Regulatory Services News

Feed – Fertilizer – Milk – Seed – Seed Testing – Soil Testing

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UK College of Agriculture Appoints New Director of Regulatory Services

Dr. Bill Thom

The Division of Regulatory Services is pleased to welcome Dr. William Thom as our Interim Director. Dr. Thom succeeds Dr. Eli Miller, who retired earlier this summer.

Dr. Thom is currently holding a joint appointment with the Division and the Department of Plant and Soil Sciences in UK's College of Agriculture. He will be retiring from his position as an Extension Soil Scientist at the end of September.

A native of Iowa, Dr. Thom received his B.S. degree in Agriculture from Iowa State University. He received his M.S. and Ph.D. degrees from the University of Missouri in the area of Soil Science. He spent many years working in agribusiness, extension and research positions in Iowa and Mississippi before joining the faculty at UK in 1979.

Since the 1990s, Dr. Thom's primary focus has been in the area of environmental and natural resource education. Dr. Thom has been a valuable member of the College's Environmental and Natural Resource Issues (ENRI) Task Force, which develops and provides educational information in regard to environmental issues. Dr. Thom's expertise extends across nutrient management, agriculture water quality, biosolids and animal waste management.

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Selenium Yeast in Complete Dog Foods

The Center for Veterinary Medicine (CVM) has issued a *Letter of No Objection* concerning the use, safety and suitability of selenium yeast in complete dog foods as a source of supplemental selenium.

Selenium yeast can be used as a source of supplemental selenium at levels ***not to exceed 0.333 ppm in a complete dog food on a dry matter basis.*** The amount of added selenium (0.30 ppm) is based on animal foods/feeds containing 10% moisture (90% dry matter). Most animal feeds can be supplemented up to 0.30 ppm on an as fed basis however, the pet food level is based on a 100% dry matter basis. In determining the selenium level, FDA used the assumption of 10% moisture in the pet food and 0.30 ppm of supplemental selenium.

The equation below was used to determine the selenium levels for dog food on a dry matter basis.

$$\frac{0.30 \text{ ppm}}{0.9} = \text{selenium levels on a dry matter basis}$$

The tentative definition for selenium yeast was recently amended to reflect CVM's discretion of this addition to the ingredient definition by the AAFCO Ingredient Definition Committee at their Annual Convention in Oklahoma City, Oklahoma earlier this month.

M. Davis
Feed Registration Specialist

Regulatory Services Personnel Update
Technical Staff - Milk Testing Laboratory

Kristin Brock joined the milk laboratory in July as a Senior Lab Technician. Kristin has over five years of laboratory experience from her previous positions. She transferred to the milk lab from our feed and fertilizer lab section where she assisted with the lab's check sample program activities and was responsible for several types of analyses. Prior to arriving at Regulatory Services, Kristin worked in an environment lab where she performed several microbiological water tests that share similarities with some of the work she will be performing in the milk lab.

Kristin is a native of the Dayton, OH area and she attained a BS in Biology from the University of Kentucky in 1999. She is also an outdoor enthusiast and enjoys camping. We are pleased to have Kristin join us in the milk lab.

C. Thompson
Milk Program Coordinator

Invasive Plant Species and the Seed Trade

Natural obstruction - oceans, mountains and deserts - restrict movement of species; however, humans have successfully transported plant material across these barriers for agricultural, horticultural, forestry, medicinal and other purposes. A recent assessment estimated 25,000 non-native (also called non-indigenous) plant species have been introduced into the US.

Most plant introductions - whether deliberate or accidental - are beneficial, but a small percentage have caused unintended negative effects. The U.S. Office of Technology Assessment (OTA) issued a report in 1993 that estimated 15% of introduced species in the United States cause severe harm to agriculture, industry, human health and protection of natural areas.[1]

The seed trade has been credited - or blamed - with introduction of most plant species. A review of nursery and seed catalog records from the 1800s, preserved at the National Agricultural Library, show that many companies sold seed of crops, ornamentals or for medicinal purposes that are now considered problems in cropping systems.[2] Examples of seed kinds available for purchase more than a century ago include corncockle, cheat, soft chess, field bindweed, yellow nutsedge, goosegrass, johnsongrass, buckhorn plantain, broadleaf plantain, curly dock, sorrel, multiflora rose and dandelion.

It isn't really the introduction of a non-native plant that causes a problem, but the adverse effects some plants can have once established. Presence of some plants may disrupt a production system (johnsongrass), be difficult to control (dandelion) or may be harmful to human health (poison ivy) or the environment (honeysuckles). Costs or impacts may be thought of in economic or environmental terms. Economic estimates range from the millions to billions of dollars in cost in terms of control (herbicides, for example) and lost potential revenue due to unrealized yield (competition with crop plants) or damage (presence of noxious weeds). Environmental impacts include changes in soil salinity, competition for light, alteration of fire regime and water, nitrogen or carbon availability.

Plants that aggressively expand from the initial site of introduction are called 'invasive plants'. Plants that cause harm in terms of economic, environmental or human health are considered 'noxious weeds'. Although these terms are often used interchangeably, all invasive plants are not noxious and all noxious weeds are not invasive. Further, native plants as well as introduced plants can be invasive, noxious or both.

Determining if a species has to potential to be invasive and/or destructive is challenging. The OTA report pointed out that some plants have "both positive and negative consequences, depending on the location and perceptions of the observers".

Models have been developed based on plant characteristics (lifecycle, size, seed production, native range, etc...) to predict invasive potential, classifying plants into categories such as potentially, moderately or highly invasive. The prediction from the model is then used as a risk analysis tool, to permit or limit introduction of plants. Once an acceptable level of risk is determined, the risk analysis in conjunction with cost/benefit analysis and environmental impact assessment can be used for decision-making protocols. The main limitations to these models is that information on specific plants is limited; sites can vary dramatically (human influence, habitat features, herbivory pressure, competition from other plants, etc...); often species classified with the potential to invade have repeatedly been intro-

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Fertilizer Regulatory Program
Kentucky Official Sample Record
FY 06 (July 1, 2005-June 30, 2006)
Preliminary

The FY06 fertilizer year ended June 30, 2006 and our laboratory has completed all analyses on all samples. The sample record of all registrants/licensees will soon be sent out to all companies for comments/questions. It is preliminary to publishing the results in our annual regulatory bulletin. It is important that each company study their record and report any suspected discrepancies to the coordinator of the fertilizer regulatory program immediately. With no comments the record becomes "official" 90 days following the publication of the laboratory analysis report.

In the accompanying table are summaries of certain characteristics of the FY06 samples. Here are some of the highlights:

1. Overall deficiency Rate of ALL Official Samples	11.6%
2. Overall deficiency Rate of all NPK Official Samples	8.4%
3. Bagged samples deficiency rate(Third Lowest on Record)	***19.8%***
4. Bulk Sample deficiency rate (Lowest on Record)	***4.8%***
5. Total tons sampled	61,026

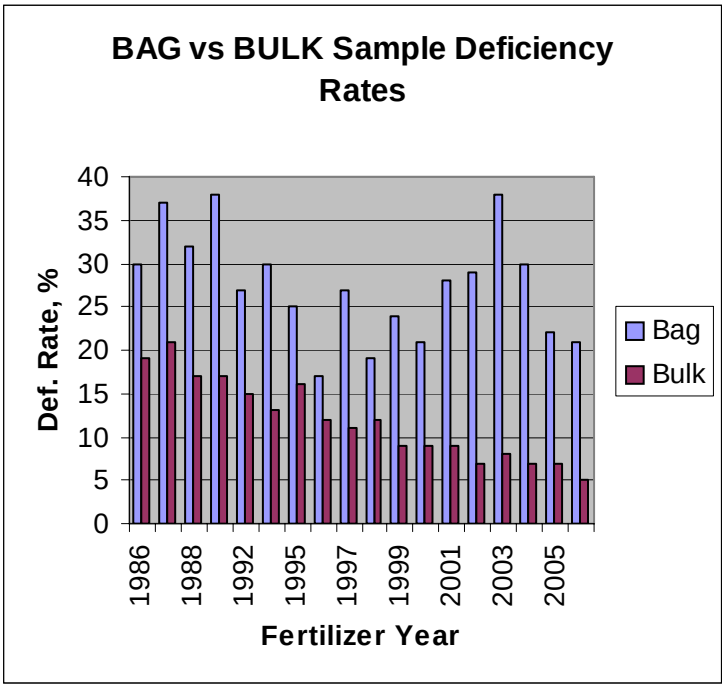
(See Chart)

This was an excellent sample record year.

I want to congratulate the industry on their record.

D. Terry
Fertilizer Program Coordinator

Chart 1. Comparison of Bag (Blends) and Bulk Custom Mix Deficiency Rates



SUMMARY KENTUCKY NPK OFFICIAL 2005-2006 SAMPLES
Samples with N, P , or K Guarantee
Means of Certain Variables

By Form of Distribution

FORM	N Test Def Rate,%	P Test Def Rate,%	K Test Def Rate,%	*Sample Def Rate*,%	RV MEAN	Ave No.Tests Per Sample	Lot Size Ave,tons	SMTests Per Smp
BAG	21.1111	15.1111	14.0000	19.7778	102.576	4.02111	3.9986	0.90222
BULK	2.3915	3.5430	2.7458	4.0301	100.971	2.59610	24.3889	0.22764
LIQUID	4.7619	2.3810	2.3810	4.7619	102.844	2.57143	28.0645	0.55952

By Type of Fertilizer

TYPE	N Test Def Rate,%	P Test Def Rate,%	K Test Def Rate,%	*Sample Def. Rate,%	RV MEAN	No. Tests Per Sample	Lot Size	SMTests Per Smp
BLENDED GRADE	22.6779	15.9228	14.2340	20.7479	102.203	3.85163	4.1206	0.74306
MANUFACTURED	5.3571	5.3571	7.1429	8.0357	106.428	5.41964	5.9938	2.28571
MATERIAL	0.5333	0.2667	0.5333	1.0667	100.128	1.39467	67.9604	0.10667
CUSTOM MIX	3.2237	5.0290	3.8685	5.4159	101.359	3.12766	3.8483	0.27144

By Form and By Type

FORM	TYPE	Samples Number	Samples % of Total	Tons Sampled	Tons Sampled % of Total	*Sample Def. Rate, %	RV MEAN
BAG	BLENDED GRADE	802	24.7378	3194.66	5.2349	21.0723	102.142
BAG	MANUFACTURED	93	2.8686	351.80	0.5765	8.6022	106.246
BAG	MATERIAL	3	0.0925	35.00	0.0574	0.0000	106.333
BAG	CUSTOM MIX	2	0.0617	17.30	0.0283	50.0000	100.530
BULK	BLENDED GRADE	5	0.1542	35.00	0.0574	0.0000	100.884
BULK	MANUFACTURED	6	0.1851	262.30	0.4298	0.0000	102.603
BULK	MATERIAL	708	21.8384	48986.80	80.2720	1.1299	100.130
BULK	CUSTOM MIX	1539	47.4707	5785.94	9.4811	5.3931	101.352
LIQUID	BLENDED GRADE	22	0.6786	186.31	0.3053	13.6364	104.741
LIQUID	MANUFACTURED	13	0.4010	57.21	0.0937	7.6923	109.495
LIQUID	MATERIAL	39	1.2030	1948.50	3.1929	0.0000	99.606
LIQUID	CUSTOM MIX	10	0.3085	165.40	0.2710	0.0000	102.650
	Total	3242		61,026			

Sample with a NPK or RV Deficiency **Overall NPK Sample Deficiency Rate=8.4%**

SUMMARY OF **ALL** KENTUCKY OFFICIAL 2005-2006
Means of Certain Variables

N Tests Sum	N Tst Def,%	P Tests Sum	P Tst Def,%	K Tests Sum	K Tst Def,%	*Sample Def Rate,%	RV MEAN	Total Tests	Ave Lot Size Per Sample	Ave SMTests Per Smp	Total Tons Sampled
2884	4.29958	2614	4.16985	2670	3.55805	11.6052	101.465	9748	18.6618	0.43375	61266.62

***Sample with NPK, or Excess Cl, or S/M Test Deficiency**

Dairy Practices Council to meet in Louisville November 8-10, 2006

Those of us who work in the dairy industry realize it is indeed a complex business. No matter what aspect of the dairy business we work in, it seems that each day brings us new production tools, new science and technology, new goals and the list goes on and on… Sorting through all of this information can be a daunting task. But if we plan to continue in the dairy business over the long haul, most of us agree, we must meet the challenges of understanding this new information and how it can impact our business operations.

Jumping into a new technology or purchasing new equipment (with an expectation of positive results) without giving careful consideration to how it can impact other aspects of our dairy business is an often simplistic approach that can lead to disappointment. Wouldn't it be great if there was an opportunity to meet one-on-one with dairy professionals from all over the US to discuss new innovations, share ideas and enable us to improve our operations? The Dairy Practices Council® (DPC) provides that opportunity!

The DPC is a non-profit dairy professional's organization dedicated to addressing issues of concern relating to just about any aspect of the dairy industry. Issues are addressed through careful discussions the development of guidelines. Guideline development begins at the DPC annual meeting with guideline work continuing between meetings until the document is completed. The development process includes a detailed peer review procedure. So when a guideline is published, you can be assured the information is accurate and up to date.

The annual DPC meeting provides a good mix of general session seminars along with task force or "breakout" sessions that provide opportunities to have one on one interactions enabling participants to work on solutions to dairy issues. The meeting is regularly attended by field representatives, plant quality control and lab personnel and dairy transportation personnel. Every person attending the meeting is certain to find at least one task force group addressing a topic of interest. Recently developed guidelines have addressed topics such as bulk tanker sealing, food allergens, HACCP, SCC reduction and fundamentals of cleaning/sanitizing equipment.

This year's DPC meeting will be held November 8-10, 2006 at the Galt House in Louisville. The annual meeting is an excellent opportunity to provide input with guideline development, learn more about cutting edge dairy innovations and to make valuable dairy contacts. Topics scheduled to be addressed at this year's meeting include:

- Dairy Product Recall, FDA 306 record keeping
- Use of dairy cattle welfare audits
- Dairy procurement challenges
- National Animal ID
- Milk quality & shelf-life, from farm to table
- Sanitation of food grade tankers
- Dairy opportunities in KY
- PMO updates and the Bioterrorism Act – Turning Compliance into Economic Improvement
- Dairy farm drive-by impressions
- Successful transition to on farm processing
- Federal EPA CAFO Regulation
- What's New with NCIMS?
- Dairy HACCP

And many moretopics of interest!

If you are interested in learning about dairy innovations and in providing input regarding important dairy issues, please make plans to attend the Dairy Practices Council Meeting in Louisville!

This informative meeting will be attended by dairy folks from all regions of the US as well as foreign countries. Let's demonstrate Kentucky's enthusiasm for the dairy industry by having a good "home state" turnout for the meeting. For registration and program information go to www.dairypc.org or feel free to contact Chris Thompson at 859-257-2785.

C. Thompson
Milk Program Coordinator

Corn and Soybean Seed Calculator

Dr. Sam McNeill, Extension Agricultural Engineer at the College's Research and Education Center in Princeton, has recently developed a management tool for corn and soybean production. This downloadable spreadsheet calculator can be used to evaluate multiple seed lots based on seeding rate.

The pure seed and germination values from the seed tag are entered into the spreadsheet along with desired stand information. Successful stand establishment will be impacted by pure seed and germination. The higher both these values are, the higher the seed lot quality. Any bag or bulk lot of seed sold in Kentucky should have a tag attached with this information readily identified.

Based on planting intentions in acres and actual seed costs, the calculator can determine the number of bags needed and cost per acre. Multiple varieties can be entered to compare the cost per variety and cost per acre. This information is valuable to use in making purchasing and planting rate decisions to maximize profits.

The calculator is available on-line at www.bae.uky.edu/ext/Grain_Storage/Calculators. A detailed overview of the calculator is available in the April edition of the Corn & Soybean Science Newsletter (also available on-line at www.uky.edu/Ag/CornSoy). Also in this edition is an article discussing soybean populations and yield studies.

C. Finneseth
Seed Testing Coordinator

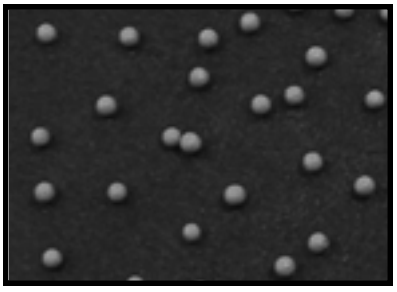
Labeling Agricultural Seed

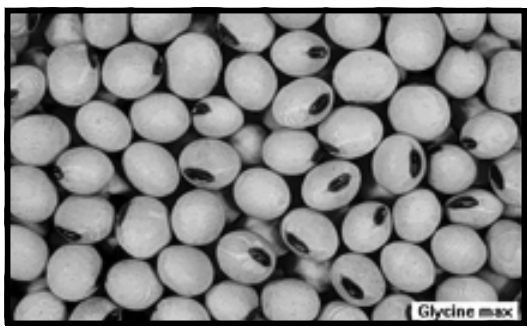
Labeling requirements for agricultural seed are defined in section 250.041 of the Kentucky Seed Law. This section defines the labeling requirements for agricultural seed and agricultural seed mixtures that are distributed in bulk or package of 1 pound or more, and in the instance of tobacco seed, 1/12 ounce or more. The law defines distribution as "to consign, offer for sale, sell, advertise for sale, barter, or otherwise supply agricultural seed."

Agricultural seed is defined to include grass, forage, cereal, oil, fiber, tobacco and other kinds of crop seed commonly recognized within Kentucky as agricultural seed, lawn seed, and combinations of these seed.

Labeling of agricultural seed requires the labeler to obtain a Permit to Label Agricultural Seed and Seed Mixtures or purchase official seed tags from the Division of Regulatory Services.

The seed analysis tag is often times also referred to as the label in the law. As the law does not define exactly what the label or tag is in terms of size and print size requirements, it is accepted that the labeling includes any information on the seed container and any tags attached to the container. All information presented must be truthful.





Soybean seed, with the exception of black soybeans, are required to be labeled by variety name. Some soybeans are currently offered by a brand name. The law contains no prohibition to branding, as long as the variety name is declared on the seed analysis tag.

All tobacco seed and canola seed distributed in Kentucky are required to be certified seed. Certified seed standards for Kentucky certified seed are defined by the Kentucky Seed Improvement Association. All certified seed, whether it originates in Kentucky or comes from another state, must meet the minimum certification standards of Kentucky, if those standards have been defined for the seed kind. Seed analysis tags for Kentucky certified seed are issued from the Kentucky Seed Improvement Association.

All treated seed is required to provide a word or statement indicating the seed has been treated and the name of the treatment applied. Treatments that are harmful to humans or other vertebrate animals are required to carry a caution statement such as "do not use for food, feed, or oil purposes." A poison statement or symbol is required for mercurials and similarly toxic substances. If the treatment is an innoculant, the expiration date of the innoculant must be stated. Although pelleting is not considered to be a treatment, agricultural seed that has been pelleted is required to declare the coating material percentage exclusive of the inert matter. The coating material cannot be included as a part of the inert matter.

Continued on following page

Required information on the label includes the following:

1. The name and address of the person labeling the seed. "Person" is defined as an individual, partnership, company, corporation, or other type of business establishment.
2. The name of the kind and variety for each agricultural seed component present in excess of 5%. If the variety is not known, the statement "variety unknown" is required. There are seed kinds defined in regulation that do not require variety statements and also seed kinds that by law (tobacco, canola, and soybeans) require variety labeling. Hybrid designations are used in the place of variety names.
3. Lot designation.
4. Percentage of weed seed.
5. The name and rate of occurrence per pound of each kind of restricted noxious weed seed present. The restricted noxious weeds and rates of occurrence are defined in the regulations.
6. Percentage of crop seed.
7. Percentage of inert matter. Inert matter cannot include coating material. Coating material has to be stated separately from the inert matter.
8. For each agricultural seed named on the label:
    a. Percentage of germination, exclusive of the hard or dormant seed.
    b. Percentage of hard seed or dormant seed, if present.
    c. Origin which is declared as a state or foreign country.
    d. The calendar month and year in which the germination test was completed.

Other requirements in the law that a person needs to be aware of when preparing an agricultural seed label include:

1. Agricultural seed that has a germination of below 60% cannot legally be offered for sale.
2. The maximum permitted common weed seed can be no more than 2%.
3. The labeled restricted noxious weed seed cannot exceed the maximum permitted rate of occurrence that is prescribed in the regulations.
4. Seed kinds that are present at below 5% can be declared on the label. The origin, pure seed percentage, germination components, and the germination test date are required for these if they are declared.
5. Seed label guarantees should be based on the results of valid laboratory tests as the seed analysis documents the test results. It is not correct to use the test results and factor in the analytical tolerance. This practice is false and misleading.

Labeling requirements for vegetable seed, flower seed, and combination seed, mulch and fertilizer products are different from the requirements for agricultural seeds. Information about labeling these products is included in the same section of the law. More information on the Kentucky Seed Law and regulations under the law can be obtained by going to the Division of Regulatory Services web site, www.rs.uky.edu.

D. Buckingham
Seed Regulatory Program

Invasive Species
continued from page 3

duced and not become invasive; and, invasive does not always mean harmful.

The response by some agencies has been to develop lists, with plants often classified as 'clean' (allowed), 'dirty' (prohibited) or 'grey' (prohibited until analyzed). This method is often criticized because many plants are targeted based on anecdotal reports without scientific documentation of the plant's potential for harm. A primary concern of the American Seed Trade Association (ASTA) is that sale of crops important to production agriculture (forage and feed), soil conservation and stabilization, and for ornamental purposes would be limited based on the perception of invasibility.[3] In Kentucky, there is no legislatively-sanctioned list, but a document has been circulated suggesting 'threats'. While most species on the list are commonly accepted as 'weedy', many species listed are of agronomic importance including tall fescue, sericea lespedeza, crownvetch, yellow sweetclover, white sweetclover, Korean lespedeza, bluegrass, ryegrass, timothy, alsike clover, red clover and white clover.

The OTA report indicated that the rate of introduction of harmful plants has not increased dramatically over the last 50 years. Control is mainly due to laws and regulations enacted to prevent or minimize introduction and sale of harmful plants. The Federal Seed Act and Kentucky Seed Law are two important pieces of legislation designed to limit introduction of unwanted and harmful plants via seed lots.

The Federal Seed Act is a truth in labeling law, which also identifies and monitors for approximately 100 restricted noxious weed seed. This law was enacted in 1939 and applies to specific agricultural and vegetable seed in interstate commerce. Purity standards are set by individual states and limits are enforced according to the state of shipment. Provisions of the Federal Seed Act and a listing of federal noxious weed seed can be found online at: www.ams.usda.gov/lsg/seed/seed_pub.htm#Regulations. The updated 2006 document listing individual state noxious weed seed can be found online at: www.ams.usda.gov/lsg/seed/nox06.pdf.

The Kentucky Seed Law is also based on truthful labeling, but also sets a minimum standard for seed lot purity – total weed seed (common and noxious) cannot exceed 2%. In Kentucky there are prohibited noxious weeds:

Balloonvine
Canada Thistle
Johnsongrass
Purple Moonflower
Quackgrass

which cannot be present in the seed lot being marketed and there are also restricted noxious weeds:

Annual Bluegrass
Buckhorn Plantain
Corncockle
Dodder
Giant Foxtail
Ox-eye Daisy
Sorrel
Wild Onion/Garlic

These seed kinds are allowable in limited amounts as listed in the table following this article. The total number of restricted noxious weed seeds cannot exceed 480 seed/lb.

The Seed Regulatory Program at the Division of Regulatory Services has a rigorous inspection and sampling program. The inspection staff samples seed lots from wholesale and retail locations across the state and submit those for testing. The seed testing laboratory analyzes the

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seed lots for label compliance as well as the presence of noxious weeds. The lab also monitors for presence of any federal noxious weeds. If noxious weeds from the federal list are found, those seed lots are restricted from sale in KY and a split of our sample is submitted to the Federal Seed Lab for confirmation and action at the national level.

According to some groups, the solution to invasive plants is to 'Go native!' While the idea has merit, it isn't the silver bullet. Availability of native plants can be scarce and being native to North America or even to a specific location in the U.S. does not mean the plant cannot be troublesome. Also, implementing a unilateral ban on introduced plants is not feasible. Not only would this approach interrupt and restrict the seed trade, such a quarantine would have significant economic effects on importers, wholesalers, retailers and consumers as many introduced species are valuable commodities. Further, this approach is nearly impossible from a regulatory perspective in terms of efficiency and economy.

Kentucky Restricted Noxious Weeds with Allowable Number of Seeds Per Pound

Annual Bluegrass	256
Buckhorn Plantain	304
Corncockle	192
Dodder	192
Giant Foxtail	192
Ox-eye Daisy	256
Sorrel	256
Wild Onion/Garlic	96

Literature Cited

[1] U.S. Congress, Office of Technology Assessment. 1993. Harmful Non-Indigenous Species in the United States. OTA-F-565. U.S. Government Printing Office, Washington, D.C.

[2] Mack, R.N. 1991. The commercial seed trade: an early disperser of weeds in the United States. Economic Botany 45(2):257-273.

[3] American Seed Trade Association. 1999. Invasive Species Position Statement. www.amseed.com/govt_statements.

Any plant subject to regulation must be selected based on scientific principles, damage potential and accurate identification. Commonly accepted documentation include research publications, scientific society reports and expert assessment. Conservation and production agriculture interests need not be opposed if the process of targeting plants for control is practical, timely, transparent, logical and based on scientific information.

Mechanisms are in place at the federal and state levels to provide information to a buyer about what plants will come out of a bag of seed that was purchased. Additionally, any seed lot can be tested on a service basis. Information provided to the customer will have an itemized list of any crop or weed seeds found in the sample submitted for testing. By critically evaluating a seed tag and report of laboratory analysis, a purchaser has information about seeds present in the lot. By utilizing this information, seed lots with potentially invasive or noxious species can easily be avoided.

C. Finneseth
Seed Testing Coordinator

The College of Agriculture is sensitive to the economic and environmental impacts of invasive species, which may be plants, insects, fungi and other organisms.

Recently, a working group has been organized through UK's Tracy Farmer Center for the Environment involving faculty and staff in College of Ag. as well as other departments across campus.

The focus is an interdisciplinary approach to integrate research, education and public service efforts in regard to invasive species.

Division of Regulatory Services

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