DoD Releases Study on Link Between Agent Orange and Diabetes

On July 6, 2005, the Department of Defense released the latest report of the Air Force Health Study on the health effects of exposure to herbicides in Vietnam, which includes the strongest evidence to date that Agent Orange is associated with adult-onset diabetes. This supports the findings from earlier reports in 1992 and 1997.

Herbicide Orange [a mixture of 2,4-dichlorophenoxyacetic acid (2,4-D) and 2,4,5-trichlorophenoxy-acetic acid (2,4,5-T)] was used as a defoliant during the Vietnam War. Other herbicides containing 2,4,5-T were also used extensively; and as commonly used by the news media, the term “Herbicide Orange” refers to all of these 2,4,5-T products. These herbicides were contaminated with 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD), and the presence of this toxin is the basis for much of the concern over exposure to these defoliants. More than 3,000 veterans have filed claims for compensation against the Veterans Administration. In response to Congress, the General Accounting Office investigated the issue and subsequently recommended that the Department of Defense conduct a long-term epidemiologic study of the problem. The Department of the Air Force has made a formal commitment to the Congress and the White House to conduct such a study. On September 16, 1980, the White House directed the Department of Defense to initiate the Ranch Hand study with reasonable speed and high quality. This decision was subsequently reaffirmed by the new administration.

The Air Force Health Study summarizes the results of the 2002 physical examination of 1,951 veterans, which is the final examination of the 20-year epidemiological study. The Ranch Hand Study was named after the operation responsible for spraying herbicides in Vietnam between 1962 and 1971 to deny cover and destroy crops of the North Vietnamese Army.

Since the first examination in 1982, the Air Force has tried to determine whether long-term health effects exist in the Ranch Hand pilots and ground crews, and if these effects can be attributed to the herbicides used in Vietnam, mainly Agent Orange and its contaminant, dioxin. The report, along with many other studies on herbicide and dioxin exposure, will be reviewed by the National Academy of Sciences. Based upon this review, the Secretary of Veterans Affairs can ask Congress for legislation on disability compensation and health care.

Results from the 2002 physical examination support adult-onset diabetes as the most important health problem seen in the Air Force Health Study. They suggest that as dioxin levels increase, not only are the presence and severity of adult-onset diabetes increased, but the time to onset of the disease is decreased. A 166 percent increase in diabetes requiring insulin control was seen in those with the highest levels of dioxin, consistent with the strong evidence found in animal studies.
Cardiovascular disease findings were not consistent, but separate studies have found an increased risk of cardiovascular death in Ranch Hand enlisted ground crews, the subgroup with the highest average serum dioxin. Overall, Ranch Hand pilots and ground crews examined in 2002 had not experienced a statistically significant increase in heart disease relative to the comparison group. Associations between measures of cardiac function and history of heart diseases and herbicide or dioxin exposure were not consistent or clinically interpretable as adverse.

Other findings included an increase in the frequency of reported acne after service in Southeast Asia in Ranch Hand enlisted ground crew members, but the lack of corresponding patterns of skin lesions observed at the physical examination rendered this finding difficult to interpret.

Finally, several blood tests regarding liver function and blood lipids were elevated and did tend to increase with dioxin level. However, these tests may be elevated for many reasons, do not constitute a disease by themselves, and cannot be explained by other findings in the study.

At the end of the 20 years of follow-up, Ranch Hand pilots and ground crews as a group exhibited no statistically significant increase in the risk of cancer relative to comparisons. Differences by military occupation were inconsistent. Most importantly, the Ranch Hand enlisted ground crews, the subgroup with the highest dioxin levels and presumably the greatest herbicide exposure, exhibited a 14 percent decreased risk of cancer. These results do not suggest that herbicides or dioxin exposure are related to cancer in these veterans.

The report emphasizes three major limitations to the study. First, the results cannot be generalized to other groups, such as all Vietnam veterans or Vietnamese civilians, who have been exposed in different ways and to different levels of herbicide. Second, the size of the study makes it difficult to detect increases in rare diseases, thus small increases in rare diseases may be missed by the study. Third, other variables that were not considered in this report could be confounding factors influencing the results.

The report is available on the Air Force Health Study Web site at http://www.brooks.af.mil/AFRL/HED/hedb/default.html. Some groups and individuals do not agree with all of this information. Other views can be found by doing a Web search of “Agent Orange Effects” and other keywords. (Phil Nixon, revised slightly from Department of Defense News Release No. 682-05 on July 8, 2005.)

Eligibility Decision on 2,4-D Reregistration In

2,4-D, one of the most widely used herbicides in the United States and worldwide, is applied to crops such as wheat, corn, rice, soybeans, potatoes, sugar cane, pome fruits, stone fruits, and nuts. It controls invasive species in aquatic areas and federally protected areas and broadleaf weeds in turf grass and is also used as a fungicide and a plant growth regulator. Currently, over 600 end-use products are registered for use on more than 300 distinct sites.

On August 8, 2005, the Environmental Protection Agency (EPA) issued its Reregistration Eligibility Decision (RED) of the herbicide 2,4-D. The decision concluded that 2,4-D does not present risks of concern to human health when users follow 2,4-D product instructions as outlined in the RED. Under the EPA’s reregistration program of older pesticides, the RED is a comprehensive environmental and human-health assessment of the compound.

EPA’s findings are consistent with decisions by the World Health Organization, Health Canada, and European Commission, and recent studies by the U.S. National Cancer Institute. The agency’s assessment of the scientific data reinforces an extraordinary number of regulatory decisions and expert reviews that conclude the use of 2,4-D according to product instructions does not present an unacceptable risk to human health or the environment.

In reaching this conclusion, the agency determined that acute and short-term margins of exposure for homeowner applications of 2,4-D to lawns were “not of concern.” The Margins of Exposure (MOE) for various residential applications scenarios ranged from 1,800 for hose-end sprayers to 29,000 for fertilizer/herbicide granular mixtures. An MOE exceeding 1,000 is “not of concern.”

Using data from Task Force Good Laboratory Practice (GLP) studies, EPA and the task force worked together to develop a master label for 2,4-D that includes all uses, rates, and other application information. Although total annual application rates were slightly reduced in certain instances, all existing uses were maintained, and three new crops were added.

The statement on human carcinogenicity potential is unequivocal: The Agency has twice recently reviewed epidemiological studies linking cancer to 2,4-D. In the first review, completed January 14, 2004, EPA concluded there is no additional evidence that would implicate 2,4-D as a cause of cancer (EPA, 2004). The second review of available epidemiological studies occurred in response to comments received during the Phase 3 Public Comment Period for the 2,4-D RED. EPA’s report, dated December 8, 2004, and authored by EPA Scientist Jerry Blondell, Ph.D., found that none of the more recent epidemiological studies definitively linked human cancer cases to 2,4-D.”

In 2004, the Henry Ford organization in Dearborn, Michigan, declared 2,4-D one of the 75 most important innovations in the previous 75 years. Few scientific innovations have done as much to increase food production throughout the world.
Additional information may be obtained at the Industry Task Force II on 2,4-D Research Data’s Web site, http://www.24d.org, or by calling (800)345-5109. The Federal Register announcement can be found at http://www.epa.gov/fedrgstr/EPA-PEST/2005/August/Day-08/p15605.htm. To view the 320-page RED document, see http://www.epa.gov/oppsrrd1/registration/24d/. The executive summary begins on page xi and is only 6 pages long. The summary of the document is only one page, on page 113 of this document. A table summarizing required label changes. Particularly noteworthy label changes to watch for include adjustments to the PPE requirements and the maximum allowed rate for turf and various other crops. (Michelle Wiesbrook, adapted from an email by the Industry Task Force II on 2,4-D Research Data, August 8, 2005.)

14% of Applicators Experienced Unusually High Pesticide Exposure

Applicators who use certain pesticide handling and safety practices, especially those who repair their own application equipment, may be at greater risk for high pesticide exposure. Pesticides that are highly toxic or irritating may contribute to high-pesticide-exposure events. That’s what scientists concluded after comparing applicators enrolled in the Agricultural Health Study who reported that they had experienced at least one “incident or experience while using any pesticide which caused an unusually high personal exposure” to those who did not. Scientists called these incidents High Pesticide Exposure Events.

Scientists from several federal health agencies began the Agricultural Health Study in 1993. This large, long-term study examines how lifestyle habits, genetic factors, and agricultural exposures at work and in the environment contribute to the risk of disease. Scientists from the National Cancer Institute, the National Institute of Environmental Health Sciences, and the United States Environmental Protection Agency are conducting the Agricultural Health Study. They are collaborating with scientists at the National Institute for Occupational Safety and Health, the University of Iowa, Battelle Centers for Public Health Research and Evaluation in North Carolina, and other research institutions.

Certified farmer pesticide applicators and their spouses from North Carolina and Iowa and licensed commercial pesticide applicators from Iowa volunteered to participate in this one-of-a-kind study. Thanks to the generosity of the study’s 89,658 participants, scientists have begun to better understand the relationship of pesticides, other agricultural exposures, and health. The Agricultural Health Study will provide information that those who work in agriculture can use in making decisions about their health and the health of their families.

Fourteen percent (14%) of applicators (farmers and commercial) enrolled in the Agricultural Health Study experienced a High Pesticide Exposure Event at some point in their careers. Almost 40% of these applicators visited a doctor or a hospital as a result of the incident. Twenty-two percent (22%) of Iowa commercial applicators, 15% of Iowa farmers, and 10% of North Carolina farmers experienced High Pesticide Exposure Events. Applicators who experienced High Pesticide Exposure Events were more likely to have spent more days applying pesticides, lived in Iowa vs. North Carolina, and worked as a commercial applicator vs. as a farmer. With these factors being equal, applicators who experienced a High Pesticide Exposure Event were more likely to have
- Stored pesticides in the home
- Repaired their own application equipment
- Delayed changing clothes, showering, or washing after pesticide use
- Applied pesticides within 100 yards of the home
- Washed up in the house vs. in an outside area
- Mixed pesticides within 50 yards of a well
- Mixed work clothing and family laundry.

In addition, scientists looked closely at Iowa farmers who experienced a High Pesticide Exposure Event in 1997 and learned that farmers who believe that high risks are part of the job or whose farms were in financial stress were about four times more likely to experience high pesticide exposure.

Scientists learned that five pesticides—the herbicides alachlor, 2,4-D, trifluralin, and atrazine and the insecticide phorate—accounted for most of the High Pesticide Exposure Events even though they were not the top five most widely used pesticides by those applicators. Scientists thought that two possible reasons accounted for this finding: (1) These pesticides may have produced more apparent symptoms, such as burning eyes, making the exposure more memorable; or (2) he exposure to these pesticides actually caused enough impairment to the applicator (inability to see clearly, incoordination, etc.) that even greater pesticide exposure resulted than with less toxic or less irritating pesticides.

Scientists also compared the 7% of applicators in the Agricultural Health Study who had reported having seen a doctor or been hospitalized due to pesticides to those who had not. A total of 3,733 medical visits were reported.

Applicators who sought medical care for pesticide exposure were more likely to have spent more days applying pesticides, worked as a commercial applicator vs. a farmer, and lived in North Carolina vs. Iowa. With these factors being equal, applicators who sought medical care were more likely to have
• Mixed their own pesticides more than 50% of the time
• Used insecticides or fumigants frequently
• Applied pesticides by pouring fumigant from a bucket, using a mist blower/fogger, or dipping animals
• Repaired their own application equipment.

As expected, farmers enrolled in the Agricultural Health Study are primarily involved in crop and livestock production pesticide applications. Almost half of the Iowa commercial applicators in the study are involved in crop herbicide applications. However, compared to farmers, a greater proportion of Iowa commercial applicators are involved in lawn and garden applications and highway weed control. Fewer than 4% of applicators enrolled in the study are involved in greenhouse, termite control, blower/fogger forestry, or aerial applications.

Research shows that the relative amount of pesticide exposure varies, depending on the application method, as shown in the table. For example, hand-spray-gun application results in nine times greater pesticide exposure than seed treatment.

Based on enrollment surveys, most applicators use more than one type of application method. North Carolina and Iowa applicators commonly use hand spray gun and tractor boom sprayer methods for crop applications. More North Carolina applicators used backpack sprayers; more Iowa applicators used in-furrow or banded application methods. In both states, a variety of livestock application methods were used.

“Read and follow the label” is a repeated message of pesticide safety education and applicator training. Researchers proposed that High Pesticide Exposure Events could be prevented if applicators followed all label requirements. They created a probability model that closely matched the occurrence of high exposure.
in applicators in the study. The model estimated that 70% of applicators followed the pesticide label and 30% did not.

The model takes into account chance pesticide spills, increasing skill with experience, and increasing odds of exposure with more application days. The model shows that in a group of 1,000 applicators, 300 would be at risk of a High Pesticide Exposure Event. On their first day of pesticide application, 18 of these “at-risk” applicators would actually have a High Pesticide Exposure Event. After 3 days of application experience, they would reduce their risk of a High Pesticide Exposure Event by 50%. After 10 days of experience, applicators would reduce their risk by 70%.

In summary, scientists urged all applicators to follow the label and beginners and infrequent applicators to be especially alert during applications. Pesticide safety educators are increasingly offering hands-on training for applicators. This scientific model reinforces the importance of skills-based training, along with the use of personal protective equipment, in preventing high pesticide exposure.

For additional information, visit the Agricultural Health Study Web site at www.pesticidesafety.uiuc.edu. (Adapted slightly by Phil Nixon from Understanding the Agricultural Health Study Part 2.)

Fishy Drift

This past winter, I gave a number of talks on making applications to control soybean rust in preparation for its possible appearance in Illinois. While there were always a number of questions about a variety of subjects relating to application technology, one frequently asked question was whether or not there was a concern about drift when using fungicides to control rust. This question was asked in reference to the fact that drift from fungicides does not damage nontarget plants. This example illustrates a common misconception about drift: that it has to involve unintended damage to plants near the site of the application to be drift. It is critical that all those who apply pesticides (whether herbicides, fungicides, or any other kind, for whatever reason, be it treating soybean rust or the weeds in your driveway) to understand that drift can occur and precautions should be taken to prevent it.

Just because you won’t end up killing someone else’s plants doesn’t mean you can allow drift to occur during an application. Fungicides and insecticides have the potential to be harmful to the environment and other people. Consider the toxicity to fish of many of the fungicides labeled for use against soybean rust. The following statements come directly from labels of some of these products:

- This pesticide is toxic to fish.
- This pesticide is toxic to freshwater and estuarine/marine fish and aquatic invertebrates. Drift and runoff may be hazardous to aquatic organisms in neighboring areas.
- This pesticide is toxic to fish and aquatic invertebrates. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas.
- This pesticide is toxic to fish.
- This pesticide is toxic to freshwater and estuarine/marine fish and aquatic invertebrates. Drift and runoff may be hazardous to aquatic organisms in neighboring areas.
- This pesticide is toxic to fish.
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As you can see, although drift from these products might not take out the neighbor’s garden, it could be fatal to fish in a nearby pond or river. Many insecticides are toxic to bees and other nontarget insects, many of which are beneficial. Drift from these products can have consequences just as severe as with herbicide drift. Instead of having a neighbor angry about dead plants, you could end up with an angry beekeeping neighbor with dead honey bees or a pond owner with dead fish. These situations are best avoided.

When dealing with damage to plants from herbicide drift, determining what product was used and who made the application can sometimes be fairly easy. Plants don’t move and thus provide a stationary reference point to the drift incident. Weather conditions can be checked for days when the application was likely made. Responsible parties can often be determined and appropriate measures taken.

It might prove more difficult to determine where fungicide drift came from. If fish start dying in a pond that is fed by a creek that receives drainage from several thousand acres of cropland being treated for soybean rust, it could prove very difficult to determine exactly which application caused the drift.

But if dead fish start occurring with regular frequency, you can be assured that measures will be taken to correct the problem. If individual offenders cannot be located and stopped, then stricter measures will be taken and required of everyone. These measures could potentially include mandatory buffers near bodies of water, product cancellation, or stricter labels. Tools that can be effectively and safely used with proper care and attention may be taken away because of abuse by a few individuals.

It is wrong to assume that drift from certain fungicides labeled for treating soybean rust won’t damage nontarget plants. Products containing azoxystrobin, such as Quadris and Quilt, are phytotoxic to certain sensitive varieties of apple trees. Extreme care must be taken to avoid drift when applying these products near apple trees.

Appropriate measures need to be taken to reduce the risk of drift during the application of every type of pesticide, not just herbicides. With proper care, it is possible to make a safe and effective application, no matter what type of pesticide is being used. For more information, visit our spray-drift resources page, http://www.pesticidesafety.uiuc.edu/facts/drift.html. (Scott Bretthauer)

Fumigation Management Plans

If you deal with stored grain and use aluminum or magnesium phosphide grain fumigants, you are probably well aware that these product labels (called Applicator Manuals) changed quite a bit in
2004. This article is written primarily for those who may not yet be aware of these label changes because they use fumigants infrequently. For all affected persons, this article provides links to frequently asked questions and free templates to help you comply with the new label requirements.

Background

Aluminum and magnesium phosphide are used widely to control insects and rodents in facilities where raw agricultural commodities and processed foods are stored. Few viable pesticide alternatives are available for these vital agricultural uses. However, the phosphine gas released by these chemicals is highly toxic and known to pose hazards to human health, particularly at high concentrations for short periods of exposure.

In 1998, U.S. EPA began the process of determining whether aluminum and magnesium phosphide should be eligible for reregistration under current safety standards. Extensive discussions ensued between the EPA, USDA, registrants, and interested stakeholders. As outlined in the March 1999 issue of this newsletter (http://www.pesticidesafety.uiuc.edu/newsletter/html/199903c.html), EPA concluded that protective measures, in addition to the restrictions in place at that time, were needed to protect bystanders in residential and occupational settings, as well as pesticide applicators, from exposure to the phosphine gas that is created when these pesticides are used.

In November 2000, an agreement was reached to reduce risks to workers handling these pesticides and to bystanders in the vicinity of applications. This agreement specified that all aluminum and magnesium phosphide product labels must be amended and submitted to the agency by spring 2004 with cautions to protect applicators and bystanders. EPA then will use these new data to update the current risk-mitigation measures as necessary. For a detailed review of the reregistration process for aluminum and magnesium phosphide, visit EPA's Web site at http://www.epa.gov/oppsrrd1/reregistration/aluminumphosphide/.

What Is a Fumigation Management Plan?

A Fumigation Management Plan (FMP) is an organized, written description of the required steps to help ensure a safe, legal, and effective fumigation. It can also assist you and others in complying with pesticide product label requirements. Following are the major sections of a FMP, each of which is detailed within the fumigant label:

- Preliminary planning and preparation
- Personnel
- Monitoring
- Notification
- Sealing procedures
- Application procedures and fumigation period
- Postapplication operations

In addition to the FMP, a number of other changes were made to the aluminum and magnesium phosphide labels. As always, read the label carefully each time you buy or apply a pesticide.

Resources

The following resources have been developed to help you plan and execute a safe, legal and effective fumigation:

- North Dakota State University has complied an excellent list of FMP templates for small bins, as well as for small, intermediate, and large grain facilities. Note that these templates are available as free downloads in two different formats; by downloading the Microsoft Word format, you can easily customize the template for Illinois. (http://www.ag.ndsu.nodak.edu/ag-info/pesticid/FMP_Resources.htm)

(Bruce E. Paulrud)

Pesticide Update

The following information provides registration status of particular pesticides and should not be considered as pesticide recommendations by University of Illinois Extension.

Agronomic

BALLAL (Bacillus pumilus strain QST-2808)—Agra Quest—This biofungicide will be on the market this year for use on organically grown soybeans to control Asian soybean rust.

FLINT (trifloxystrobin)—Bayer Crop Science—To cover a specific exemption EPA has established time-limited residue tolerances on soybean seed at .04 ppm, soybean hay at 6.5 ppm, and soybean forage at 4 ppm. Expires 12-31-09. The specific exemption was for use on soybeans to control soybean rust. (FR, vol. 70, 6-24-05)

FLUFENACET—Bayer Crop Science—To cover a specific exemption, EPA has extended time-limited residue tolerances on wheat and triticale until 6-30-07. (FR, vol. 70, 6-30-05) [herbicide]

FOLICUR (tebuconazole)—Bayer Crop Science—To cover a specific exemption, EPA has extended time-limited residue tolerances on wheat and barley until 6-30-08. (FR, vol. 70, 6-30-05) [fungicide]

GAUCHO (imidacloprid)—Gustafson—EPA established residue tolerances on soybean seed at 1 ppm and soybean meal at 4 ppm. (FR, vol. 70, 7-13-05) [insecticide]
UPPERCUT (tebuconazole)—DuPont—A new formulation for use on soybeans to control Asian soybean rust.

**Fruit/Vegetable**

**CAPTURE** (bifenthrin)—FMC—To cover a specific exemption EPA has extended temporary residue tolerances on sweet potatoes until 12-31-08. (FR, vol. 70, 6-30-05) [insecticide]

**DRY UP** (COC/copper sulfate/sulfur)—Wilbur Ellis—A combination fungicide for the control of bunch rot and powdery mildew in grapes.

**ESTEEM** (pyriproxyfen)—Valent—Added to their label the use on strawberries due tolerances on walnuts until 12-31-07.

**Turf/Ornamental**

**ALLECTUS** (bifenthrin/imidacloprid)—Bayer Environmental Science—A new combination product to use in turf areas. [insecticide]

**ARMADA** (trifloxystrobin/triadimefon)—Bayer Environmental Science—A new combination fungicide recently registered for use in turf.

**E-FACINATION** (GA/N6-BA)—Valent—Added to the label for this growth regulator the use on poinsettias, bedding plants, potted crops, field-grown ornamentals, and bulb crops.

**JUDO** (spiroxamine)—OHP Inc—A new miticide/insecticide recently approved for use on greenhouse and nursery ornamentals.

**MANEB**—EPA has received a request from the manufacturer to voluntarily cancel the use on residential lawns and turf. The comment period expired 8-1-05. (FR, vol. 70, 6-1-05)

**OVERTURE** (pyridalyl)—Valent—A new insecticide being developed for use on ornamentals to control thrips and lepidoptera insects.

**SHUT OUT** (2,4-D/carfentrazone-ethyl/MCPP)—PBI Gordon—A new three-way herbicide for postemergence broadleaf weed control in turf.

**SPECTATOR** (propiconazole)—Lesco—A new formulation for use on turf is now available in quart containers. [fungicide]

**Structural**

**EUCALYPTUS Oil**—To cover a specific exemption, EPA has extended time-limited residue tolerances on honey when used in beehives until 6-30-07. [insecticide]

**TALSTAR ONE** (bifenthrin)—FMC—Added to their label the control of bedbugs.

**THYMOL**—To cover a specific exemption, EPA has extended time limited residue tolerances on honey when used in beehives until 6-30-07. (FR, vol. 70, 6-30-05) [insecticide]

**Many**

**ALLAS/PASADA** (imidacloprid)—Many—These two postpatent formulations will be introduced this fall. [insecticide]

**AMINOPYRALID**—Dow AgroSciences—A new herbicide being developed for the cereal, pasture, and vegetation management markets. Registration in the United States is planned by the end of the year.

**ASSAIL** (acetamiprid)—Nippon Soda—Added to their label the control of thrips, midges, weevils, Oriental fruit moth, scale, mealybug, phylloxera, banded grape bugs, and rose chafers. Also added the use on tuberous and corm vegetables and tobacco.

**CURBEX** (ethoprole)—Bayer Crop Science—This is the new trade name for this new insecticide.

**DITHANE** (mancozeb)—Dow AgroSciences—EPA received a voluntary cancellation notice from the manufacturers for use of this product on residential lawns and turf, the foliar application on cotton, and pineapple seed-propagation treatment. The comment period expired 8-1-05. (FR, vol. 70, 6-1-05)

**DORAN 4E** (chlorpyrifos)—Leccebourg-Pamol—A postpatent formulation for this product for use on various crops. [insecticide]

**ET** (pyraflufen-ethyl)—Nichino America—Added to their label the use on nonbearing deciduous fruit and nut trees and nonbearing grapes. [herbicide]

**MELOCON** (Paecilomyces lilacinus strain 251)—Prophyta Biologisches Pflanzenschutz—A new biological product containing a new active ingredient for the control of plant root nematodes on vegetables, fruits, turf, ornamentals, and tobacco. (FR, vol. 70, 6-2-05)

**MYCO TECH PASTE** (Chondrostereum purpureum strain HQ 1)—Myco Forestic Corp—A new biological product used to prevent regrowth and sprouting from cut tree stumps.
SMOLDER (Alternaria destruens strain 59)—Loveland Products—EPA has approved this bioherbicide to control dodder. It is formulated as a granular for soil application and as a WP to be used as a spray. It can be used on all agricultural commodities.

THIODAN (endosulfan)—Numerous manufacturers—Proposed to EPA to voluntarily cancel registration on succulent beans and peas, spinach, grapes, and pecans. The comment period expired 6-27-05. (FR, vol. 70, 5-27-05) [insecticide]

TRIFLUREX 10G (trifluralin)—MANA—A new postpatent formulation for this herbicide.

ULTRATEC 100SC (deltamethrin)—Valent Bio Sciences—A new formulation for outdoor use on lawns and adjacent areas. [insecticide]

Other

CEANNARD INC—This company located in Gastonia, NC, has purchased the Rejex-It product line from Becker Underwood. This is a line of bird repellents sold under the trade names Migrate, Fog Force, and Crop Guardian.

LANXESS—This German company has acquired the Diuron herbicide business from Bayer Crop Science.

MITSUI CHEMICALS—The Japanese company is planning to merge its three agrochemical companies into one company named Mitsui Chemical Crop Life, to be based in Tokyo, Japan.

OLYMPIC HORTICULTURAL PRODUCTS—The company has changed its name to OHP Inc.

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Michelle L. Wiesbrook, Extension Specialist, Pesticide Application Training and Horticulture

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