



Searching for a Pesticide Applicator?

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In most cases, it's not too difficult to find a commercial (for-hire) pesticide applicator; you either talk to a neighbor or colleague, or check the Yellow Pages. However, when it comes to controlling pond weeds or killing tree roots in a sewer line, finding a licensed commercial applicator may not be so easy. That is, until now.

2 Pesticide Security Resource Online

Kelly Registration Systems has worked with individual state departments of agriculture to provide pesticide applicator license information and pesticide-registration specifics via the Internet. Illinois-specific information can be found on the Illinois Department of Agriculture's (IDOA) Web site via the following URL: <http://www.kellysolutions.com/IL>.

3 Buffer Zones, Organic Growers

For example, in four easy steps, you can find all nearby applicators that are licensed to apply pesticides to a specific site (category):

4 Phytotoxicity Symptoms

1. Click on "Pesticide Applicator Search."
2. Click on "Search for an Applicator in your City, County, Zip."
3. Enter the city, zip code, or county of interest.
4. Then choose the license category and applicator type (see the following discussion).

5 Study Documents Value of Herbicides to Illinois

The results page lists all individuals who meet your search criteria. Simply click on a person's name to see the detailed license and contact information.

6 Pesticide Update

License Types

Private Applicator License: Required for people applying restricted-use pesticides to produce an agricultural commodity on property they own or control. Private Applicators must pass the grain fumigation exam to fumigate their own grain bins. The license does not allow applications "for hire." License and exam(s) are valid for 3 years (\$15 fee).

Pesticide Dealer License: An individual selling restricted-use pesticides must be licensed. Also, mandatory records must be kept for 2 years. Commercial Applicators and Structural Pest Control Operators are exempt from the test and fee but must register as dealers. The exam is valid for 3 years if no lapse occurs in annual (\$100-fee) licensure.

All Other Licenses

Commercial Applicator and Operator Licenses: Required for individuals who purchase, use, or supervise the use of pesticides classified for general or restricted use for hire. Exam(s) are valid for 3 years if no lapse occurs in annual (\$45 fee for applicators, \$30 fee for operators) licensure.

Commercial Not-for-Hire Applicator and Operator Licenses: Required for individuals who use or supervise the use of pesticides classified for general or restricted use for any



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purpose on property of an employer when such activity is a requirement of the terms of employment and the application is limited to property under the control of the employer. This type of license does not allow applications "for hire." Exam(s) are valid for 3 years if no lapse occurs in annual (no fees) licensure.

Public Applicator and Operator Licenses: Required for individuals who use or supervise the use of pesticides classified for general or restricted use as an employee of a state agency, municipality, or other duly constituted governmental agency or unit. This type of license does not allow applications "for hire." Exam(s) are valid for 3 years if no lapse occurs in annual (no fees) licensure.

Applicator vs. Operator?

An **applicator** is the person(s) in an organization who has responsibility for pesticide purchasing, storage, handling, and use; usually an owner, a supervisor, or a foreman. Each organization must have at least one person licensed as an applicator at each facility location. The applicator's license categories dictate the areas in which a company and his/her operators may legally apply pesticides.

An **operator** is a person who uses pesticides at the job site; his/her work is tied directly to the applicator's license. The operator can apply pesticides only under direct supervision of the applicator and only to areas covered by the applicator's license. Supervision and direction of operators by an applicator means that the applicator must be in daily contact with the operators. If the applicator is out of town or not available, the operator may not legally apply pesticides.

What's a Category?

In Illinois, there are 17 licensure categories. Each category is designed for pesticide use requiring specific professional knowledge. An applicator who needs to apply pesticides to a range of sites needs multiple categories on his/her license.

Aquatic pest control: Pesticide use for weed control in standing or running water.

Demonstration and research: Pesticide use during research or the teaching of pesticide and equipment use.

Field crop pest control: Pesticide use in corn, soybeans, small grains, forages, grasslands, etc.

Forest pest control: Pesticide use in forests, forest nurseries, and forest seed-producing areas.

Fruit crop pest control: Pesticide use in fruit and nut crops.

Grain facility pest control: Pesticide use in and around grain elevators or similar grain-holding facilities, conveyances, and transportation facilities.

NOTE: Individuals who wish to control grain-storage pests commercially (for hire) are licensed under the Structural Pest Control Act, which is administered by the Illinois Department of Public Health (IDPH). Thus, to find a commercial grain fumigation applicator, call IDPH, (217)782-5830.

Livestock pest control: Pesticides applied to livestock or livestock barns.

Mosquito control: Insecticides applied to control mosquitoes.

Ornamental pest control: Pesticide use on trees, shrubs, and ornamental plantings.

Plant-management pest control: Pesticide use on portable plants used for interior landscaping and environmental enhancement.

Regulatory pest control: For government employees involved in the control of regulated pests with pesticides.

Rights-of-way pest control: Chemical weed and other pest control on noncrop sites, such as parking lots, along roads, in access rights-of-way, and in fence lines.

Sewer line root control: Chemical control of roots in sewer lines.

Seed treatment: Pesticide use on seeds.

Soil fumigation: Pesticide use for soil fumigation.

Turf pest control: Pesticide use on turf areas and sod farms.

Vegetable crop pest control: Pesticide use in vegetable crops.

GS and AGS: These are not really categories. GS indicates General Standards, a core exam that both applicators and operators must pass. AGS indicates Aerial General Standards and, if selected, provides a list of licensed aerial applicators and the actual categories in which they are licensed.

Expiration Dates

In Illinois, remember that each exam is good for 3 years and that all but Private Applicator licenses expire at the end of each calendar year. So, if you're a Private Applicator, the listed expiration date indicates when your license expires and when you'll need to retake the exam. For everyone else, realize that the listed expiration dates indicate license renewal, not necessarily reexamination. Applicators and operators should pay close attention to the notification letter the IDOA sends each November; it indicates the need for license renewal or reexamination. (Bruce E. Paulsrud)

Pesticide Security Resource Online

University of Illinois Extension specialists in Pesticide Safety Education have created a poster on pesticide storage security. Since the attacks on 9/11, commercial pesticide users have been advised to increase their awareness and step up security around their pesticide-storage facilities. This poster contains 10 bulleted points that serve as reminders or ideas on how security can be improved. View it at our Web site: <http://www.pesticidesafety.uiuc.edu/facts/securityposter.pdf>; and have a safe and secure summer.

Buffer Zones, Organic Growers

Specialty-crop growers and pesticide applicators are concerned about the problem of pesticide drift. Many specialty growers use buffer zones around fields to protect their crops from drift, and buffer zones are a tool that pesticide applicators can use to protect neighboring areas.

For the applicator, an effective way to prevent pesticide drift is to leave an unsprayed boundary on the downwind side of the sprayed area. This area could be sprayed later, when the wind direction has changed to blow away from the neighboring area. New technology makes this more manageable than ever. As-applied maps and other tools that use global positioning system (GPS) and global information system (GIS) can be used to inventory sensitive areas, show what fields can be sprayed given wind conditions, and track when buffer zones can be sprayed. Many applicators already use GPS for swath guidance, and many application companies use GIS computer systems for soil testing and fertilizer management. With these systems in place, no additional equipment is needed. An inexpensive and convenient addition to scouting and application system is a GPS-equipped handheld computer.

Buffer zones were proposed in the EPA draft label statements on drift in 2001, which called these boundary areas “no-spray zones” and which are still under discussion. Many European countries mandate no-spray zones adjacent to water bodies. In the United States, pesticides with surface- and groundwater risks often require no-spray zones near wells, tile inlets, and water bodies. In these cases, the no-spray zone is explicitly stated on the pesticide label. For airborne pesticide drift, applicators in Illinois generally don't have a set standard for how wide a no-spray zone should be. Because so much depends on local conditions (such as on-site wind direction and speed, application methods and equipment, crop, neighbor-

ing area, and pesticide), it is difficult to establish hard and fast rules for no-spray zone widths.

It is widely known that pesticide drift is greatest adjacent to the downwind edge of the application area, and decreases as distance from the application increases. The problem is, while more width is better than less, there is no rule for matching no-spray zone width to local application conditions. Because there is no one-size-fits-all buffer zone, the following “Question and Answer” from the USDA National Organic Program Web page may provide some insight into this difficult and as yet unresolved issue from the organic producer's view. The rules mentioned in this Q and A are those dealing with organic certification and the National Organic Program and establishing procedures for the grower. When reading the answer, keep in mind that while it is the responsibility of the grower to protect the crop, *it is ultimately the responsibility of the pesticide applicator to use application techniques that prevent pesticide drift.*

Q: Please provide discussion, examples, and guidance on buffer zones. Section 205.202 requires distinct boundaries and ‘adequate’ buffer zones, but minimums are not specified, nor is the term adequately defined.

A: Section 202.202(c) requires distinct, defined boundaries and buffer zones to prevent the unintended application of a prohibited substance to land under organic management.

“In examining this issue, USDA concluded that imposing a specific size for buffer zones could impose unnecessary burdens on some organic producers without offering greater protection of organic fields and crops from unintended contact with prohibited substances. For example, buffer zones might not be needed for an organic farm if it were completely surrounded by wilderness or areas not in agricultural production. Accordingly, the national standards do not specify specific dimensions for buffer zones, but leave the determination of their size to the organic

producer and the certifying agent on a case-by-case basis.

“It has always been the responsibility of organic operations to manage potential contact of organic products with other substances not approved for use in organic production systems. The organic system plan must outline steps that an organic operation will take to avoid drift from neighboring operations, particularly drift of synthetic chemical pesticides.

“When considering drift issues, both certifying agents and producers must remember that organic standards are process based. Certifying agents attest to the ability of organic operations to follow a set of production standards and practices that meet the requirements of the Organic Foods Production Act and the national standards. The national standards prohibit the use of genetically modified organisms (defined in the standards as excluded methods) in organic operations. The presence of a detectable residue of a product of excluded methods alone does not necessarily constitute a violation of the regulations. As long as an organic operation has not used excluded methods and takes reasonable steps to avoid contact with the products of excluded methods as detailed in their approved organic system plan, the unintentional presence of the products of excluded methods should not affect the status of an organic product or operation.

“Therefore, while the national organic standards provide significant discretion in establishing buffer zone dimensions, buffer zones should not be sized at distances which attempt to achieve a zero tolerance for prohibited substances. The intent of the regulations is to foster a collaborative effort between the certifying agents and their grower clients to determine an appropriate buffer zone with each party being fully cognizant of the process-based nature of the organic label claim.”

(Mark Mohr; Q & A source: U.S. Department of Agriculture Questions and Answers. National Organic Program. www.usda.gov/nop/q&a.html, March 12, 2003.)

Phytotoxicity Symptoms

With the growing season and thus the pesticide application season in full gear, an overview of the symptoms of pesticide and other chemical injury to plants should be helpful. It is easy to mistake disease symptoms, nutrient deficiencies, climate injury, and other factors for pesticide injury. Because nutrient deficiencies can be similar in appearance to pesticide injury, they are also addressed in this article. For a more complete description of other types of plant injury and photographs of various herbicidal effects on plants, refer to the *Illinois Pesticide Applicator Training Manual 39-13: Demonstration and Research*. This manual is available for \$8.00 plus shipping costs from the University of Illinois Extension Pesticide Safety Education Program Office at (800)644-2123.

Symptoms from Direct Plant/Chemical Contact

Shoot–foliage contact. Symptoms from shoot-contact chemicals occur over the general plant canopy. If the toxic chemical is applied directly to the aboveground parts of the plant (shoot–foliage contact chemical), the physical pattern of application may be detected. If the toxic chemical is spray-applied, the pattern of spray droplets or areas where spray accumulated to runoff along the leaf edges shows the most severe damage. If it is a toxic gas (volatile chemical acting as an aerial pollutant), the areas between the leaf veins and along the leaf margins where the concentration of water within the leaf is lower is the first to show damage. Injury from foliar applications of insecticides, fungicides, and fertilizers is primarily of the direct-contact type and is typified by chlorotic-necrotic spotting, especially interveinally and along leaf edges and other areas where chemicals concentrate and are least diluted by intercellular moisture. Examples of shoot–foliage contact chemicals are foliar-applied fertilizer salts

and the herbicides paraquat, acifluorfen, dinoseb, and herbicidal oils.

Root contact. Toxic contact chemicals in the root zone, including excess fertilizer, result in poor root development. Symptoms from root-contact chemicals are localized where the chemical contacts the root but produce general symptoms in the shoot. The shoots may show water- and nutrient-stress symptoms such as reduced growth, wilting, and nutrient deficiency symptoms. The injury symptoms on the shoot and foliage from root damage by direct contact with toxic chemicals or excessive salts resemble a drying injury because the roots are unable to obtain water.

If roots are injured and root tips killed, damage appears as a general stunting of the plant. In severe cases, wilting can occur even though the soil is wet. Lower leaves generally wilt first, and this is followed by marginal drying of the leaves. Many factors injuring or inhibiting root growth may produce similar shoot symptoms. These include nematodes, soil compaction, cold weather, salinity, nutritional disorders, and certain herbicides. Dinitroanilines and DCPA cause root inhibition.

Symptoms of Deficient or Toxic Translocated Chemicals

The effects of mobile chemicals absorbed by the plant are dependent upon whether the chemical is transported in the phloem or in the xylem. If transported solely in the xylem system, the chemical moves upward in the plant in the xylem-transpiration stream. Toxic symptoms from xylem-translocated chemicals occur primarily in the older foliage. Deficiency symptoms of xylem-transported nutrient ions occur first in the new growth.

If the chemical is translocated in the phloem, it may move multidirectionally from the point of absorption. That is, it may move from the shoot to the root or the reverse. Toxic symptoms from phloem-translocated chemicals occur primarily in the new growth and meristematic regions of the plant. Deficiency

symptoms of phloem-retranslocated nutrient ions occur first in the older foliage.

Toxic Chemicals, Xylem-Translocated. When toxic chemicals are translocated to fully expanded, older leaves, the toxicity symptoms generally appear on the leaf margins and interveinal areas. When toxic chemicals are translocated to immature, young leaves, the toxicity symptoms generally appear associated with the veins, especially the midrib.

Photosynthetic-inhibiting chemicals. Injury from translocated toxic chemicals is primarily to the foliage. Plant injury generally progresses from the lower, older foliage to the top. Individual leaves show the greatest injury (chlorosis) along their tips and margins or along the veins. Examples of xylem-translocated herbicides include photosynthetic inhibitors such as triazine, urea, and uracil herbicides.

Shoot-inhibiting chemicals. Examples of toxic chemicals absorbed by the roots and translocated in the xylem to the shoots are the “shoot inhibiting herbicides.” The shoot inhibitors cause malformed and twisted tops with major injury at the tips and edges of the leaves. Looping of the leaves may occur because the base of the leaf may continue to grow while the leaf tips remain twisted together. Thiocarbamate herbicides cause these symptoms on both grasses and broadleaves. Alachlor and metolachlor herbicides cause similar injury symptoms on grasses.

Deficient Nutrient Ions, Xylem-Translocated (Phloem-Immobile). Several nutrient ions (after upward translocation in the xylem and incorporation in plant tissue) are immobile. They cannot be withdrawn when deficiencies develop in the root zone and retranslocated in the phloem to the new growth. Deficiency symptoms of phloem-immobile nutrient ions develop on the new growth. Boron and calcium are quite phloem-immobile, which means that, if the external supply becomes deficient, the symptoms of boron and calcium deficiency appear first on the new growth. With severe deficiencies, the terminal bud

dies. Iron, manganese, zinc, copper, and molybdenum are also relatively phloem-immobile and are not readily withdrawn from the older leaves for translocation through the phloem to younger leaves and organs. Deficiency symptoms are most pronounced on the new growth.

Phloem-translocated chemicals move multidirectionally from the point of application or source of the chemical to the meristematic regions.

Toxic Chemicals, Phloem-Translocated. Injury from phloem-translocated toxic chemicals is primarily to new leaves and roots because of translocation of chemical to the meristems. Whether taken up by the roots or shoots, these compounds are moved through the living plant cells and phloem to both the root and shoot tips. The young tissue (shoots or roots) are discolored or deformed, and injury may persist for several sets of new leaves. Examples of phloem-translocated toxic chemicals, whether absorbed by the roots or shoots, include the herbicides 2,4-D, dicamba, glyphosate, and fluazifopbutyl. These compounds move to the meristems and typically injure the youngest tissues of the plant.

Deficient Nutrient Ions, Phloem-Mobile. If phloem-mobile nutrient ions become deficient in the root zone, these ions may be withdrawn from the older plant tissue and retranslocated in the phloem to the new growth. In such situations, deficiency symptoms first occur on the older leaves. Elements that may be withdrawn from older leaves and retranslocated in the phloem to younger leaves and storage organs include nitrogen, phosphorus, potassium, magnesium, chlorine, and (in some plant species) sulfur. In plant species for which sulfur can be withdrawn from the older leaves and translocated to the newer growth, deficiency symptoms may initially occur on the older leaves or over the plant in general. In plants where sulfur is not readily retranslocated, the older leaves may remain green and the sulfur deficiency symptoms occur only on the new growth. (Phil Nixon. Source: Jim Green.

2000. Diagnosing Plant Damage. Oregon State University)

Study Documents Value of Illinois Herbicides

Without herbicide use, Illinois crop producers would need thousands more laborers to control weeds—or risk losing nearly all their crops or going out of business, according to a new study by the National Center for Food and Agricultural Policy (NCFAP).

Every acre of soil in Illinois contains millions of buried weed seeds that result in the need to kill weeds every year. A recently completed study by NCFAP estimates the value of herbicide use in Illinois and 47 other states. Specifically, NCFAP researchers examined 40 crops grown throughout the United States and report that herbicides account for two-thirds of total pesticide use in the United States. Growers of the crops use 410 million pounds of chemical herbicides to kill weeds on 220 million acres each year. Herbicides are used on 86 percent of crop acreage, and the cost of the chemicals and their application is \$6.6 billion.

NCFAP estimates the value of herbicides by quantifying methods of weed control such as hand-weeding and estimating the costs and effectiveness of available alternatives for controlling weeds. These estimates were made on a national and state-by-state basis. In Illinois, NCFAP estimates that there would be a crop-production loss of over 26 billion pounds, valued at almost \$1.2 billion if herbicides were not used. In addition, while Illinois growers currently spend over \$652 million in weed-control costs, their costs without herbicides would rise by a staggering \$651 million.

NCFAP senior research associate Leonard Gianessi said, “This study explains why growers use synthetic chemical herbicides to kill weeds. The impacts are far-reaching.”

“We set out to answer some key questions in the debate over chemical use. We found that growers save money, reduce soil erosion, and prevent yield losses,” Gianessi added. He noted that

- Without herbicides, Illinois farmers would lose 22 percent of corn production, 22 percent of soybean production, 15 percent of sorghum production, 10 percent of green bean production, and 5 percent of potato production.
- Without herbicides, 659,000 more farm workers would be needed in Illinois.
- Herbicides prevent over 48.7 billion pounds of soil erosion in Illinois.

At peak times necessary for weed control, farmers across the country would need to employ 7.2 million workers to hand-weed fields. However, farm labor is in short supply; and if this number of workers could not be found, yield losses would be even higher. These estimates are based on historical data. Before herbicides, crop yields were lower, and extensive hand-weeding and cultivation were common.

NCFAP’s researchers documented that organic growers control weeds with extensive cultivation and hand-weeding. Organic growers consistently report that weed control without herbicides is their single biggest problem and a major reason that organic crop acreage totals about 0.4 percent of the nation’s cropland.

“Looking at the history of crop production shows us that not much has changed. Before herbicides, growers relied on hand labor and cultivation, which net lower yields,” Gianessi said. Organic growers rely on these same practices and experience lower yields as well, he added. “Herbicides are the most cost-effective means of weed control.”

The complete study is available at www.ncfap.org. CropLife America funded the study, which is endorsed by 20 U.S. commodity groups and farm organizations.

The National Center for Food and Agricultural Policy is a private, nonprofit, nonadvocacy research organization based in Washington, D.C.

(Adapted from NCFAP press release, April 24, 2003; <http://www.croplifeamerica.org/public/pubs/benefits/Illinois.pdf>.)

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

ARROW (*clethodim*)—*Makhteshim Agan*—A new product being introduced this next season for use on soybeans, cotton, peanuts, and sugar beets. [herbicide]

AVADEX (*trifluralin*)—*Monsanto*—Due to declining sales, the company is closing the world's only production plant for this product. There should be enough product in inventory to supply for 2 years more. [herbicide]

BROMATE ADVANCED (*bromoxynil*)—*Bayer*—A new formulation that is used in cereals, giving faster weed kill; more concentrated; and does not require heated storage.

BUMPER (*propiconazole*)—*Makhteshim Agan*—A new formulation for use on field crops and cereals. [fungicide]

CINCH ATZ (*s-metolachlor/atrazinyl safener*)—*DuPont*—A new product being introduced for use on corn and sorghum. [herbicide]

CINCH ATZ LIGHT (*s-metolachlor/atrazinyl safener*)—*DuPont*—A new product being introduced for use on corn and sorghum. [herbicide]

CRUISER (*thiamethoxam*)—*Syngenta*—Added to their label the use as a seed treatment in corn.

DIVIDEND EXTREME (*difenoconazole/mefenoxam*)—*Syngenta*—A new formu-

lation used as a seed treatment on wheat. [fungicide]

EMPOWER (*bifenthrin*)—*Helena*—A new granular formulation for use on corn to control rootworms.

FILAN/CANTUS (*boscalid*)—*BASF*—This new fungicide will be marketed this season for use on oilseed rape.

GANGSTER (*cloransulan-methyl/flumioxazin*)—*Dow AgroSciences/Valent*—A new combination formulation marketed by both companies for use on soybeans as a preemergence and preplant burndown treatment. [herbicide]

OPTION (*foramsulfuron*)—*Bayer*—Label changes that should be available for this season on corn include the addition of 10 tank-mix combinations and also the addition to their label of a number of new weed species. [herbicide]

RAPTOR (*imazamox*)—*BASF*—As a result of the IR-4 Project, EPA has issued an exemption from residue-tolerance requirements on all agricultural crops. The comment period expired 4-15-03. (*FR*, vol. 68, 2-14-03) [herbicide]

STEWART (*indoxacarb*)—*DuPont*—Added to their label the use on alfalfa, soybeans, and peanuts. [insecticide]

Fruit/Vegetable

AGRI-FOS (*mono oil di-potassium salts of phosphorous acid*)—*Agrichem America*—Received EPA registration to use on numerous crops—including cucurbits, brassica, and leafy vegetables—to control pythium and phytophthora diseases. It is registered on 74 crops.

AUTHORITY (*sulfentrazone*)—*FMC*—To cover a specific exemption issued to CO, IL, KS, LA, MN, MO, MT, ND, NE, OK, SD, TX, WI, and WY, the EPA extended time-limited residue tolerances on sunflower, sugarcane, and horseradish until 12-31-05. (*FR*, vol. 68, 1-16-03) [herbicide]

AUXIGRO (*GABA*)—*Emerald Bio Agriculture*—Added to their label of this growth regulator the use on tomatoes and melons to increase yield and brix.

AVAUNT (*indoxacarb*)—*DuPont*—Added to their label the control of European corn borer in potatoes.

KOZINE WP (*copper hydroxide*)—*Cuproquim/Helena*—A new formulation being introduced for use on fruits and vegetables. [fungicide]

MSR SPRAY CONCENTRATE (*oxydemeton-methyl*)—*Gowan*—Added to their label the use on Spanish onions. [insecticide]

OUTBACK (*dimethenamid-p*)—*BASF*—Registration is expected in the near future for use on potatoes. [Herbicide]

REFLEX (*fomesafen*)—*Syngenta*—USEPA has granted a specific exemption under Section 18 of FIFRA for use of this herbicide on snapbeans from May 14 to August 31, 2003, in these Illinois counties: Crawford, Gallatin, Henderson, Lawrence, Lee, Mason, Mercer, Tazewell, Warren, White, and Whiteside. The special label can be viewed at <http://www.syngentacropprotection.com/pdf/special/IL0993013AB0503.pdf>. (email from IDOA, 5/16/03)

Turf/Ornamental

AZADIRACTIN—As a result of the IR-4 Project, manufacturers can now add to their label the use on over 45 new ornamental species.

CHIPCO 26-GT (*iprodione*)—*Bayer*—As a result of the IR-4 Project, they can now add to their label the use on African violet. [fungicide]

DISTANCE (*pyriproxyfen*)—*Valent*—Added to their label the control of euonymus scale, fungus gnats, and stone flies, and the suppression of mealybugs.

ENSTAR II (*kinoprene*)—*Wellmark Int'l*—The control of thrips on ornamentals has been added to their label.

FANATE (*thiophanate-methyl*)—*Cerexagri*—The company will introduce a 4.5F formulation and a 70WSB formulation of this fungicide for use on turf and ornamentals.

HURDLE (pendimethalin)—Olympic—A new formulation that the company has acquired nonexclusive marketing rights to from BASF for use on ornamentals. [herbicide]

PYLON (chlorfenapyr)—Olympia—As a result of the IR-4 Project, they can now add to their label the use on begonia, chrysanthemum, Transvaal daisy, and vervain. [insecticide]

PROSTAR 70 WP (flutolanil)—Bayer—Being developed for use on turf and ornamentals to control various diseases.

REFLEX (fomesafon)—Syngenta—As a result of the IR-4 Project, they can now add to their label the use on arrowwood, redwood, and nonbearing cherry. [herbicide]

RONSTAR (oxadiazon)—Bayer—EPA has revoked all residue tolerances on this compound. Objections must have been received by 3-25-03. (FR, vol. 68, 1-24-03) [herbicide]

TERRA CYTE (sodium carbonate peroxyhydrate)—Bio Safe Systems—A granular formulation applied to soil, potted plants, liners, and turf to eradicate moss and algae.

TOPFLOR (fluprimsidol)—Sepro—Being developed as a growth regulator for use in greenhouse-grown ornamentals to control stem elongation and produce more compact plants.

TRANXIT GTA (rimsulfuron)—Griffin—Being developed to control poa annua in non-overseeded bermudagrass turf.

Structural

IMPASSE (lambda-cyhalothrin)—Syngenta—Being developed for the control of subterranean termites.

MAX FORCE G (imidacloprid)—Bayer—A new fast-acting fly bait being developed. It kills flies within 60 seconds and gives long-lasting residual control.

PRE-STRIKE (s-methoprene)—Valent Bio Sciences—A new formulation to control mosquitoes in residential areas; used in

birdbaths, gutters, water gardens, old tires, and other areas where water accumulates, to prevent mosquito infestation.

SABER (lambda-cyhalothrin)—Schering-Plough—A new pour-on formulation for use on cattle to control flies and lice.

TERAPERM (permethrin/tetramethrin)—Valent Bio Sciences—A new formulation introduced to control insects in households and commercial and industrial facilities.

VECTOBAC (B.t.)—Valent Bio Sciences—Added to their label the control of aquatic midges.

Many

CINCH (s-metolachlor/safener)—DuPont—A new product being introduced for use on corn, cotton, potatoes, safflower, sorghum, soybeans and other crops. [herbicide]

LANDMARK (chlorsulfuron/sulfoeturon-methyl)—DuPont—A new combination herbicide being developed for use in forestry, unimproved turf grasses, and noncrop areas.

MEDALLION (fludioxonil)—Syngenta—As a result of the IR-4 Project, they can now add to their label the use on ash, nonbearing cherry, crabapple, peach, magnolia, maple, and oak. [fungicide]

METHOPRENE—Wellmark Int'l—EPA has proposed to amend the residue requirements for this product and give it an exemption from residue-tolerance requirements on all food commodities when used as an insect larvacide. Also, existing residue tolerances would be revoked, as they would no longer be needed. The comment period expired 4-14-03. (FR, vol. 68, 2-12-03)

MUSTANG MAX (zeta cypermethrin)—FMC—This new formulation will replace the old Mustang and Fury formulations of this insecticide. It has a 12-hour reentry period and can be used within 1 day of harvest on some crops. [insecticide]

NEXIDE (gamma-cyhalothrin)—Pytech Chemicals—This new insecticide, which is

a joint-venture product of Cheminova and Dow AgroSciences, will be introduced this year in various countries. It is also sold as Fighter Plus and Archer Plus.

PRESTOP (Gluocladium catenulatum strain J1446)—Verdena—As a result of the IR-4 Project, they can now add to their label the use on cedar, fir, hemlock, and pansy. [fungicide]

RENOUNCE (cyfluthrin)—Bayer Crop Science—A new formulation available for this season. [insecticide]

TELAR (chlorsulfuron)—DuPont—Adding to their label the use on pasture, range, and conservation reserve programs. [herbicide]

TRIFLUREY (trifluralin)—Makhteshim Agan—A new product being introduced this year on various crops. [herbicide]

Other

AGWAY—The company has sold its agronomy and Seedway seed business to Growmark, a corporation based out of Bloomington, IL.

AMVAC—The company has signed an agreement to acquire the crop protection business of Pace International. Included were Deadline (metaldehyde) snail and slug bait, Hivol 44 plant-growth regulator on citrus, Hinder deer and rabbit repellent, Bac-Master (streptomycin), and Leffingwell Supreme 415 Oil (horticultural oil).

BAYER/DOW AGROSCIENCES—The companies will co-promote each other's corn herbicides—Dow's Acetochlor herbicides and Bayer's Balance Pro herbicides. Also, Dow's Hornet with Bayer's Option will be co-promoted as well.

6-BENZYLADENINE—Valent—To cover an experimental permit for this growth regulator on apples and pistachios, EPA established a temporary exemption from residue-tolerance requirements. Expires 1-31-05. It is being developed as a fruit-thinning agent. (FR, vol. 68, 2-5-03)

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CERTIS—The company has sold its product Teknar to Valent Bio Sciences and licensed its Thuricide B.t. on a worldwide basis for exclusive use in the forestry market.

KEMIRAAGRO—This Finnish company has changed its name to Kemira Grow How. Vendera will become a subsidiary of Kemira Grow How that markets Kemira's biopesticides.

KMG CHEMICALS—The company has acquired Rabon (tetrachlovinphos) livestock insecticide from Boehringer Ingelheim Vetmedica. It is used on both livestock and poultry.

MAKHTESHIM AGAN—The company has purchased from Cedar Chemical their enduse and technical labels on metolachlor, pendimethalin, 2,4-DB, and prodiamine.

MONSANTO—The company has formed a new company, Cotton States, to develop and market genetically modified cotton seed to U.S. cotton growers.

PYRANICA (tebufenpyrid)—*Nihon Nohyaku*—The company has transferred U.S. marketing rights on greenhouse ornamentals to Platte Chemical Co. [insecticide]

THIAMETHOXAM—*Syngenta*—A new insecticide being developed for household use to control termites as a postconstruction treatment. It is a nonrepellent insecticide: the insects do not know it's there.

VALENT BIOSCIENCES—The company has obtained exclusive worldwide marketing rights to the growth regulator ABA (abscisic acid) from Lomon Bio Technology, located in China.

(Michelle Wiesbrook, unless otherwise noted, adapted from Agricultural Chemical News, March and April 2003.)

The *Illinois Pesticide Review* is published six times a year on the Web at <http://www.pesticidesafety.uiuc.edu/>

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The development and/or publication of this newsletter has been supported with funding from the Illinois Department of Agriculture.

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