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## Texas Agricultural Extension Service

The Texas A&M University System

# CHEMOGRAM

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### TDA Offers Testing Daily in Austin

TDA currently is administering the Pesticide Applicator Exams every business day from 8:30 to 3:30 at the Regional office in Austin. If an individual needs to take an exam, they can call 1-800-835-5832 and speak to John Snodgrass to set up an appointment to take the exam on the computer. The computer exams are the same at the usual paper exams. The same fee of \$20.00 per category (pass or fail) still applies. For additional information, call the number above or 512-305-8946.

### Food Quality Protection Act Kent Hall and Rodney Holloway

The 1996 Food Quality Protection Act (FQPA) requires the Environmental Protection Agency (EPA) to conduct risk assessments on all pesticides by the year 2006. The EPA has stated it would begin with the pesticides it considers to pose the greatest threat to human health and the environment. These are the carbamates, organophosphates, and those on EPA's B2 carcinogen list. Some pesticide uses could be withdrawn if the risk is determined to be too high. A study was conducted at Texas A&M University to estimate the impact of loss of key pesticides used to protect potato, onion, cabbage, and watermelon crops in Texas. Combined, about 87,000 acres of these crops are harvested in Texas annually. Yearly gross farm receipts from these four crops average \$206 million. Texas growers of potatoes, onions, cabbage, and watermelon will lose an estimated \$18 million in annual net returns (defined as returns to land, labor, management, and capital) (36% decrease) if the fungicide Manex® is eliminated due to FQPA. Loss of Bravo® will cost growers an estimated \$17 million (34% decline). If the insecticide diazinon is withdrawn, State net returns for these four crops will be reduced by \$8.6 million (17% loss); and

withdrawal of the herbicide Prefar® will cost growers \$4 million (8% reduction).

Without accurate data, EPA's pesticide risk assessments will be flawed and some pesticides could be withdrawn needlessly. For example, in some preliminary risk assessments conducted under FQPA, EPA made the assumption that the pesticides were applied at the highest label rate allowable. This assumption greatly exaggerated the amount of pesticide being applied and resulted in high inaccurate risk estimates. According to this Texas study, on the average, actual pesticide application rates used on the four study crops are 32% lower than the highest allowable label rate. The Texas Agricultural Extension Service and the Texas Agricultural Experiment Station are cooperating with the United States Department of Agriculture to supply accurate data on pests, pest control practices, and needs in reports called crop profiles. These crop profiles are being made available for use by EPA and are also available on the Internet at <http://ipmwww.ncsu.edu/opmppiap/>. Anyone interested in assisting with this effort is encouraged to contact either of the authors at (409) 845-3849.

### Thoughts Recalled from D.C. Suzanne Deatherage

Having recently returned from six months in Washington D.C., I thought I'd share some recollections from my experience as temporary communications director for USDA's two-year-old Office of Pest Management Policy.

- Agriculture was often characterized as conventional, IPM-based or organic. The term "conventional agriculture" usually bespoke a disregard for the environment or the prevalent use of an undesirable practice. In one instance, the application of pesticides at 100 percent of the allowable rate was labeled as conventional agriculture.

- In a similar vein ... EPA Administrator Carol Browner disparagingly described organophosphate pesticides as “1950s-era,” saying “we can do better.” There was no dispute about trying to do better; just rare assurance that agriculture has done better already. Yes, some proven chemicals date to the 1950s, but not the manner in which they’re used: at reduced rates, with less frequency, in improved formulations, with precision timing and application, by certified applicators and only as needed, in combination with nonchemical IPM tactics.

- Regarding the registrations canceled last August for methyl parathion and azinphos methyl: an urgent intervention or a continuous improvement measure? From EPA came an impression of the former; from USDA, an impression of the latter. Deputy Secretary Richard Rominger likened the actions to building a bridge: “All bridge designs are based on a likely maximum load, plus an added safety factor for insurance. The FQPA (Food Quality Protection Act) instructs EPA to increase the safety factor in the design of pesticide tolerances. That does not mean the old tolerances are unsafe; it merely means that we’re incorporating an additional margin of safety.”

- In another analogy, a comparison was drawn between IPM and fire prevention, and pesticides and fire extinguishers. Technology advances both fire prevention and fire control, but no matter how effective the prevention, is it wise to prohibit the control?

- When used to explain IPM, the terms *biointensive* and *biocontrol* evoked confusion with *biotechnology*. For example, when told about biointensive alternatives to pesticides, a reporter asked if that referred to genetically modified material.

Most of my dealings were with the EPA Office of Pesticide Programs and the USDA Plant and Animal Systems unit of the Cooperative State Research, Education and Extension Service, as well as various visiting stakeholders — but enough reminiscing for now!

## EPA Cancellations to be Felt by Nursery Industry

EPA’s announced cancellation of azinphos methyl (Guthion®) for ornamentals, Christmas tree, forest tree, and shade tree uses says that EPA has accepted voluntary measures to reduce both dietary and worker risks from azinphos-methyl. This will include reduced use on apples and pears, and cancellation of use on cotton east of the Mississippi, on all sugarcane, and all ornamentals, Christmas trees, forest trees and shade trees.

The loss of Guthion® will certainly be felt in the nursery industry. However, of greater concern is the anticipated loss of Dursban, Lorsban and the other organo-phosphates. Nurserymen need to be prepared with alternatives. These include non-pesticide management strategies and other types of effective insecticides.

## Future Problems for Genetically Enhanced (GE) Crops

The first season of the new century promises to be tumultuous, as retail food dealers, wholesalers and exporters throughout the U.S. grapple with some heady issues. The debate about genetically enhanced (GE) crops threw everyone for a loop, as it spread from Europe to the U.S. like wildfire. The controversy could cause the adoption rate of GE technologies such as Roundup Ready® (RR), *Bacillus thuringiensis* (Bt), and Liberty Link® (LL) to slow or even regress. Mandatory labeling could force the segregation of crops that are treated today as full-blown commodities.

### Segregated grain — what next?

Demand for segregation of grain raises questions and forces agriculture to reexamine the production system. The 1999 harvest was shadowed by questions about delivering genetically enhanced (GE) grain to elevators. Processors warned that segregating GE from traditionally bred crops will be expected in the future, and demands for labeling of GE crops by environmental groups are adding to agriculture’s anxiety. If segregation was required for the 2000 harvest, how ready is the system? Experts are saying there is much work to be done.

"I don't know if we have the infrastructure in the U.S. to handle segregation right now," says Leslie Cahill, vice president of government affairs for the American Seed Trade Association (ASTA).

If a grain from *Bacillus thuringiensis* (*Bt*) corn is caught in the combine or if pollen drifts from one grower's *Bt*-corn field onto a nearby non-*Bt* field, the grain could test positive for genetic enhancement. "Even one kernel can taint a whole load," ASTA's Cahill says.

### **An Expensive Proposition**

Grain elevators still aren't sure how to test the deliveries. No "quick tests" exist right now. But one that is quick, inexpensive, accurate, and that can be performed on the delivery truck in less than five minutes will be a necessity if the separation becomes mandatory.

### **Crop integrity**

Here are some tips producers should keep in mind to protect traditionally bred varieties:

- After harvest, the combine and wagon should be thoroughly cleaned out.
- Make sure you know the policies of local grain elevators. Find out the tolerance level before hitting the fields.
- Do not plant your traditionally bred varieties in a field containing corn the year before to ensure there aren't any "volunteers."
- Start a fact file folder. Keep everything you can find on this issue. Knowledge will be key.

### **Trouble ahead for dealers and farmers**

Commodity prices continue to challenge dealers to stay profitable, and shortages of labor make hiring and retaining employees a constant challenge. How will dealerships face the challenges?

Recently Paul Schrimpf of Meister Publishing's *Farm Chemicals* interviewed agribusiness managers from different parts of the country for their views critical GE crop issues. Here are some of the results of that interview.

"Segregation may become an issue on the West Coast," said Ray Maul, president, Helm Fertilizer, Helm, CA. "For example, I don't

know how this is going to affect cotton — so far, it only has impacted grain."

"Our export partners do not want GE products," said Jeff Rice of Miles Farm Supply, Owensboro, KY. "GE crops are pretty controversial now — growers have a lot of questions and concerns. We are talking to them now about making seed decisions for 2000. There is a big concern for growers that deliver to elevators where a lot of the crop goes to exports.

"The farmer's ability to identify a true cost per bushel is critical if the farmer is going to survive in the 21st century," John Hester, manager of Nichols Agri-Service, Nichols, IA, commented. "Farmers that make it are going to know costs and have a marketing plan. Old marketing plans used to be farmers saying, 'I am going to sell corn when it gets to \$3.' That's not going to work anymore. Farmers have been left holding the bag on issues that 'protect the consumer.' The industry told them that their future is in genetically enhanced (GE) crops. Now, large elevators that must meet the demands of overseas customers won't accept GE grain."

"The farther you go into row crop areas, the bigger the GE issue is with growers," said Dennis Montavon, president, Effingham Equity, Effingham, IL. "If farmers and elevators have to segregate, they will, but nobody is mentally ready to do it. And the question we will have at harvest time is, 'Is the crop that the farmer delivers what he claims it is?' For example, if the crop becomes cross-pollinated at some point, then there may be some genetic material from a GE crop."

### **Testing**

Testing grain to detect the presence of genetically enhanced (GE) material is gaining attention as controversy about its use simmers. However, there are many logistical, technological, and legal factors to consider. In September, the American Crop Protection Association (ACPA) issued a report cautioning grain elevator operators, dealerships, and growers to familiarize themselves with commercial testing methods before buying kits or contracting for laboratory services. ACPA pointed out that there is not a single, rapid, inexpensive test that can detect all genetically

enhanced traits in any crop. Table 1 summarizes current test methods.

**Table 1. GE testing methods available**

Method	Tests for	Cost/Sample	Time	Ease of use	Results
ELISA	Protein	\$2	2-8 hr	Moderate; requires familiarity with laboratory practices; tests are crop and variety specific	Confirms specific genetic enhancement and percent of genetic modification in test sample
Lateral Flow Strip	Protein	\$1-5	10-20 min	Little training and no sophisticated lab equipment required; tests are crop and variety specific	Confirms only genetic enhancement but does not give percent
PCR	DNA	\$100-300	1-3 days	Difficult; requires specialized equipment and training	Very sensitive; prone to false positives; confirms presence of genetically enhanced DNA
Southern Blot	DNA	\$100-300	4-6 days	Difficult; requires specialized training and equipment, including radioactive materials	Identifies specific DNA sequences

Dr. Leah Porter, ACPA Biotechnology Committee executive director, says testing grain for genetic enhancement has inherent liability issues. "We just want to make sure people understand testing methods, and that they're validated. We don't want to see people penalized for claims that can't be validated."

### Testing Options

In July, Strategic Diagnostics Inc. (SDI) introduced a lateral flow strip test, Trait Check, which detects Monsanto's Roundup Ready genetic trait in soybeans.

"This is a fast yes/no test that determines the presence or absence of the trait," explains Dwight Denham, global business manager for the Newark, DE-based company. This fall, the company plans to introduce a strip test for corn that will detect the *Bacillus thuringiensis* (Bt) trait.

SDI also offers GMO Check, a more sophisticated, laboratory-based test for soybeans that has received EU approval and is being used in Japan's inspection and labeling program for imported oil-stuffs, seed, and grain.

### Liability Issues

To allay concerns about liability issues inherent in genetic testing, Genetic ID, Inc. has developed a certification program that tests a crop from seed to store shelf. The Fairfield, IA, company was the first to offer GE testing for the agriculture industry. It conducts sophisticated laboratory testing, using the polymerase chain reaction (PCR) method. The PCR tests can detect and quantify all GE crops currently on the market, says Jeffrey Smith, vice president of marketing and communications of Genetic ID.

Perceiving a need for a more cost-effective way to guarantee the non-GE status of an entire product line, the company also introduced its certification program, CERT ID. The program uses strict identity preserved (IP) procedures combined with audits and testing to verify the non-GE content at each stage of production and handling.

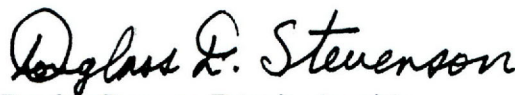
### New Pesticide Applicator Training Manuals

Two new editions of manuals are now available. Structural and Commodity Fumigation was released in September and now costs \$40. Extension personnel may purchase a copy for cost at \$21.50. Structural Pesticide Applicator Training General Manual was released this month and now costs \$20. Copies of either may be purchased by calling 409-845-1099.

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*Chemogram* is an internal Extension newsletter produced quarterly by the Agricultural and Environmental Safety unit. For more pesticide-related information, check our web site at [www-aes.tamu.edu](http://www-aes.tamu.edu) or contact us at 409-845-1099 or fax 409-845-6251.

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