Regulatory Services News

Vol. 52, No. 2 Feed - Fertilizer - Milk - Seed - Seed Testing - Soil Testing Summer 2008

Noel Johnston Retires

Noel Johnston retired April 9, 2008 from his position as Regulatory Specialist. Since August of 1973, Noel has been working in the Lincoln Trail area providing consumer protection for agricultural producers. Major production in Noel's area includes hay production, cattle and calves. In order for processors and manufacturers to meet guarantees and requirements of the law, Noel spent a considerable amount of time working with fertilizer blenders and feed manufacturers in adopting Good Manufacturing Procedures. Noel will be working with the Division under a post-retirement position through the end of June, 2008.

Noel obtained B.S. and M.S. degrees from Western Kentucky University at Bowling Green, KY with an emphasis on soil fertility. Noel is a native of Hart County and currently resides there, operating a registered Angus cow/calf operation.

We appreciate Noel's dedication, contributions and service to the Division, businesses and consumers to the Lincoln Trail area for the past 34+ years. Congratulations to Noel, Caroline and the Johnston family.

S. McMurry
Inspection Program

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UNIVERSITY OF KENTUCKY
College of Agriculture
Division of Regulatory Services

Milk Transport Security System Demonstration: October 9, 2008

In recent newsletters, we have reported on a Department of Homeland Security (DHS) funded milk transport security project. Regulatory Services staff have been cooperating with researchers from UK's Biosystems and Agricultural Engineering, Western Kentucky University, the University of Louisville and Kentucky dairy industry representatives on this project since January 2006.

The system has been developed to provide enhanced security and accountability as well as improved recordkeeping for the dairy industry. Our industry collaborators represent milk transportation companies, milk marketing agencies, processors and tanker manufacturers and distributors. Their participation has helped to ensure the system provides beneficial information for all users and that it has practical application in our current milk transportation protocols.

Key components of the system include a small, user friendly handheld computer device that a hauler will use to enter typical milk ticket information. The handheld device will provide the hauler with the most up-to-date information regarding pick-up scheduling, logistics, etc. The tanker itself is outfitted with a computer processor to store the milk data. Other key components on the tanker include a GPS unit, locks on the dome lid and rear door, a key pad (to enter security codes when the handheld device is not available) and temperature sensors for the sample cooler and cargo.

The system is designed for security and accountability with the electronic locks, which will interact with other parts of the system to only allow legitimate users, such as a milk hauler, inspector, etc., access to the tanker. Access to the tanker is thoroughly documented and inappropriate access will be "red flagged" for the system users. Information typically recorded on the milk ticket, tanker wash tag, etc., will be entered into the handheld device. This information will be accumulated, tracked and provided to appropriate individuals who are using the system. Programming is included in the system to minimize errors. Haulers benefit from the system through reduced paperwork relating to farm pickup and seal information, a reduction in errors associated with these records and improved communication. Other users benefit from being able to have milk transport information in "near real-time". To ensure privacy, the information gathered by the system is arranged so that only certain users will have access to their own "authorized" information. However, the data within the system is structured so that a "trace-back" can occur in case of a security breach or a food safety concern.

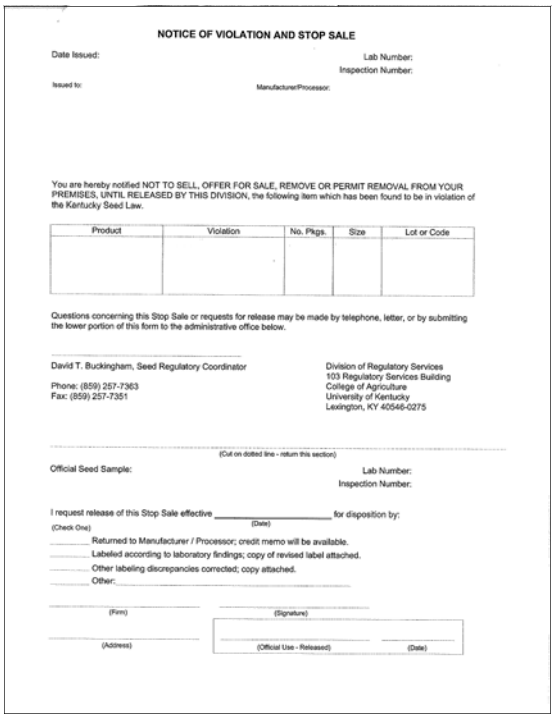
The system is currently being tested on an actual milk route and testing will continue this summer. A demonstration of the truck and accompanying system will take place at the Fayette County Cooperative Extension Office on Thursday, October 9, 2008. Be sure to mark your calendar for this date! Details will be available on our website at: www.rs.uky.edu. If you have additional questions, you may contact Chris Thompson at chris.thompson@uky.edu or at 859-257-2785.

C. Thompson
Milk Program

Seed Stop Sale Orders and Releases

Seed that has been placed under a stop sale order cannot be legally offered for sale, sold, or removed from the premises until a proper release has been obtained. A stop sale order protects the consumer, the seed dealer, and the seedsman.

Stop sale orders come from two sources. Our inspection staff issue orders in the field when their inspection of seed stock at wholesale or retail locations indicates seed lots to be in violation of the Kentucky Seed Law. As a rule, these violations involve seed lots that are out of test date, mislabeled, or are being distributed by companies that do not have labeling permits. The remaining stop sale orders are issued from our office after our laboratory has determined that the lot is not within tolerance of the guarantees stated on the seed analysis tag.



NOTICE OF VIOLATION AND STOP SALE

Date Issued: Lab Number:
Inspection Number:

Issued to: Manufacturer/Processor:

You are hereby notified NOT TO SELL, OFFER FOR SALE, REMOVE OR PERMIT REMOVAL FROM YOUR PREMISES, UNTIL RELEASED BY THIS DIVISION, the following item which has been found to be in violation of the Kentucky Seed Law.

Product	Violation	No. Pkgs.	Size	Lot or Code

Questions concerning this Stop Sale or requests for release may be made by telephone, letter, or by submitting the lower portion of this form to the administrative office below.

David T. Buckingham, Seed Regulatory Coordinator

Phone: (859) 257-7363
Fax: (859) 257-7351

Division of Regulatory Services
103 Regulatory Services Building
College of Agriculture
University of Kentucky
Lexington, KY 40546-0275

(Cut on dotted line - return this section)

Official Seed Sample: Lab Number:
Inspection Number:

I request release of this Stop Sale effective _____ for disposition by:
(Check One) (Date)

_____ Returned to Manufacturer / Processor; credit memo will be available.
_____ Labeled according to laboratory findings; copy of revised label attached.
_____ Other labeling discrepancies corrected; copy attached.
_____ Other: _____

(Firm) (Signature)

(Address) (Official Use - Released) (Date)

Stop sale orders issued by our inspectors are issued to the location where the violation has been noted and a copy of the order is sent to our office. Stop sale orders from our office are issued to the location where the sample was obtained. A copy of the order is also sent to the inspector in that area and the seedsman who processed the seed lot.

A request for release of a seed lot under stop sale order should come from the location to which the order was issued. This location has control of the seed lot in question and can attest to the disposition of the seed lot. In most cases, a request for release from any other source will not be honored. Seedsmen responsible for labeling a seed lot found to be in violation should assist their dealers by providing proper labeling to correct the violation(s).

Seed found to be out of test date will have a stop sale order issued on the lot. The seed dealer is required to maintain the seed germination test date. Dealers should check their seed stock and obtain a new germination test for lots that are not within the required nine month test date period. Labeling has to be changed to reflect the new test date in order for the stop sale order to be released.

The process for obtaining a release from a stop sale order is neither complicated nor time consuming. The bottom part of the stop sale order is a blank request for release. A release can be obtained by fax or mail after a violation has been corrected. A copy of the corrected labeling and the signed release request can be faxed to my office for verification and immediate release by return fax. **The fax number to use is 859-257-7351**. A faxed request is the faster way to obtain a release. Don't forget to include a return fax number for your location with your request.

Stop sale orders should be responded to on a timely basis. Most violations can be corrected by relabeling the seed lot. A timely response assures that the dealer will still have the opportunity to market a properly labeled product. If anyone has questions about obtaining a release from a stop sale order or needs assistance in obtaining a release from a stop sale order, please call our office at 859-257-7363.

D. Buckingham
Seed Regulatory Program

Sulfur Determination for Fertilizers

There can be different forms of sulfur in solid fertilizer products. Elemental, organic, and inorganic forms of sulfur can be present. The wet chemical sulfur method used in our laboratory only measures the inorganic sulfate form. A second lab method is used to measure elemental sulfur. The organic form of sulfur in these solid products requires a different method. The fertilizer laboratory is investigating a total sulfur analytical method to verify sulfur guarantees on complex products available in the marketplace.

At the Southern Section AOACI Annual Meeting held in Atlanta, GA, April 21-22, 2008, Mason Marsh of the Leco Corporation presented the paper "Total Sulfur in Dry and Liquid Fertilizers using High Temperature Tube Furnace Combustion with Infrared Absorption Detection". Regulatory Services provided several fertilizer samples to Leco, which contained inorganic and/or organic sulfur, to help evaluate the application of this analytical technique.

The combustion total sulfur technique measures all forms of sulfur in a sample. The combustion sulfur technique provided higher sulfur values for samples when compared to the sulfate sulfur values from our lab because organic sulfur was present in each sample. The combustion technique sulfur values were also in better agreement with the sulfur guarantee for the samples. These initial results are the basis for more investigation. Additional work is ongoing for these and other sulfur containing products to evaluate method capabilities. The findings will be presented at the ASFFPCO Annual Meeting in June.

M. Bryant
Feed-Fertilizer Laboratory

2008 Feed Quality Assurance Workshop
July 11, 2008
8:00am – 4:30pm

The Division of Regulatory Services will be hosting the 2008 Feed Quality Assurance Workshop at Lake Barkley State Resort Park in conjunction with Kentucky Feed & Grain Association Summer Meeting on July 11. The goal of this workshop is to educate Kentucky feed manufacturers and allied industries in an effort to promote safe, quality feed in Kentucky and the surrounding states. Further information will be available pertaining to both the Kentucky Feed & Grain Association Summer Meeting and the Workshop. For more information about the workshop, please contact Meagan Davis with the Division of Regulatory Services (mmdavi2@email.uky.edu; 859-257-2785) or Buena Bond (bbond@kyfga.org; 859-254-0294) with the Kentucky Feed & Grain Association.

Milk Program Annual License Renewals

Licenses issued by Regulatory Services' Milk Program expire on June 30, 2008. All licensees (milk handlers, laboratories, transfer stations, testers, and sampler-weighers) should receive a renewal notice and application by early June. If you do not receive a renewal notice by June 15, 2008, please contact our office to request an application or you may obtain one from our website at www.rs.uky.edu.

It is important for all licensees to submit their application and fee to Regulatory Services promptly. *License fees for renewals that are past due are subject to a penalty fee*. If you have any questions, contact the Milk Program at (859) 257-2785.

Biotechnology Trait Testing

Based on casual field observation, approximately 90% of the soybeans and 80% of the corn available commercially in Kentucky are considered transgenic. Commonly encountered traits are Bt corn, Roundup Ready® soybeans and Roundup Ready® corn. Transgenic crops are also known as GMO (genetically modified organisms) or GEO (genetically engineered organisms) and are found in many agronomic varieties singly or in combination (stacked traits). Single and stacked trait varieties are currently marketed in corn, soybeans, cotton, canola, rice and sugarbeets. As dealers, growers and consumers become increasingly concerned about the presence of biotech traits, the Seed Testing Program is responding to industry needs by offering trait detection analysis.

Trait detection can be used by those interested in conventional (non-GMO) seed or grain for specialty markets to confirm that there is no contamination or that the level of presence meets an expected tolerance level. Unintended inclusion of a trait in a seed lot may be called "Adventitious Presence" and is especially important for exported seed intended for Japan or Europe. For others interested in the presence of certain traits, information regarding the level detected can be valuable (i.e. 98% or greater).

Methods for Laboratory Trait Testing

For most genetic modifications, observation of the intact seed unit is not sufficient to determine if a specific trait is present. Several direct and indirect test protocols have been well-researched and are routinely used in seed testing laboratories to confirm the presence of a trait's genetic material. The Seed Testing Lab at UK currently offers herbicide bioassays and ELISA assays to test for presence or absence of specific traits. Each method has advantages and disadvantages. When selecting a test method, the crop, trait and information required must be considered.

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Biotechnology Trait Testing

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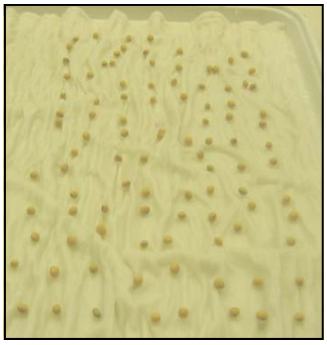
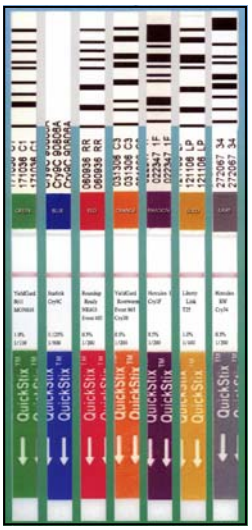


Substrate imbibition method for testing soybean herbicide resistance

Herbicide bioassays involve spraying seedlings or planting seed on herbicide-soaked substrate. Seeds that are resistant (have the herbicide trait) will germinate and develop normally. Susceptible seeds will begin to germinate, but do not progress in normal development. Our lab uses a substrate imbibition test for Roundup (glyphosate), Liberty Link (glufosinate) and STS (chlorsulfuron) testing. Advantages with a bioassay are cost ($10) and specific herbicide formulations can be used. Disadvantages can include the time required (8 days), protocols are limited to a few crops and chemicals, and results can be confounded by low vigor.

ELISA (enzyme-linked immunosorbent assay) tests for specific proteins present in seed lots using specific antibodies that react with a protein of interest. Lateral flow strips (also called dipsticks) are available for a range of traits in corn and a few traits in soybean and other agronomic crops. Advantages include time (3-5 minutes per sample), simplicity, and relatively low cost ($25 per trait). Disadvantages are that each event requires a different test strip, detection levels are limited and the test is qualitative (yes/no information only). However, using specialized equipment, we can quantify presence of a trait at low levels (<5%).



Lateral flow "strip test" used to detect separate traits or events.

PCR (polymerase chain reaction) is an additional trait testing method. This highly sensitive protocol identifies specific DNA sequences of inserted genes and can be used on processed food products. The primary disadvantage is that the testing is expensive. PCR-based trait detection is not currently offered by our lab.

Sampling for Trait Testing

To ensure an accurate test, a representative sample of the seed lot must be obtained. The submitted sample should be randomly taken and represent the entire lot. A minimum of 800 seeds should be submitted to the lab for most trait tests. Samples should be packaged well (complimentary sample bags are available from our laboratory) and be accompanied by a sample submission form which includes contact information and specific test(s) needed. If a particular herbicide formulation is required, please note that on the bag or sample submission form and we will try to accommodate the request. Samples can mailed to the lab or dropped off during normal working hours (7:00 am – 5:00 pm, Monday-Friday). We are located on the corner of University and Alumni Drives in Lexington.

Traits for which we routinely test are listed in the table on the following page. Each bioassay is $10 and individual trait testing using an ELISA strip test is $25. Bioassays require at least 8 days to complete, but may take longer, depending on lab sample load. Trait testing using the strip tests will be completed within three days of sample receipt. We also offer a Corn Trait Screen ($50 per sample) which tests for 7 traits (Herculex I (Cry1F), Herculex RW (Cry34), Liberty Link (T25), Roundup Ready (Event 603), StarLink (Cry9C), YieldGard Corn Borer (Cry1Ab/Bt11), YieldGard Rootworm (Cry3Bb) in a single submitted sample.

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Trait/Event	Crops Available	Detection Method
Herculex I Herculex RW	Corn	ELISA strip
Clearfield (IMI)*	Corn	Bioassay
LibertyLink	Corn, Cotton, Rice, Soybeans	Bioassay, ELISA strip
Roundup	Alfalfa, Canola, Corn, Cotton, Soybean, Sugarbeet	Bioassay, ELISA strip
Starlink	Corn	ELISA strip
STS*	Soybean	Bioassay
YieldGard YieldGard Plus YieldGard VT	Corn	ELISA strip

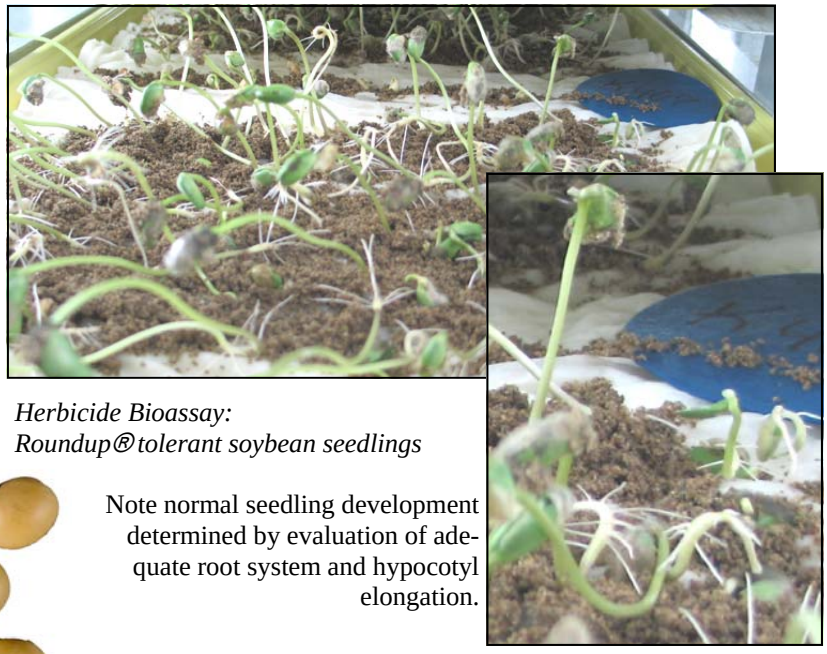
**STS tolerance in soybeans and Clearfield (IMI) tolerance in corn were derived by traditional plant breeding not biotech methods. They are included in this list because a bioassay is a routine detection method offered by our laboratory.*

Single and stacked traits are currently available for many crops. As biotechnology continues to advance with new traits and additional crops modified, the lab intends to have the capability to monitor presence of traits important to the Kentucky Seed Industry. For more information about biotechnology trait testing, sample submission or to request complimentary sample bags, please contact the Seed Testing Program at 859-257-2785 or by email (Cindy.Finneseth@uky.edu).

C. Finneseth
Seed Testing Program

Herbicide Bioassay:
Roundup® susceptible soybean seedlings

Note abnormal seedling development determined by necrotic and stunted primary roots and abnormal hypocotyl extension.



Herbicide Bioassay:
Roundup® tolerant soybean seedlings

Note normal seedling development determined by evaluation of adequate root system and hypocotyl elongation.

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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 either by email at Cindy.Finneseth@uky.edu or by telephone at (859) 257-2785. You can also access Regulatory Services News on the Internet at http://www.rs.uky.edu.
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Design & Layout: Karen Nichol

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RETURN SERVICE REQUESTED