

Regulatory Services News

Vol. 53, No. 3

Feed - Fertilizer - Milk - Seed - Seed Testing - Soil Testing

Fall 2009

DIRECTOR'S DIGEST

The first person from our Division most agribusinesses have contact with is one of our inspectors. We currently have nine professionally-trained inspectors throughout the state who work with feed, fertilizer, milk and seed.

One inspector, Bob Hickerson, focuses on the milk program. Bob visits with milk haulers at milk receiving stations and obtains samples for analysis, and evaluates laboratories that analyze producers' samples as part of a licensing process. Due to the rapid expansion of specialty items in pet foods, equine markets and gardening in recent years, two inspectors, Jesse Whitehouse and Mark Barrow, thoroughly cover these products.

The other six inspectors cover the balance of the state focusing on feed, fertilizer and seed products: John Flood is our inspector in the Purchase Area; Warren Pinkston handles much of the Green River area; Brad Johnston focuses on the Mammoth Cave area; Dewey Coffey inspects most of Southeastern and some of the South Central counties; Terry Prather covers the Bluegrass and Fort Harrod areas; and, David Mason handles the counties in Northern and Eastern Kentucky. Mark Barrow also covers a few counties in South Central Kentucky.

This staff of professionals regularly visits agribusinesses and other distribution outlets across the state to review product labels, obtain

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UK
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College of Agriculture
Division of Regulatory Services

Director's Digest

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samples, and review records. Their primary goal is to assist in maintaining high quality products for consumers to purchase and to assist businesses when they have questions related to product quality and marketing. Inspectors also evaluate facilities and make suggestions for improving general appearance and cleanliness. They will take samples of feed, fertilizer and seed that are transported to the laboratories in Lexington for evaluation. Results of those samples are sent back to the business with a copy going to the inspector. This allows the inspector to answer any questions the business may have about the analysis.



Division of Regulatory Services Inspection Staff (l-r): Bob Hickerson, Mark Barrow, Noel Johnston (retired), Dewey Coffey, Terry Prather, Jesse Whitehouse, John Flood, Brad Johnston, David Mason and Warren Pinkston.

Our mission as part of the association with the University of Kentucky, a land grant university, is to be concerned about the quality of products being offered and the information provided with labels to consumers.

As a Division, we strongly emphasize outreach and use research-based education in all our programs. Our inspectors are the most important link between agribusiness and other parts of our Division.

*B. Thom
Director*

Out and About with the Division of Regulatory Services

Our employees make an effort to be available at various College and commodity events to provide demonstrations and answer general and specific questions about our regulatory and service programs.

Recent events have included the Alfalfa Conference in Cave City, Mid-States Horticultural Expo in Louisville, the Kentucky Dairy Partners meeting in Cave City, the UK Equine Field Day in Lexington, the UK-REC All Commodity Field Day in Princeton and the Kentucky State Fair in Louisville. Upcoming events we will be attending are the UK College of Ag. Roundup in October and the Kentucky Farm Bureau Federation Trade Show on Thursday, December 3.

If you see us at these events, stop by, say hello and ask any questions you may have about our programs.



Debbie Morgan of the Soil Testing Lab, answering questions at the Princeton Field Day, July, 2009.



Division display at the International Forage and Grasslands Council Meeting, Louisville, 2008.

Natural, Organic, or Naturally Organic Fertilizer

In order for fertilizer products to be labeled as natural or organic they have to meet certain guidelines and definitions.

A **Natural Fertilizer** is a substance composed only of natural organic and/or natural inorganic fertilizer materials and natural fillers.

Natural Organic Fertilizer: Materials derived from either plant or animal products containing one or more elements (other than carbon, hydrogen and oxygen) which are essential for plant growth. These materials may be subjected to biological degradation processes under normal conditions of aging, rainfall, sun-curing, air drying, composting, rotting, enzymatic, or anaerobic/aerobic bacterial action, or any combination of these. These materials shall not be mixed with synthetic materials or changed in any physical or chemical manner from their initial state except by manipulations such as drying, cooking, chopping, grinding, shredding, hydrolysis, or pelleting.

Natural Inorganic Fertilizer: A mineral nutrient source that exists in or is produced by nature and may be altered from its original state only by physical manipulation.

An **Organic Fertilizer** is a fertilizer containing carbon combined covalently with one (1) or more elements essential for plant growth other than hydrogen and oxygen.

A “natural” based mixed fertilizer is one where more than half of the materials are “natural” **and** more than half of the sum of the primary guaranteed nutrient percentages is derived from “natural” materials. Formulations are often requested to confirm the “natural” base claim.

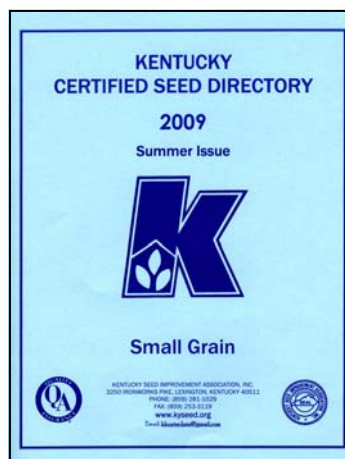
An “organic” based mixed fertilizer is one where more than half of the materials are “organic” **and** more than half of the sum of the primary guaranteed nutrient percentages is derived from the “organic” materials. Formulations are often requested to confirm the “organic” base claim.

When a product claims to be a “natural” and “organic” based mixed fertilizer, both requirements for the “natural” and “organic” based mixed fertilizers need to be fulfilled. These requirements are usually confirmed with formulation requests.

*S. McMurry
Fertilizer Regulatory Program*

Kentucky Certified Seed Directory 2009 Summer Issue

The 2009 Kentucky Small Grain Certified Seed Directory is available from Kentucky Seed Improvement Association (KSIA). For more information, visit www.kyseed.org or contact KSIA Manager Kenny Hunter at khunter.ksia@gmail.com or (859) 281-1029.



2009 Wheat Seed Quality

Every few years in Kentucky, we experience a severe infestation of Head Scab. This disease, also commonly called head blight, is caused by *Fusarium* fungi. These organisms infect seed of wheat, barley, rye and triticale. Our last notable encounter with the disease was in 2004. Unfortunately for our producers, the 2009 growing season was very favorable to development of the disease.

To some degree each season, *Fusarium* head blight (FHB) is present, but the effect on seed crops varies due to environmental conditions and disease pressure. Infection occurs during flowering and bleached heads may be noticeable in fields as seed heads mature. Infected seeds are often recognized by a shriveled, chalky appearance and seed coats may have a pink discoloration (Fig. 1). Infections can cause lower grain yields and reduced test weights. Poor quality seed lots may require significant cleanout and seed treatment to obtain an acceptable germination percentage. An additional problem with infected grain is the production of mycotoxins, which may prohibit use of infected seed as a feed source.

Most samples of new crop seed submitted for testing this summer

have been infected with FHB. In contrast, infection in carry-over seed is very low, which has resulted in an overall average germination of 82% in all seed lots tested this season. (Table 1). Seed counts have ranged from 11,069 to 19,431 seed per pound, with an average of nearly 14,200. We have also tested a few samples of barley and rye. These crops are also infected with FHB. Barley germinated on average at 68% and rye at 73%.

For a smaller group of samples submitted to the lab this summer, we were able to compare germination in paired tests using untreated and treated seed from the same seed lot. The average germination of the untreated seed was 77%, with lots ranging from 47% to 95%. Seed treatment increased average germination to 89%.

Seed treatment can have a substantial effect on FHB. In some seed lots, fungicide application can improve germination as much as 20%. Other lots, however, may not improve or only marginally (1-5%). In the lab, on average this season, wheat germination after seed treatment was 89%, but some seed lots

were as low as 61% and others as high as 97% after treatment.

A less expensive alternative to seed treatment can be to re-condition the seed lot to remove light-weight, scabby grain. This lighter fraction removed during cleaning should be destroyed to prevent spread of the disease. Additionally, after harvest some disease can be left in the field where it can overwinter in soil, on stubble and on other host plants, making field sanitation and crop rotation very important.

To gain the most information about a seed lot, have a treated and non-treated germination test conducted at the same time. When requesting a paired test (standard germination + treated germination), submit enough seed for two tests (2-3 lbs.) and clearly mark the sample for both tests. The paired test cost is \$14.00, single tests are \$7.00. Comparison with and without seed treatment allows for management decisions based on effect and cost of treatment. In the lab we use a Raxil-Thiram product, but there are other fungicides labeled for use on wheat. Prior to applying any seed treatment consult the product label and carefully follow all label directions.

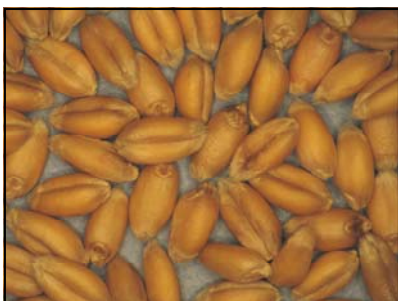


Fig. 1. Healthy, plump wheat, left, and infected grain, right.



CAUTION

It is tempting to use infected seed and just adjust planting rates to achieve a better stand. This may not be the best idea. Without cleaning out diseased seed or using a seed treatment, a large quantity of head scab can be introduced into a relatively clean field. When possible, seed lots with germination below 80% should be avoided.

A tetrazolium (TZ) test can be used as a rapid (24-48 hr) indicator of potential seed lot viability. Results from these tests should be used cautiously as the result is only an estimate and can vary significantly from actual germination percentages (Table 2). This season, TZ values and treated germination values have been well correlated. Therefore, seed lots with high TZ values, but low standard germination results may benefit from seed treatment. Seed lots with extremely low TZ values may not warrant seed treatment, but could possibly be improved with additional conditioning to remove infected seeds.

Samples for testing can be mailed to the Seed Testing Laboratory, Division of Regulatory Services, 103 Regulatory Services Bldg., Lexington, KY 40546-0275 or can be hand delivered. We are located on the Lexington campus across from Commonwealth Stadium on the corner of University and Alumni Drives. For more information about submitting seed and available tests, please visit our website (www.rs.uky.edu), call (859-257-2785) or email (Cindy.Finneseth@uky.edu).

*C. Finneseth
Seed Testing Program*



Standard and treated germination tests are conducted using a rolled towel method.

For additional information about head scab and production control methods, information is available from your local county extension office and the following resources:

Wheat Head Scab 2009 webpage

http://www.uky.edu/Ag/GrainCrops/Briefs/WheatHeadScab_2009.html

Head Scab of Small Grains in Kentucky, PPA 38

<http://www.ca.uky.edu/agc/pubs/ppa/ppa38/ppa38.htm>

Small Grains Extension webpage

http://www.uky.edu/Ag/GrainCrops/small_grains.htm

Kentucky IPM Pest Information Pages - Wheat Head Scab

<http://www.uky.edu/Ag/IPM/scoutinfo/wheat/disease/headscab/headscb1.htm>

Table 1. Laboratory germination of all wheat, barley and rye samples submitted from June-July, 2009.

Crop	Overall Germination	Untreated Germination**	Treated Germination**
Wheat	82%*	77%	89%
Barley	68%		
Rye	73%		

*420 samples submitted, including carryover seed from 2008 harvest. **148 paired tests with and without seed treatment.

Table 2. TZ, treated germination and standard germination test results on 35 individual wheat samples submitted from June-July, 2009.

	TZ	Treated Germination	Standard Germination
Average	91%	89%	77%
Range	73%-98%	61%-97%	48%-95%

Seed Treatment and the Kentucky Seed Law

I have recently received questions concerning what the Kentucky Seed Law and Regulations require in regard to treated seed. These inquiries have covered a number of different areas. Until recently, seed treatment units had been confined to locations that provided services that processed and packaged seed. There are now individuals and firms who have acquired portable treatment units and only provide seed treatment application services.

A number of sections in the Law and Regulations apply, which can be reviewed and printed from our website (www.rs.uky.edu). The first section, KRS 250.021, contains definitions. Definitions for Agricultural Seed, Conditioning, Distribute, Distributor, Label, Non Certified Custom Seed Conditioner, Person, and Treated Seed all have a bearing. KRS 250.041 defines labeling requirements for Agricultural Seed and 250.041(8) specifically deals with labeling treated seed. KRS 250.051 identifies those required to obtain permits and registrations. KRS 250.071 defines unlawful acts. Regulation 12 KAR 1:125 requires identification of seed not for sale.

The unlawful acts section prohibits distribution of seed not labeled according to the requirements of the labeling section of the law. This section also makes it unlawful to condition seed belonging to one person and to allow it to be picked up by another person unless the seed is completely labeled. The Regulation mentioned above requires that seed not intended for sale be identified after seed treatment application. In common language, a seed treatment unit that does nothing other than apply seed treatment on a custom basis must attach the seed treatment information, identify the seed with the customer's name, and allow its pickup **only** by the owner of the seed.

The registration requirement for Non-Certified Seed Conditioners is based on whether or not seed is being conditioned for distribution. The definition for "Conditioning" includes application of seed treatments. The law states that anyone who conditions seed for distribution is required to register as a Non-Certified Seed Conditioner. Distribute is defined to mean *to consign, offer for sale, sell, advertise for sale, barter, or otherwise supply agricultural seed.*

If distribution is to a retail outlet, the seed must be labeled completely as required by KRS 250.041, including the required treated seed statements. A treatment unit is not required to register if the unit is **only** involved in treating seed for someone who does not intend to distribute the seed. Commonly, this is someone who owns the seed and only intends to plant the seed.

At a minimum, all treated seed is required to be labeled as described in KRS 250.041(8). Labeling includes a word or statement that the seed has been treated, the commonly accepted treatment name, and a caution statement in the case of treatments with a substance that in the amount present is harmful to human or vertebrate animals. A caution statement such as "*Do not use for food, feed, or oil purposes*" is sufficient. The caution for mercurials and similarly toxic substances shall be a poison statement or symbol. Treatment with inoculants requires the expiration date.

Some treatment facilities require the customer's presence during treatment application and require that seed be returned to its original container or bulk conveyance. Although this is a good practice to ensure the customer is actually getting back the seed brought in to be treated, the law does not require the customer to be present nor does it dictate packaging after treatment.

A word of caution is in order for treatment facilities in regard to seed brought to a custom treatment facility for application of a seed treatment. All the seed companies I have spoken with will not accept liability for seed tag guarantees on their product if it is removed from their original container and a treatment is applied without their consent or knowledge, even if the seed is placed back into the original container. Some companies will enter into agreements with treatment facilities that allow a treatment application. Seed treatment units need to be aware of this.

If you have questions on this topic, please call my office at 859-257-7363.

D. Buckingham
Seed Regulatory Program

A Wet Spring and Presidedress Nitrate Test for Corn

This past spring has been wetter than normal. The wet condition has caused concern about losing nitrogen from soil. Dentrification causes nitrogen loss as anaerobic microbes use nitrate nitrogen much like aerobic microbes use oxygen in respiration. The nitrate is converted to nitrogen gas which is lost to the atmosphere. When the soil is wet, particularly in low lying areas, denitrification can be significant.

There is a soil test that can be used to check on nitrogen levels in soil and is called the presidedress nitrate test, or PSNT for short. The test is designed for corn and is used to determine the nitrate levels in soil and helps producers know if any sidedress nitrogen needs to be applied.

Soil is sampled at 0 to 12 inch depth when corn is about knee high. The soil is sampled at a deeper depth than normal soil testing at 0 to 6 inches. The deeper depth is required because nitrate moves through the soil profile a lot more than other plant nutrients such as phosphorus and potassium. After taking a sample, it is very important to air dry the soil promptly to avoid further loss of nitrogen that may not represent field conditions.

When you have a normal soil test performed, nitrogen is not tested in the sample because it is hard to determine any nitrogen fraction in soil that would predict how much nitrogen would be available to the plant. Nitrogen levels in soil changes dramatically from one week to the next. That is why a presidedress nitrate test only works if soil is sampled at the time when corn needs nitrogen the most.

The University of Kentucky soil test lab at Princeton, KY started offering the PSNT in 2008. This past spring we had 50 samples submitted to the laboratory for testing. Sixteen of the samples indicated no need for further sidedress nitrogen application.

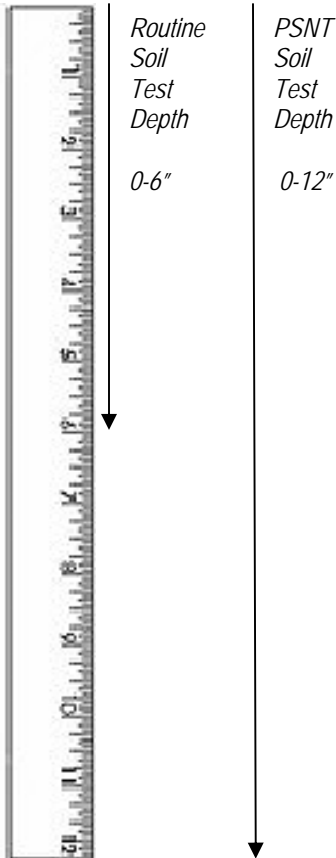
If you are interested in the test next spring, make sure to discuss your interest with a local county extension agent. The cost of the test is \$8 per sample, but may vary from county to county to cover shipping and handling.

F. Sikora
Soil Testing Program

For more information on the Soil Testing Program
at the University of Kentucky, visit our website:
<http://soils.rs.uky.edu/index.php>



A hand-operated probe is an excellent tool for soil sampling. Many models are commercially available or you may be able to borrow one from your local Extension Office. Contact your County Agent regarding availability and for additional sampling information.



Association of American Feed Control Officials

Cooperation for a Century with the Kentucky Feed Regulatory Program

The annual convention of the Association of American Feed Control Officials (AAFCO) took place July 30 – August 3, 2009 in Washington, D.C., where the original meeting was held in 1909. Annual convention participants reflected on past accomplishments and prepared for future efforts to protect consumers and the general public. Safe feed provides a basis for safe food.

As feed has incorporated more diverse products and manufacturing technology, AAFCO has provided model regulations for these new aspects of the feed industry. Feed safety continues to be a focus and marketplace complexity for ingredients is increasing. AAFCO continues to provide a forum for education and review of developments concerning feed.

Cooperation between AAFCO and the Kentucky Feed Regulatory Program has taken place since the origin of AAFCO. The following highlights some efforts made by Kentucky feed control officials to support AAFCO from 1909 through 2009:

First Secretary of AAFCO, 1909

Secretary Emeritus, 1959

3 Presidents (1913, 1950, 1986)

Collaborative Check Sample participants
(1930 to present)

Chair Collaborative Check Sample Committee

Coordinator of Collaborative Check Sample Program
and associated data

Feed Mineral Investigator
(2 individuals at different times)

Committee Service: Model Bill & Regulations, Inspection and Sampling, Hazard Analysis Critical Control Point, Feed Labeling, Feed Contaminants, Feed Administrator Seminar, Enforcement Issues, Environmental Issues, Collaborative Check Sample

Hosted and co-sponsored AAFCO Feed Administrator Seminar
(1966-1997)

Led effort for improved labeling of feeds and supported collaborative efforts to validate laboratory methods

Job Turner, Bruce Poundstone, and Eli Miller each served as AAFCO President. Other contributions were significant to AAFCO goals, but Kentucky also benefited from knowledge gained in feed control and regulation. The Feed Program has utilized AOACI scientific laboratory methods, AAFCO model regulations, AAFCO inspection and sampling protocols, and attended the AAFCO feed administrators seminars. AAFCO guidelines are the basis for feed mill inspections and FDA sponsored feed mill inspections for medicated feed manufacturing. The basis for the current Kentucky Commercial Feed Law and Regulations was the AAFCO Model Bill and Regulations, which provides for definitions and terms, labeling of feed, regulations, and guidance for analytical variations. Inspectors have attended workshops and advanced inspector training. The laboratory participates in the collaborative check sample program for quality assessment and uses samples as quality control materials. The Program participates in the electronic message system and AAFCO meetings provide an opportunity to meet other state feed control officials, FDA personnel, industry and industry association personnel, consultants, university researchers, and government officials.

The annual convention opened with several keynote speakers. A brief history of AAFCO was provided to each attendee along with photos of many past presidents. Photos from previous meetings, seminars, workshops, as well as old feed mills, laboratory operations, and other activities were shared through displays and slideshows. More details on the annual convention will be provided in the next newsletter along with current AAFCO initiatives that are important to the Kentucky feed regulatory program.

*M. Bryant
B. Thom*

References:

Official Publication of Association of American Feed Control Officials, 1920-2009.

AAFCO Timeline

- 1909 — Association of Feed Control Officials (AFCO) first meeting
1910 — Preparation of a uniform feed inspection bill
This provided the foundation for having uniform state laws for regulating feed.
- 1917 — Canned pet food became available
1920 — AFCO first publication was introduced
This provided communication between states and established common operational aspects.
- 1929 — Name change: Association of American Feed Control Officials (AAFCO)
1930 — AAFCO establishes Collaborative Check Sample Program
1934 — The annual publication became the "Official Publication"
1938 — Federal Food, Drug, and Cosmetic Act impacts feed and AAFCO
1941 — AAFCO Collaborative Check Sample Committee created
1945 — AAFCO develops label requirements for Formula Feed Containing Drug Ingredients
The model Feed Bill was becoming more comprehensive for feed being developed by the industry.
- 1947 — Presidential plaques presented to honor 25 past presidents of AAFCO
1953 — American Association of Feed Microscopists organized to support feed microscopy analysis.
1957 — Committee for Analytical Methods for New Medicated Products created
1958 — The Pet Food Institute was incorporated
1962 — AAFCO began reviewing pet food labels
1966 — Proposal added a provision for feed mill inspections
1967 — Model Pet Food Regulations adopted
1969 — AAFCO provides Recommended Tolerances for Drug Analysis for Feeds
1970 — First FDA-commissioned state control officials to increase inter-agency cooperation
Cooperation between states, industry, and FDA continued to improve in efforts to provide quality products and to provide measures to validate feed products.
- 1972 — Collective Terms feed definitions
1972 — Permitted Analytical Variations (PAV) for laboratory analysis of feeds
1976 — Feed Nomenclature Committee appointed to develop a system to name ingredients
1977 — Regulation for labeling customer-formula feed
1980 — AAFCO Guidelines for Naming Feed Ingredients
1988 — AAFCO begins annual sustaining support of AOACI for the development of validated feed laboratory methods.
The science based approach to feed regulation was taking shape.
- 1994 — Feed Inspection Manual published
1998 — "Quality Assurance/Quality Control Guidelines for State Feed Laboratories" published
2001 — Bovine Spongiform Encephalopathy (BSE) Task Force created
2003 — "Guidance/Framework for Best Management Practices for Manufacturing, Packaging and Distributing Animal Feeds and Feed Ingredients" document accepted by AAFCO
2004 — AAFCO adopted the Federal BSE regulation
2005 — First Advanced Inspector Training Seminar offered
2007 — Memorandum of Understanding between AAFCO and FDA was signed concerning the AAFCO ingredients definition process
2008 — AAFCO provides comments to FDA on ingredient standards and definitions, processing standards for pet foods, and updated standards for labeling pet foods

Clarification: In the last edition of Regulatory Services News, the AAFCO logo appeared. It was intended only to identify the organization and referenced publications. Use therein was not intended to imply any endorsement of the article by that Association.

The Growing Concern Over Shrinkage

Minimizing milk losses is essential to the economic well being of the dairy industry. Producers, plants and haulers are all faced with tight margins and the goal of everyone involved in the dairy industry should be that bulk milk is accurately accounted for from the farm to the plant. While zero loss or shrinkage may be an optimistic goal, it is not likely to be achieved under real world conditions. Inevitably, some loss of milk will occur during normal handling. The composition of milk (fat, protein, other solids) makes it a fluid with a tendency to cling to surfaces. The more pumping, piping and equipment surface involved, the greater the anticipated loss or shrinkage.

Unfortunately, milk haulers are caught in the middle. They are charged to accurately measure and weigh milk on the farm to ensure producers are paid for each and every pound of milk produced. At the same time, they are expected to deliver and transfer the same quantity of milk to the silo in the plant's receiving bay. While most reasonable people will recognize that zero shrinkage is not likely to be attained, losses associated with bulk milk transportation should be kept to a minimum.

To ensure accurate marketing of bulk milk and to minimize shrinkage, let's focus on three areas:

- The dairy farm
- Hauling procedures
- Plant measuring activities

Dairy farm

Some larger and more recently constructed dairy farms utilize direct-load milking systems and, in some cases, vertical silos. These farms often use metering devices and/or truck scales for obtaining milk weights. However, the majority of Kentucky farms continue to use bulk milk tanks with gauges

and this will be our area of focus. When we consider the bulk milk tank for measurement purposes, we are actually taking into account the tank itself and all required accessories such as leveling indicators, the measuring gauge (stick or tube) and the accompanying conversion chart. Tanks, gauge rods and charts will be identified with a serial number. The serial number of each accessory should correspond to the tank. Tanks are required to be accurately calibrated upon installation. When accurately calibrated, the tank functions appropriately to allow the user to obtain an accurate weight for milk stored within the tank.

Unfortunately, over time a number of factors may detrimentally impact the tank and accessories: the milk-house floor may shift due to heaving or other factors, structural weaknesses may change the physical condition of the tank, tank legs may become weak or the tank may have been moved by the producer. Any of these factors may cause an unlevel tank. Additionally, gauge sticks may become bent or twisted, site tubes and gauges may become damaged and charts may become worn, faded and difficult to read.



Over time, farm tank conversion charts can deteriorate and become difficult to read. Regulatory Services can "build" new calibration charts for Kentucky producers upon request.

Because of these factors, it is recommended that farm tank calibrations be examined periodically (at least every five years) or when a noticeable change has occurred with the tank and/or accessories. Tank calibrations are often conducted by the Kentucky Department of Agriculture (KDA), the

United States Department of Agriculture Milk Market Administrator and by some milk marketing agencies. Each of these groups follows official protocols for tank calibrations and can legitimately calibrate farm tanks. However, recognize that official oversight of all measuring devices in Kentucky, including milk tanks, rests with the KDA.

Having a bulk milk tank evaluated for an accurate calibration is the appropriate means for ensuring:

- 1) The producer is paid accurately for milk shipped,
- 2) The hauler can accurately perform measuring and weighing procedures on the farm, and
- 3) The plant is accurately invoiced for milk delivered to the plant.

Hauling Procedures

In addition to the actual loading of milk, haulers perform several critical functions while on the dairy farm including sampling, measuring and weighing and record keeping. All of these activities are equally important and all are performed in a very short time. Rushing through any of these activities will eventually result in problems. It is important for haulers to make sure the appropriate amount of time is taken to perform each activity.

In relation to shrinkage, primary concerns are milk measuring, weighing and loading activities. Most haulers are well aware of farm issues that may contribute to shrinkage but occasionally a quick review of these and other items is appropriate.

Lighting

A well-lit milkhouse is essential to properly evaluate milk and to obtain an accurate gauge reading. With more haulers collecting milk at night, lighting has become even more important. If proper lighting is a farm issue, visit with the producer about your concerns. Most producers will be willing to correct this issue in their milkhouse.

It is recommended that farm bulk tanks be recalibrated every five years or when a noticeable change occurs with the tank.



Condition of the tank and accessories

The critical importance of a properly calibrated tank has been outlined above. If a tank or a conversion chart is cause for a concern, haulers should request to have these items examined. Producers should rest assured that these types of requests do not suggest any impropriety on their part. Having a tank calibrated or a new chart printed for a tank simply ensures that a producer is more likely to be accurately compensated for the milk produced and shipped from the farm.

Measuring and weighing

Appropriate time should be taken for each of these steps:

Measure milk with the agitator off and the milk absolutely motionless.

Do not measure through foam.

Read a clean, dry stick gauge at eye level until two readings agree.

For tanks with tube gauges, the tube should be clean. Be sure to open the tube valve slowly to minimize foam and obtain the measurement by reading the bottom of the meniscus.

Carefully convert the measurement using the tank conversion chart.

Immediately record the measurement and weight on the milk ticket and milkhouse record.

Continued on following page

Milk shrinkage

Continued from previous page

Milk transfer

The final step of the farm milk pickup process is to transfer milk from the farm tank to the truck. At the last farm on the route, haulers should be certain that the truck tank can hold all the milk contained within the farm tank. This sounds simple enough, but overfilling truck tanks occurs more often than it should. Anytime a truck tank is overfilled, shrinkage for that load is certain.

Always examine the farm tank after milk has been pumped onto the truck. Any milk remaining in the tank is a potential shrinkage problem. Remember, never chase milk out of the tank with water. However, be sure to note when milk consistently remains in a tank. This is a sign that the tank is not level and may need to be adjusted and recalibrated.

Examine for ice. Ice in a tank has been weighed but not pumped onto the truck and can contribute to shrinkage. Ice in the farm tank is most often attributed to a malfunctioning tank cooler and milk quality problems regularly accompany ice build ups in farm tanks. Be sure to notify the producer and field representative when ice is observed.

Plant measuring activities

When a load of milk arrives at the plant, it will most often be weighed and/or measured using either a metering device or a truck scale. Regardless of which method is used, the measuring device must be accurately calibrated, well-maintained and properly operated by plant employees.

Metering systems

The use of milk meters in plant receiving bays requires two areas of focus: sanitation and accurate measurement of milk. Meters are typically cleaned by clean-in-place systems (CIP) utilized in the receiving area. Equipment installers, including both the metering equipment and CIP equipment representatives should have a thorough understanding of how these devices interact. A change or adjustment in one area should not be made without giv-

ing consideration to how the entire receiving bay system (metering and CIP) will be impacted. Additionally, meters should be equipped with an effective vapor or air elimination system to prevent air from passing through the meter as appropriate.

Procedures for meter operation should be developed for each receiving area with consultation from the installer. These procedures should be readily available for all meter operators. Posting these procedures is recommended. Meter operators are responsible for the equipment and its proper operation on the plant's side of the truck valve. Basics of proper meter operation include ensuring:

- The meter's indicator or register has been zeroed prior to connecting the truck hose.

- When applicable, the plant's receiving system is adequately "primed" prior to unloading milk (some systems may require draining an air eliminator after each load, too).

- A proper hose connection and that the truck valve is opened to begin the unloading procedure.

- The truck tank is completely unloaded and empty prior to printing a meter ticket and unhooking the truck hose.

- Meter malfunctions and maintenance needs are promptly reported and addressed.

Truck scales

Truck scales are arguably the most common means of transported milk measurement at plants. Truck scales should be appropriately sized for their intended use and must be long and wide enough to hold the largest vehicle to be weighed. As with meters, proper scale operation is critical. Many modern truck scale systems utilize indicating devices that make use of stabilization programs. This means the scale operator cannot obtain a weight until the scale reading has "stabilized" within a certain range. Operators who use scales without stabilization programs must be extremely patient to ensure truck weights have stabilized prior to ob-

taining a weight. Finally, the actual scale should be visible from the location of the weight indicating device. This can be accomplished by having the indicating device installed within direct sight of the scale platforms or by using other means such as large mirrors or cameras. This will help to ensure the proper tare (empty) truck weight is associated with the loaded truck weight.

Scale operators should be aware of the many factors that can influence scale readings such as wind, moisture, debris, snow/ice, personal belongings, people (most commonly the truck driver) and “load slap”. “Load slap” is the sloshing of liquid within the tanker and can test the patience of any scale operator. Due to a number of factors, milk trucks will not be completely full, which increases the tendency for “load slap”. In most cases this condition lengthens the amount of time required for stabilization of the scale. Even though it may be tempting to rush this process, scale operators must be patient and not obtain a truck weight until the load has completely stabilized. Additionally, scale operators should be very observant and note any unusual conditions during operation times. Particularly in the winter, snow/ice and wind can contribute to erroneous truck scale weights.



Truck scale operators should ensure a truck scale reading “stabilizes” prior to obtaining the scale weight reading.

Preventative maintenance and inspection

Whether using a meter or a scale in plant receiving operations, preventative maintenance is essential to ensure accurate and consistent equipment performance. Equipment manufacturer recommendations regarding maintenance should be followed. Additionally, prompt investigations and corrective action should occur when meter and scale operators notice changes in equipment. Maintenance programs and repairs performed on meters and scales should also be well documented and these records should be kept on file for future reference. Finally, it is appropriate to note that just as the farm bulk tank is subject to evaluation by an authorized official because it is used for commerce, any meter or truck scale used for commercial transactions is also subject to periodic evaluation by the KDA.

Tying all this information together

If we lived in a perfect world where all farm tanks were calibrated accurately, all haulers flawlessly performed proper procedures and all plant measuring devices were properly operating, some milk losses would still occur during normal milk transportation processes. The key to reducing milk losses is for the dairy community to work together in an effort to keep shrinkage to a reasonable minimum. Accomplishing this goal takes a continuous commitment from each of us to narrow down potential sources of shrinkage and then to follow through with corrective action.

The common theme throughout this article is accuracy. If you would like to have a farm tank calibrated, a conversion chart reproduced or a meter or scale evaluated for accuracy, go to www.rs.uky.edu or contact our office for more information.

*C. Thompson
Milk Regulatory Program*

Fall Dairy Industry Training Programs

Milk Hauler’s School

Monday, October 26
Regulatory Services Bldg., Lexington

Tuesday, October 27
Warren Co. Ext. Office, Bowling Green

Milk Plant Receiver’s School

Wednesday, October 28
Warren Co. Ext. Office, Bowling Green

To pre-register and to find out more about these training programs, please contact our office or visit the Milk Program’s website at: www.rs.uky.edu.

Employee News

Research Analyst—Raina Tosheva

Raina Tosheva, Ph.D., joined the Division of Regulatory Services in the Feed and Fertilizer Lab as a Research Analyst in July, 2009. She will be conducting feed analyses for presence and levels of additives including medications, contaminants or other naturally occurring compounds using High Performance Liquid Chromatography (HPLC). The primary focus of her work involves drug and antibiotic analysis in animal feeds.



Raina received her degree in Biochemistry from University of Lodz, Poland and her Ph.D. degree in Biochemistry and Molecular Biology from Bulgarian Academy of Sciences, Sofia, Bulgaria. After completing the studies in her native country of Bulgaria, she came to the United States in 1992 on a postdoctoral appointment granted to her by the University of Kentucky Department of Biochemistry. After postdoctoral work, she was employed as a research associate by the UK Department of Medicine. Her research focused on drug metabolism and drug elimination during LPS-provoked liver inflammation and Hepatitis C infection in humans. These studies were carried out by use of drug extraction and derivatization methods followed by HPLC and Gas Chromatography methods for separation and quantitation. Numerous biochemical, clinical, and other analytical techniques

were also used. As a member of the Society of Toxicology, Raina has attended numerous national and regional meetings and conferences, has been co-author on research grants, and has published scientific papers and presentations in this field.

Raina, her husband Warren and daughter Assia became U.S. citizens several years ago and are residents of Lexington. We welcome Raina to Regulatory Services and look forward to her contributions to the Feed and Fertilizer Laboratory in support of the feed program and the Department.

*M. Bryant
Feed and Fertilizer Laboratory*

AASCO Past President—David Buckingham

David Buckingham, Seed Regulatory Coordinator, has just completed a two-year term as President of the Association of American Seed Control Officials (AASCO). AASCO is an organization of seed regulatory officials from the United States and Canada. Members meet annually to discuss mutual concerns of seed law enforcement, to be updated on new developments in the seed industry, and to update the Recommended Uniform State Seed Law (RUSL) which the organization developed and maintains as a "model" law for state and federal programs. During his tenure, the AASCO Handbook on Seed Sampling was published and distributed providing guidance for accurate and efficient sampling of seed products. Additionally, David was a driving force behind the successful AASCO Seed Sampler training program.



Current Job Openings:

The Division of Regulatory Services is currently soliciting applications for a few positions. Search the UK webpage for current positions: <http://www.uky.edu/HR/UKjobs/>.

Announcements

Upcoming Events

Kentucky Turfgrass Council Annual Conference—Oct 19-21

Bowling Green, KY

<http://www.uky.edu/Ag/ukturf/>

UK College of Ag. Roundup—Oct. 24

Lexington, KY

<http://www.ca.uky.edu/advancement/>

Milk Hauler's School—Oct. 26

Division of Regulatory Services, Lexington, KY

859-257-2785

Milk Hauler's School—Oct. 27

Warren Co. Extension Office, Bowling Green, KY

859-257-2785

Milk Plant Receiver's School—Oct. 28

Warren Co. Extension Office, Bowling Green, KY

859-257-2785

Kentucky Grazing Conference—Oct. 29

UK Research & Education Center, Princeton, KY

<http://www.uky.edu/Ag/Forage/>



Growing Kentucky

UK College of Agriculture produces a 30-minute television show — *Growing Kentucky* — that highlights programs and events of the College and the Cooperative Extension Service. It airs on KET (Kentucky Educational Television). Visit www.ca.uky.edu/agc/video/growingkentucky/ or contact your local cable provider for more information.

College of Agriculture H1N1 Influenza (Swine Flu) Resources

The University of Kentucky College of Agriculture maintains a Swine Flu resource page. It is located at: <http://www.ca.uky.edu/flu.php>.

Electronic Delivery Regulatory Services News

To reduce printing, paper and postage costs, Regulatory Services News is available for electronic delivery to your email address.

To receive the quarterly newsletter in electronic format, please visit the Division's website at www.rs.uky.edu, navigate to the Newsletter page and submit your contact information.

Newsletter editions dating to 2001 are available online.

Regulatory Services News is published quarterly for the feed, fertilizer, milk and seed regulatory programs and the seed and soil service testing programs of the Division of Regulatory Services. It is provided free to persons interested in these programs. For subscriptions or address changes, contact Cindy Finneseth, Editor, either by email at Cindy.Finneseth@uky.edu or by telephone at (859) 257-2785. You can also request electronic delivery and access past issues of Regulatory Services News on the Internet at <http://www.rs.uky.edu>.

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