the farm as well as disinfectants will decrease pathogen infection. Implementing even the most minute management control can increase over-all herd health.

Source: *Jason Morris, ag business specialist*



**PRACTICE SAFE
FARMING
EVERY DAY OF THE YEAR!**

Funding Innovative Farm Ideas

A challenge in agriculture is sufficient funds to try something new. North Central Region Sustainable Agriculture Research and Extension (SARE) has a grant program for farmers and ranchers. The purpose of the grant program is to explore innovative sustainable agriculture solutions for production, marketing, labor and other issues.



Sustainable Agriculture Research and Extension began with funds from the U.S. Congress in 1988. The work began to test and develop fundamental approaches for sustainable practices such as cover crops, rotational grazing and composting. In the 1990's SARE formed a national office, produced print materials and began funding farmer-led research. SARE continues funding farmer research grants, as well as many other programs and projects.

Since the program began in 1992 more than 1,200 grants have been awarded. A sample of funded projects include alternative grain crops as animal feed, alternative uses for CRP land, land access, water quality, energy alternatives, educating/mentoring the next generation of farmers/ranchers, safety of employees and many others.

This year the deadline for the Farmer Rancher grant program is December 3, 2020. Any farmer /rancher, team or group of farmers or ranchers who farm or operate a farm in the North Central Region may apply. The North Central Region includes Missouri along with Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Nebraska, North Dakota, Ohio, South Dakota and Wisconsin. This is a competitive grant program to explore sustainable solutions to problems through on-farm research, demonstration and education projects.

North Central Region SARE defines a farmer/rancher as someone who raises crops or livestock, especially as a business. There is no land requirement or income requirement. Those who apply should explain in the application their skills and knowledge to successfully complete the project.

The guidelines state Farmer Rancher grants are offered as individual grants (\$9,000 maximum), team of two (\$18,000 maximum), or group (\$27,000) for ideas initiated by farmers and ranchers. The time frame for the project is up to twenty-three months. Typically, about 50 projects are funded each year. For details, go to <https://northcentral.sare.org/> then click

on 2021 Farmer/Rancher Grant Program. The call for proposals on the website has some ideas for projects and the link to the grant application system.

Source: *Mary Sobba, ag business specialist*



Fake Meat

Meat is a deeply rooted part of American culture. Over the last decade, alternative protein or “fake meat” products have emerged and gained traction in the market. Reasons for trying a meatless diet or cutting back on meat consumption include health benefits, environmental sustainability, animal welfare, or just the inability to find meat in stores in the last few months. The era of alternative protein products is still in its infancy despite the current increase in sales.

Alternative protein products could potentially help keep the shelves stocked while meat supply is low, as was seen with the onset of the COVID-19 pandemic. Across the country, meat-processing plants shut down, disrupting the supply chain. This disruption left producers with surplus animals and no market. Meat available in meat cases was scarce in some places, not because producers did not have the inventory, but because there was no means to process them.

Meat eaters are still the largest portion of the population. A 2018 Gallup poll showed 5% of adult Americans identified as vegetarians; which is a 1% drop from the previous poll in 1999. Over the last three decades; however, beef consumption has decreased by approximately one-third, while chicken has more than doubled, and pork has remained steady.

A survey (Food Quality and Preference, January 2020) of 602 American adults asked participants to rank reasons for trying a beef/mushroom mix burger. The majority of participants ranked health as the top reason. Interestingly, the lowest ranked for the majority of participants was sustainability, as that is one of the top reasons given for consuming alternative protein products.

Two heavy hitters in the fake meat industry are Impossible Foods and Beyond Meat. While neither advertise their product as healthier (although they do indicate as such), part of the attraction of alternative meat products is the assumption they are a healthier option. Alternative meats are higher in calories, saturated fats, and sodium

(16% of the daily recommended value), while meat burgers are higher in cholesterol and protein. “Fake meat” also lacks the nutritional boost from their raw ingredients, like soybeans. Alternative meat is a highly processed food product, with more ingredients (19 versus 1), which does not align with the simple, whole-foods lifestyle. Just because something is plant-based or vegan, does not mean it is automatically healthy.

Below are three columns with the ingredient lists from the Impossible Burger, Beyond Burger and dog food. Consumers might have a hard time determining which list is for the two burgers and which is for dog food.

Source: *Heather Conrow, livestock specialist*

USDA to Provide Additional Assistance to Farmers Directly Impacted by the Coronavirus

USDA announced the Coronavirus Food Assistance Program (CFAP 2) will run through December 11, 2020

The U.S. Department of Agriculture (USDA) will use funds being made available from the Commodity Credit Corporation (CCC) Charter Act and CARES Act to support row crops, livestock, specialty crops, dairy, aquaculture and many additional commodities. USDA has incorporated improvements in CFAP 2 based from stakeholder engagement and public feedback to better meet the needs of impacted farmers and ranchers.

This program was just announced today as the newsletter is being sent to the printer. Keep an eye out for details on the program.