Regulatory Services News

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Feed - Fertilizer - Milk - Seed - Seed Testing - Soil Testing – Ag Lime Testing - Industrial Hemp Testing

Summer 2020

Director's Digest

Agriculture is Essential

Early in the Covid 19 crisis, The Department of Homeland Security (DHS) was tasked with deciding on what businesses were part of the country's critical infrastructure. That is, what industries have a special responsibility to continue operations for both public health and safety, as well as community well-being. DHS specifically identified food and agriculture as a critical infrastructure industry, defining those groups broadly enough to include UK entities such as Regulatory Services, the Veterinary Diagnostic Laboratory and the Cooperative Extension Service that provide support and regulatory oversight.

As they say on many call-in radio shows, I want to give a special "shout out" to my coworkers here at Regulatory Services. Like other departments on campus we were faced with deciding who should work at home and who needed to continue working in our building. Unlike many other departments this came at one of our busiest seasons as soil samples were rolling in plus it is the prime season for sales of fertilizer and seed. It was determined our mandated programs must continue but efforts must be made to minimize exposure to Covid 19. Fortunately, technology is such today that many of the office personnel could work from home and still be available to answer questions. For lab personnel it is different as samples must be processed, analyzed and reported from the lab. Through frequent sanitization, staggered schedules, and social distancing we are doing all we can to keep performing our responsibilities while keeping our employees safe.

Our inspectors face the biggest exposure as they must travel to businesses to pull samples of fertilizer, seed, milk, ag lime, and feed. They have been provided with PPE, hand sanitizer and instructions to avoid businesses where they don't feel safe but it can still be hard for them to maintain proper social distancing as farmers always want to socialize. I ask our ag businesses to understand that inspectors still have a job to do but will respect reasonable restrictions you have on what they can do. Please return that respect and do what you can to minimize their exposure to employees, paperwork, and

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customers when they are at your business.

This has been a very trying time, but I greatly appreciate the efforts of all our employees to still perform our important work and do our part to serve and protect the agribusinesses, farmers and consumers of Kentucky. Please don't hesitate to call us if we can be of assistance.

Toilet Paper and Fake Meat

One of my grandfather's was born in 1902 and I remember him telling me stories about the Spanish Flu Epidemic of 1918-20. That flu was different than Covid-19 in that the most susceptible people to that pandemic were people in their 20's and 30's versus this one being fatal primarily to the elderly with underlying health issues. Many of the same precautions were taken then as now with isolation and social distancing but I try to imagine how information was provided to the people. We are used to social media and daily briefings from the Governor but even radio broadcasts weren't available in 1918.

We are used to people hoarding milk and bread during an impending winter storm but I have been baffled at the desire to hoard toilet paper and paper towels during a pandemic. It was easy to observe the herd mentality once this started. Some toilet paper has occasionally reappeared but as of April 17, there was still none available at my local shopping warehouse. Early in this pandemic it was noticeable that people were also hoarding meat as the meat case was almost empty. However, I noticed as did many others that when all the real meat was gone the fake meat was still in the meat case. I'll let you draw your own conclusions as to why this occurred. Hopefully, one benefit of this pandemic is that people will develop more of an appreciation for the contributions of agriculture to their daily lives.

I have noticed more meat appearing in the grocery stores during my last few visits but there are still shortages (such as bacon) and I do have concerns based on all the processing plants having to close due to Covid-19 infections. The millennial generation is now the largest living generation and a research group (Midan Marketing) recently conducted surveys to determine both short- and long-term impacts of this pandemic on the American consumer within the meat industry. They found that millennials are behaving differently in their buying habits than other generations. Millennials are purchasing 37% more meat compared to the general population which is purchasing 20% more meat than normal. Millennials are also more concerned about food safety (50% vs. 35% of the general population), freezing meat more often (68% vs. 48%), stocking up on meat more (61% vs. 32%), and concerned about limited meat supplies in the future (84% vs. 64%).

Michael Uetz, principal of Midan Marketing, suggests that retailers take advantage of the opportunity to share food handling and safety information with customers that includes details about handling practices during packaging, transportation, and stocking. He also notes that additional communication from processors and retailers is needed to assure consumers that the food supply is adequate and limits placed on food purchases per visit are to help manage product restocking flow.

This last point made me wonder if we are doing enough to keep purchasers of agricultural products informed. I have seen many agricultural retail businesses come up with unique ways to keep product flowing during this crisis and it reminds me how creative we can be when faced with challenges. Is enough being done to educate consumers about the availability and safety of these products? Many studies have shown that consumers, especially millennials, expect transparency.

Celebrate Efficiency

Livestock production is often criticized as being an inefficient method of producing food but hopefully animal protein products will remain a part of our diet and great strides have been made in improving production efficiency. Two recent publications demonstrate the strides in efficiency that have been made. University of Nebraska researchers recently

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published their work in the journal *Environmental International* showing how much more efficient livestock are in water usage now versus in 1960. The research team compared the water used by U.S. livestock versus meat or milk produced between 1960 and 2016. Water usage included rainfall, irrigation needed to grow feed ingredients, drinking water and water used for sanitation. They found that water productivity improved substantially for six livestock products – beef, pork, chicken, turkey, milk, and eggs.

According to their data, milk was produced five times more efficiently in 2016 than in 1960; pork nearly four times more efficiently; chicken, turkey, and eggs, collectively, about three times more efficiently, and beef about twice as efficiently. Annual water investments in U.S. livestock dropped 36% from 1960 to 2016.

There are several reasons cited for the improvement in efficiency including genetic improvements that result in more food produced per animal, improvements in feed efficiency, and improved grains that require less water.

The American Society of Animal Science has produced a graphic showing how improvements in the U.S. dairy industry have reduced environmental impacts. This graphic may be seen on page 5.

These two studies show the commitments that agriculture has to improving efficiency and reducing environmental impacts while still producing nutritious food. Don't hesitate to tactfully share these results with those who criticize the environmental impacts of animal agriculture.

Dr. Darrell Johnson,
Executive Director

Seed Testing Laboratory 2020 Update

As we entered the spring season of seed testing this year, no one suspected how different it would be as compared to our previous years. What is usually our busiest testing season for samples, has become one of the most unforgettable times in the 42 years that I have been on the job in Regulatory Services Seed Laboratory. While the coronavirus has affected all walks of life for everyone, at different levels, the seed testing laboratory has strived to maintain business as usual, with a few changes.

We have adjusted the schedules for purity and germination analysts so we can meet the social distancing recommendations, ensuring that the seed lab stays staffed and open every day. In this way, we can continue receiving and testing samples, while keeping our analysts safe. Like other businesses and associations, the Association of Official Seed Analysts annual meeting, has been canceled this year, so even though analysts are not attending, the lab is still involved in certified training webinars, and reviewing new AOSA Rule proposals. This keeps all analysts up to date on seed testing methods and protocols. That being said, the following is the latest update on samples in the seed laboratory.

Last late summer and early fall, the lab was expecting the largest harvest of hemp to date, which usually translates to larger sample numbers received into the lab for testing. However, due to many reasons, including, but not limited to, a price drop, bankruptcy, and in some cases, unethical business deals, samples for seed testing never appeared. In the future the lab is looking forward to testing hemp for our businesses and farmers, in and out of the state.

Due to the Covid-19 this spring, the seed lab has tested less lawn and turf grass mixtures. The majority of these types of samples are regulatory samples which are sampled at predominately retail businesses. The difference between sample numbers, for the same time period, 2019 versus 2020 is minimal, with only 70 samples less this season. We are certain that the fall season will bring an increased number of samples in this category.

However, we have been kept busy testing soybeans, receiving 271 samples so far this spring. This compares to 214 samples that were received during the same period for 2019. The regular warm germination percentages this year, on average, are in

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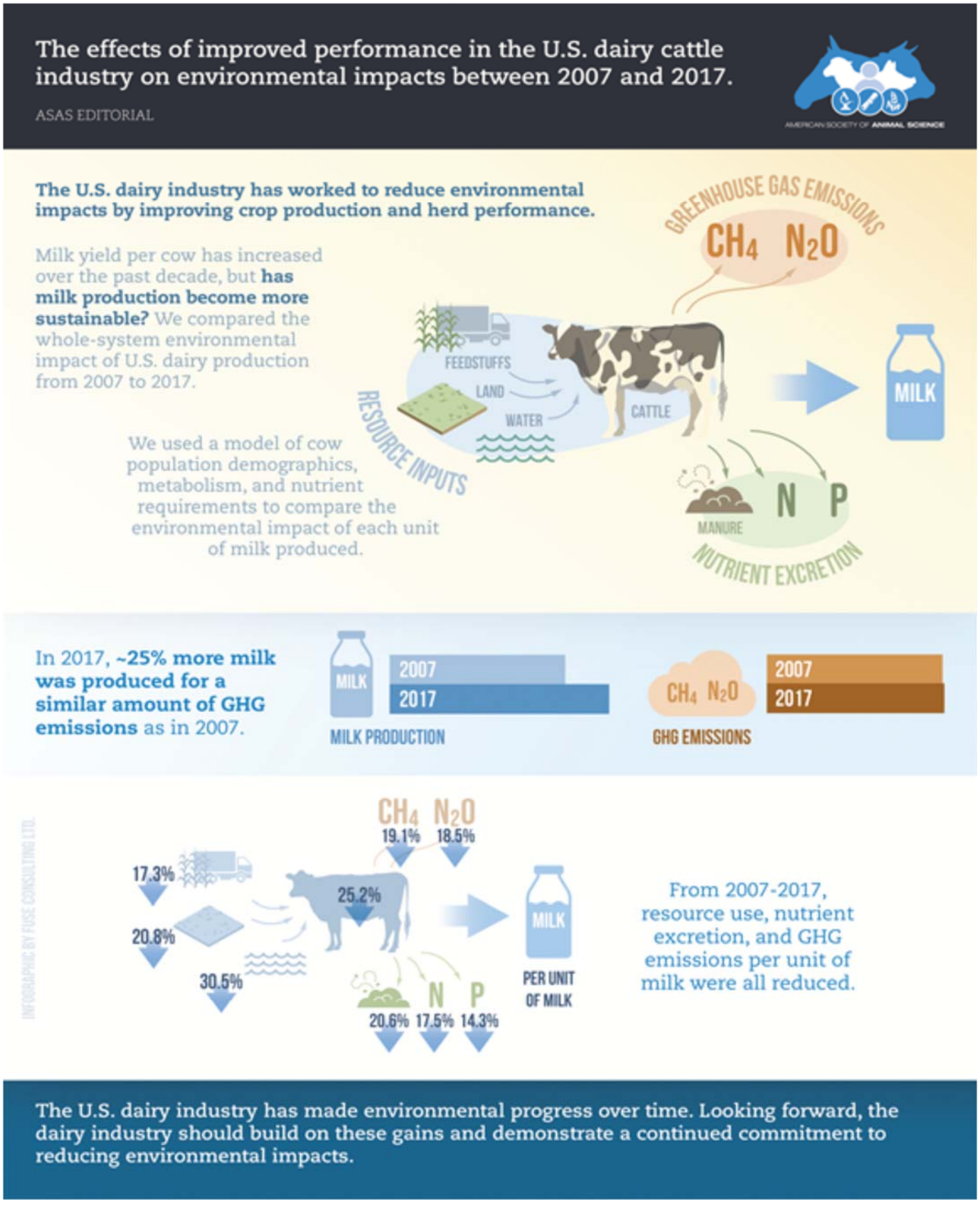

Journal of Animal Science, Volume 98, Issue 1, January 2020, skaa017, https://doi.org/10.1093/jas/skaa017

Seed Service Lab, continued

the low to mid 80's with some individual lots in the upper 90's. The accelerated aging percentages are running low this year, landing in the upper 50's to low 60's. The 2019 soybean crop produced slightly lower quality seed this year due to weather and, with the mild winter, storage conditions were not ideal, which combined, make for low accelerated aging results.

We just recently finished preparing Kentucky 31 tall fescue and a few vegetable samples to be sent to USDA Seed Regulatory and Testing Division, for trueness-to-variety testing (TTV) field tests to determine if seed lots are properly labeled.

The lab has always had an extremely busy season for small grain testing. We have averaged about 840 small grain samples in recent years, with approximately 85-89 % of those wheat, and the remaining balance of rye, barley, oat, and triticale. The lab is expecting this season to be little different. Germination and treated germination are the two most requested tests. The lab is prepared, with full staff at this time, to meet the rigorous small grain testing season. Remember that we do provide shipping envelopes for samples that are available to customers. You can find the information on requesting envelopes on our website. Please check out our website for types of tests, services and seed related links at: http://www.rs.uky.edu/regulatory/seed/service.php

We are proud of our laboratory's years of experience that we offer to our customers and look forward to continuing serving our state's farmers and producers.

And if any of you remember Hill Street Blues; "Let's be careful out there."

Tina Tillery
Seed Laboratory Supervisor

Still Practicing What We Preach

As our 2019 Commercial Feed Report goes to press, this is a good time to look back at the previous year and plans for the future. If we are doing our jobs right, all activities of our feed regulatory program should support the mission statement of the Division of Regulatory Services: We are committed to service and consumer protection of Kentucky citizens, businesses, and industries. Year to year, our feed program includes inspection, sampling, service, and education but the continuing implementation of the Food Safety Modernization Act (FSMA) has shifted some activities.

Inspection of feed manufacturers and distributors.

- In 2019, our 9 inspectors made over 900 visits to Kentucky feed manufacturers and dealers. These 900+ visits represent 420 different KY businesses. Understanding on a first-hand basis how firms manufacture and even store animal feed is critical to helping ensure safe feed for our animals.
- Our number of inspections conducted under our contract with FDA has decreased (28 in 2019) but inspection time has increased greatly. When operating under this contract, our inspectors are now evaluating facilities under all applicable federal regulations involving feed manufacturing and distribution. We are now at the end of the phased compliance period and all facilities that manufacture or hold feed are subject to FSMA regulations. Our plan is to continue to work with FDA to keep the inspection component in the hands of our Kentucky inspectors. We still believe that local knowledge of firms and facilities is important and will continue to take an educate-first approach.

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Compliance sampling.

- In 2019, our division processed 3,321 animal feed samples and performed over 33,000 lab analyses. Of these 3,321 feed samples, 3,084 were official samples with product guarantees compared to lab analyses for compliance purposes. These samples representing 517 feed manufacturers.
- We hit a new high in pet food samples in 2019 with nearly half of total official samples as pet food (1,523 samples).
- Compliance sampling is still our main focus but added additional contaminant testing in December of 2018. In 2019, we tested 46 samples (primarily pet food) for *salmonella* and/or *listeria* contamination.
- We continue to review labels of all samples to ensure that consumers know what they are purchasing and how to properly feed the product. Our sampling program is designed to ensure that we collect and analyze a wide variety of feed samples destined for all species.
- In recognition of the increasing trend of online sales of pet food, we've added internet distributors to our sampling program with 62 samples purchased in 2019.

Service and education.

- Last year, our lab analyzed 78 service samples provided by Kentucky consumers, extension agents, feed dealers, or manufacturers to answer a question or address a complaint. Our division provided these lab results at no cost. We also worked with our colleagues in the College of Agriculture, Food, and the Environment to provide analytical support for a number of research projects.
- On the educational side, our efforts in the coming year will certainly involve assisting firms in compliance with FSMA regulations.

The Division of Regulatory Services is the only state agency in Kentucky that is charged with ensuring the safety, suitability and quality of animal feed in producing meat, milk, and eggs for human consumption and products for companion animals. Consumer protection is our first priority but we also strive to promote a level playing field that supports all aspects of the Kentucky feed industry. As I write this article, we are still in the middle of the COVID-19 pandemic with a great deal of uncertainty as to how and when things will get back to normal. That being said, we are still here and still focusing on our mission.

Dr. Alan Harrison,
Director Feed and Milk Programs

Soluble Silicon Regulation

The Association of American Plant Food Control Officials (AAPFCO) has long established Silicon as a beneficial substance and that it should be analyzed and guaranteed as Soluble Silicon. AAPFCO has now recognized many source materials as containing Soluble Silicon. This has never been addressed in the Kentucky fertilizer regulations. A beneficial substance is defined by AAPFCO as *any substance or compound other than primary, secondary, and micro plant nutrients that can be demonstrated by scientific research to be beneficial to one or more species of plants, when applied exogenously*. In an effort to promote uniform regulations, the following is being proposed as a new addition to the Kentucky fertilizer regulations. We are in the process of rewriting our regulations for fertilizer and seed and hope to get them to Frankfort in the coming months. Most of the regulations are staying the same but we needed to update them for format changes. Please contact me at smcmurry@uky.edu for additional details on the regulation changes.

Beneficial Substances and Beneficial Compounds.
(1) Beneficial substances or beneficial compound guarantees shall be listed below the guaranteed

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analysis statement for fertilizer under one of the following headings; "Contains Beneficial Substances", "Contains Beneficial Compounds", or "Also Contains NonPlant Food Ingredients".

(2) The percentage for each beneficial substance or beneficial compound shall be shown after the name of the form, as in the following examples:

(a) Contains Beneficial Substances (Compounds)

Beneficial Substance (Compound)% or acceptable units

Purpose Statement:

(b) Also Contains NonPlant Food Ingredients

Beneficial Substance (Compound)% or acceptable units

Purpose Statement:

(3) For the beneficial substance, Silicon, the guarantee shall be "Soluble Silicon." The method of determination of Soluble Silicon shall be from the Journal of AOAC International, Volume 96, No.2, 2013.

Steve McMurry,
Director of Fertilizer and Seed Programs

Maintaining Laboratory Functions During a Pandemic

The appearance of COVID-19 in our country has caused significant changes to business operations and how we live our lives. A vast majority of businesses have closed to avoid the virus spreading and social distancing has become a new term in our vocabulary. Our Division has remained open since it is recognized as critical infrastructure by the Department of Homeland Security and mandated by state law to continue operation even in times of crisis. We have modified our operations to incorporate social-distancing, stagger work schedules, and have some work done at home to reduce the number of employees in the lab.

The pandemic has had little to no effect on our sample numbers completed thus far. Considering the time frame from January through April, soil and fertilizer samples have remained similar to the last three years with 16,000 for soil and 1,700 for fertilizer. Seed samples have also remained similar to the last three years with 711 regulatory samples and 866 service samples. Agricultural lime samples we test from quarries have been a little less due to some restrictions on access to the quarries for sampling. March and April are not the normal time for feed samples but we do get occasional feed samples during this time. The number of feed samples this year is lower than previous years.

So much of our economy is being hurt by the actions we all our taking to keep our society healthy. Our laboratory results support a continuation of some normalcy in our economy to ensure crops are fertilized and quality of agricultural products are trusted. Great credit goes to all the laboratory employees that make this happen.

Dr. Frank Sikora,
Director of Labs and Soils

2019 Soil Testing Laboratory Summary

Soil testing provides agricultural producers, homeowners, greenhouse operators, and others with valuable information on the fertility status of their soils or greenhouse media. The laboratory works in close partnership with the University Cooperative Extension Service to provide laboratory results along with lime and fertilizer recommendations. The philosophy behind our recommendations is to optimize economic benefit to the producer by maximizing crop yield, minimizing input costs, and maintaining fertile soil. We also offer analyses of animal wastes and nutrient solutions used to supply nutrients to agronomic and horticultural crops.

The laboratory supported research programs throughout the UK College of Agriculture with 8,615 samples tested. Our analyses help support research that improves on information to benefit crop production and environmental stewardship.

The Division's web site was updated with a new look and structure similar to other web sites in the college. The URL for the soils web site is at www.rs.uky.edu/soil/.

The number of samples analyzed in 2019 with the percent change from 2018 is shown below.

Type	Number	% change
Agriculture	29,011	20
Home lawn and garden	8,319	-3
Commercial horticulture	820	0
Greenhouse media	102	38
Animal waste	660	168
Nutrient solution	83	-16
Soil nitrate	57	-24
Research samples	8,615	26
Agricultural Lime	137	5
TOTAL	47,667	16

Kentucky Department of Agriculture partnerships

Partnerships were continued with Kentucky Department of Agriculture for testing agricultural limestone and hemp. Testing agricultural limestone began in the fall of 2016 and was continued through 2019. Hemp testing began in 2017 and continued through 2019.

Agricultural limestone was tested for relative neutralizing value which is important for producers to assess limestone quality from a quarry. The relative neutralizing value is used in soil test reports generated from the Division Soil Test Laboratory to supply tailored limestone recommendations based on the quarry the lime is coming from. Sixty-six quarries were sampled and tested in Spring 2019 and 69 in Fall 2019. Lime results were provided at http://www.rs.uky.edu/soil/technical_info/ index.php in reports sorted by county.

Hemp was tested for the psychoactive compound, THC, to verify the concentration was below an allowed level of 0.399%. 3,383 samples were tested for the regulatory program administered by the Kentucky Department of Agriculture. In support of assessing and improving hemp analysis, a proficiency testing program was initiated in fall of 2019. Sixty-seven labs were enrolled in the program.

Dr. Frank Sikora,
Director of Labs and Soils

Education Opportunities

Most meetings through July have either been cancelled or are going virtual. These include the Alltech One Conference in May, the American Dairy Science Association annual meeting in June, and the Association of American Seed Control Officials in July. I anticipate others will do the same.

If you are looking for agriculture and food related information to fill the void of these meetings, below are some websites that may be of interest:

- The Center for Food Integrity (foodintegrity.org)
- AgDaily.com
- Allianceforscience.cornell.edu
- Fooddialogues.com
- GlobalFarmerNetwork.org
- GMOAnswers.com
- GeneticLiteracyProject.org
- Modernag.org
- Skeptiforum.org

This is certainly an unusual time for all of us and we are not accustomed to not attending meetings that we have attended for years. We miss the learning and the fellowship. We have learned more about conference calls, webinars, and zoom meetings than we ever wanted to. However, we have learned to do things in different manners and I'm amazed at the adaptations I have seen many make.

This too shall pass and I think we eventually will be a stronger country as a result of persevering through this pandemic. Be responsible, be safe and I look forward to seeing everyone when all of this is behind us.

Dr. Darrell Johnson,
Executive Director

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