ILLINOIS
Pesticide Review
News About Pesticides & Regulations
March 2001 *Volume 14, No. 2*

Pesticide Protective Clothing

When working with pesticides, you are most likely to be poisoned dermally, through the skin. Proper clothing will help protect you when you are filling the sprayer or granular applicator and applying pesticide.

Clothing should be absorbent to keep pesticide drift or leaks from reaching your skin. Clothing with a high cotton content is not only absorbent but is also cooler during warm weather. Layering clothing is also an effective means of protection. Underwear, including an undershirt or T-shirt of high cotton content, helps provide this layering effect under shirt and trousers. Wearing a coverall on top of these provides another layer of protection.

Starching the clothes provides additional protection from pesticides. The starch actually absorbs the pesticide, keeping it from the skin. When the clothing is washed, the pesticide-containing starch washes away, reducing the amount of pesticide that stays in the clothing.

WASHING PESTICIDE-SOILED CLOTHING

***Discard clothing containing concentrated pesticides.**
***All clothing worn while handling or applying concentrated or diluted pesticides is contaminated.**
***Keep contaminated clothing separate from other laundry.**
***Handle all contaminated clothing with gloves.**
***Wash clothing daily soon after use, starch clothing.**
***Use warm or hot water wash, at least two cold water rinses.**
***Use heavy-duty laundry detergent.**
***Use longest wash cycle, at least 10-12 minutes.**
***Multiple launderings removes more of the pesticide residue from clothing.**
***After washing is completed, clean washer by running machine through a complete cycle with detergent and hot water but without clothing.**

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Spun-bonded polyester fabrics such as Tyvek and Kleengard are also protective and have the advantage of being disposable. Many companies provide clothes in these fabrics for employees to protect them, provide a uniform look, and avoid laundering tasks and equipment. Research has shown that washing spun-bonded polyester fabrics greatly reduces the protection that these fabrics provide. They are inexpensive enough to throw away once they become soiled.

While it is important to protect most of your skin surface when applying pesticides by wearing a long-sleeved shirt, long pants, hat, shoes, and socks, remember to clean those articles of clothing soon after use. Cloth hats and hatbands can retain pesticide. When a contaminated hat is worn, pesticide comes in contact with the forehead and top of the head, which absorbs pesticide four times faster than the forearm. Be sure to launder hats along with your other pesticide-contaminated clothing.

Realize that leather or canvas (tennis) shoes also absorb pesticide readily. This can be a major source of pesticide exposure if you walk across treated areas, as is done in turf application. Rubber boots provide additional protection if your work puts you in contact with treated surfaces. Shoes are also available with the lower part made of rubber for moisture protection, but with leather or canvas upper areas to provide more ventilation and comfort.

Clothing contaminated with pesticide concentrate or highly toxic pesticide cannot be cleaned thoroughly enough to be worn again. It must be thrown away. Research has shown that clothing contaminated with pesticide concentrates retains pesticide residue that remains too high even after many washings. In a particular dramatic experiment, methyl parathion insecticide concentrate was applied to coveralls. After 15 launderings, house flies died within 30 seconds of being placed on the fabric.

Clothing contaminated with dilute liquid or dry pesticides such as granules can be laundered in a home washing machine. Be sure to launder clothing soon after it is used. Do not include uncontaminated clothes in the same load because pesticide can wash out of contaminated clothing and bind to other clothes. The longer that the clothing sits, the harder the pesticide binds to the cloth. If practical, wash the clothes the same day that they are worn. Handle the clothing with protective gloves made of nitrile, neoprene, rubber, or some other pesticide protective material. Be sure to wash the gloves in soap and water after handling the soiled clothes.

Wash the clothes in the warmest temperature suited for the clothing. In most cases, this will be a hot- or warm-water wash and at least two cold-water rinses. Use the longest wash time available, at least 10 to 12 minutes. Use a heavy duty laundry detergent. As long as it has “heavy duty” printed on the container, either a liquid or powder detergent is effective.

After the pesticide-soiled load is finished, run a full laundering cycle containing only hot water and detergent (without clothes). This cleans out any pesticide residue hanging on the sides of the washing machine tub. Otherwise, residue can release during later wash loads, contaminating clothes in the washer at that time.

Line-drying the laundered clothes removes additional pesticide residues that may be still in the clothes. Fresh air circulating through the clothes removes residue, as does the ultraviolet light present in sunlight. However, if line-drying is not practical, using a clothes dryer is an acceptable alternative. Laundering removes the bulk of the pesticide residue so what is removed by drying is small. Realize that laundering pesticide-contaminated clothing does not eliminate all the pesticide residue in the clothing, but laundering does reduce it enough to make the clothing safe to wear.

A washing machine magnet (page 1) has recently been produced by University of Illinois Extension that reflects recent advances in knowledge concerning the proper cleaning of pesticide-soiled clothes. It is designed to be placed on or near the washing machine so that the person washing contaminated clothing can refer to the proper procedure. It should be placed in a location away from any dials or other controls, as well as electrical components in the machine. (Today’s modern washing machines contain electrical components, similar to computer chips, that can be damaged by magnetic fields.)

The magnet, illustrated in this article, is being distributed free of charge at Commercial Pesticide Training and Certification Clinics. It can also be obtained by contacting the University of Illinois Pesticide Applicator Training Office, (800)644-2123. There is a $1.50 shipping charge.

(Phil Nixon)

Calibration of Aerial-Application Equipment

Aerial application of pesticides plays an important role in many agricultural production systems. There are instances when aerial application is preferred to ground rig application, or ground rigs may not be an option at all. Situations involving forests, very tall crops, or poor soil conditions are examples.

Proper equipment set-up and calibration are just as important on aerial equipment as on any ground rig. Proper application rate, uniform spray patterns, proper swath width, and good drift-reduction techniques are the marks of a good applicator and require careful planning. Because aerial applications use the aerodynamics of the aircraft to develop the maximum usable spray

swath, the aircraft must be flown to see the full effect of the equipment arrangement under operating conditions.

Pattern-testing equipment is used at "fly-in" clinics where ag pilots *fly in* their aircraft for testing. This includes spray-pattern analysis using a string collector, where dye is added to the pilot's spray and a spray swath is flown over a string. This string is then analyzed, with areas of more and less dye corresponding to high and low points in the spray pattern, and corrections to equipment set-up are made. Important information on drift reduction and droplet size is also collected using water-sensitive cards during the pattern testing, helping applicators achieve on-target applications through the coming season. Similar swath analysis is done on dry material application patterns. A swath of untreated granules is applied over evenly spaced containers laid out across the swath. The material collected from each container is weighed, giving the pilot a cross-section of the swath and determining the aircraft's effective spread width.

A fly-in is scheduled for April 24 and 25. Ag pilots interested in participating in the fly-in can get more information from the Illinois Agricultural Aviation Association.

(Mark Mohr)

Pesticide Safety Training for Retail Sales Personnel

A new program from University of Illinois Extension will be available this year. The program, "Pesticide Safety Training for Retail Sales Personnel," will be offered at locations throughout the state, starting the week of March 12 with two sessions in Bloomington and Springfield. Two more sessions are being planned, tentatively, for Peoria and Urbana-Champaign. The goal is to have this program available statewide for next year.

This program is aimed to provide sales personnel with the necessary basis for addressing their customer's questions with a safe and satisfactory answer, being able to offer sound solutions for common household and garden problems. Such skills are critical for people handling pesticide sales and addressing customer inquiries. Having an employee trained to do so should be considered a definite asset by any retail store that caters to a growing environmentally conscious public.

This new program from University of Illinois Extension is intended to give salespeople who work with household and garden pesticide sales a general overview of the safety issues associated with these chemicals. Employees are asked to attend a three-hour session, modeled after the Pesticide Applicator Training sessions, in which pesticide safety issues are discussed and explained. The session covers topics such as human pesticide protection, labels, pesticides and the environment, and IPM techniques.

The tone of the presentation is set by the questions likely to arise from homeowners and gardeners buying general-use pesticides, and from situations likely to occur in the stores during the early spring season, when most of the pesticide-related sales take place. The sessions are intended to be interactive, with the attendants participating through their questions and comments. Insect and weed identification samples will be available for hands-on training.

If you have any questions regarding this program or if you are interested in having it available at a location near you, please contact Pablo Kálnay or George Czapar at the Springfield Extension Center, Illinois State Fairgrounds, Springfield, IL, 62791; (217)782-6515.

(Pablo Kálnay)

Pesticide Applicator Training Publications

Following is a current list of study materials offered by the Illinois Pesticide Applicator Training (PAT) program. These materials are intended to help you prepare for the certification exam(s) that you may need to apply pesticides in Illinois.

For manuals, the publication date can be found within the first few pages of the manual, just above the "Issued in furtherance…" statement. As you will notice, categories with few licensees (for example, Forest, Mosquito, and Soil Fumigation) have study packets available for individual use. The content of these packets changes irregularly as more current information becomes available.

Workbooks are changed frequently to reflect new material and new training directions. *Although recently outdated workbooks are useful for home study, it is best to have a current edition when participating in a training session.* Commercial applicators and operators who attend a training clinic receive current editions of the appropriate workbooks as part of their registration fee.

To order study materials, contact your local University of Illinois Extension office. Commercial applicators and operators can order study materials while registering for a training clinic by calling (800)644-2123 or (217)244-2123.

(Bruce E. Paulsrud)

Number	Description	Cover color	Price	Date
SP39	General Standards Manual	beige	$5.00	1995
SP39-W	General Standards Workbook	canary yellow	$2.00	Oct. 2000
SP39-S	General Pesticide Safety Manual (Spanish)**	violet	$5.00	1999
SP39-SW	Bilingual General Standards Workbook (English/Spanish)**	violet	$2.00	Jan. 2001
SP39-1	Turfgrass Manual	lime green	$8.00	1996
SP39-1/3W	Turf & Ornamentals Workbook	green	$2.00	Jan. 2000 (expected rev.: fall 2001)
SP39-2	Field Crops Manual	blue	$8.00	1994
SP39-2W	Field Crops Workbook	ight blue	$2.00	Nov. 1996 (expected rev.: fall 2001)
SP39-3	Ornamentals Manual	purple	$8.00	1985 (expected rev.: fall 2001)
SP39-4	Seed Treatment Manual	maroon	$2.00	1986 (expected rev.: fall ‘01)
SP39-4/8W	Grain Facility & Seed Treatment Workbook	gold	$2.00	Nov. 2000
SP39-5	Rights-of-Way Manual	orange	$8.00	1991
SP39-5W	Rights-of-Way Workbook	orange	$2.00	Oct. 1999
SP39-6	Aquatic Weed Control Manual	aqua blue	$8.00	1996
SP39-6W	Aquatic Weed Workbook	aqua blue	$2.00	Feb. 1998
SP39-7	Private Applicator Manual	red	$5.00	1999
SP39-7W	Private Applicator Workbook	red	$2.00	Nov. 1999
SP39-8	Grain Facility Manual (also serves Grain Fumigation clientele)	gold	$8.00	1997
SP39-9	Plant Management Manual	magenta	$8.00	1995
SP39-9W	Plant Management Workbook	magenta	$2.00	Apr. 1998
SP39-10	Forest Pest Control	packet	$5.00	Fall 2000
SP39-11	Aerial Applicator Manual	white (stapled)	$5.00	Dec. 1981
SP39-12	Mosquito Control	packet	$5.00	
SP39-13	Demonstration & Research		$8.00 for unbound draft now (bound copy for sale spring 2001)	
SP39-14	Dealer Pest Control		$8.00 for unbound draft now (bound copy for sale spring ‘01)	
SP39-15	Livestock Pest Control		$8.00 for unbound draft now (bound copy for sale spring ‘01)	
SP39-16	Sewer Root	brown	$8.00	Nov. 2000
SP39-17	Fruit & Vegetable Crops Pest Control (combined manual)		$8.00 for unbound draft now (bound copy for sale spring 2001)	
C1213	Soil Fumigation	packet	$2.00 (expected new: fall 2001)	

**Keep in mind that all exams are given in English and the U.S. EPA approves only English pesticide labels.

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

ADAGE (thiamethoxam)—Syngenta— Received EPA registration for this product as a seed treatment on sorghum, cotton, and wheat to control chewing and sucking insects.

BALANCE PRO (isoxaflutole)—Aventis—This new liquid formulation is much easier to mix than the WDG formulation that it will replace. [herbicide]

BASIS (rimsulfuron/nicosulfuron/atrazine)—DuPont—Received a new EPA label that allows fall application on corn. [herbicide]

CALLISTO (mesotrione)—Syngenta—A new pre- and postemergence herbicide being developed for use on corn. Registration in Europe and the United States is planned for 2002.

DEFINE (flufenacet)—Aventis—A new preplant corn herbicide to control most grasses and some broadleaf weeds.

EXPERT (s-metolachlor/atrazine/glyphosate)—Syngenta—Registration for this new three-way combination herbicide on corn is expected this spring. It is targeted for no-till and reduced-tillage corn.

EVEREST (flucarbazone)—Bayer—A new postemergence herbicide being introduced to control green foxtail and wild oats in wheat. It is a DF formulation and is packaged in 12-oz plastic jars.

HELIX XTRA (thiamethoxam/fludioxonil/(R)-[(2,6-dimethylphenyl)-methoxyacetylamino]-propionic acid methyl ester/difenconazole)—Syngenta—This new combination insecticide–fungicide seed treatment has been registered for use on canola. It controls flea beetles, soilborne diseases, damping off, and blackleg.

OUTLOOK—BASF—A new chloroacetamide compound that can be applied to corn preplant, preemergence, or postemergence on corn up to 36 inches tall. It controls grasses and small-seeded broadleaf weeds.

STEADFAST (nicosulfuron/rimsulfuron)—DuPont—A new combination postemergence herbicide being made available this year for use on corn. Apply 3 to 5 weeks after planting, when weeds are 1 to 3 inches tall.

SYNGENTA—The company has received registration for an all-new, improved Touchdown on over 230 crops, including Roundup Ready corn, cotton, and soybeans. It is called New Touchdown with IQ Technology. It contains a new glyphosate molecule called diammonium glyphosate (DA). Touchdown 5 contains glyphosate trimesium (sulfate), while Roundup contains glyphosate isopropylamine (IPA). The IQ Technology is the adjuvant delivery system, which overcomes barriers to consistent weed control. New Touchdown requires no other adjuvants, it is clean smelling and low foaming. It will be available in bulk; 110-gallon, 30-gallon, and 2.5-gallon containers for the upcoming season.

Fruit/Vegetable

AVAUNT (indoxacarb)—DuPont— Received EPA registration on apples and pears to control codling moth, leafhoppers, Oriental fruit moth, apple worms, apple maggots, leafrollers, tarnished plant bug, plum curculio, and others. Apply up to four applications at 7-day intervals and observe a 28-day preharvest interval.

BASIC COPPER (basic copper sulfate)—Micro Flo—Added to their label the use on pecans and pears, and also added the control of Eastern filbert blight, blossom blast, and blight on pears.

CAPTAN–US EPA registration for the use of captan fungicide on brambles (raspberries and blackberries) has NOT yet been completed. As always, be sure to follow the label directions that accompany the product you purchase. (Mohammed Babadoost, University of Illinois Extension, (217)333-1523, babadoos@uiuc.edu)

DANITOL 2.4 EC (fenpropathrin)—Valent—Added to their label the use on apples, pears, citrus, melons, grapes, and brassica vegetables. [insecticide]

GIBGRO 20% (gibberellic acid)—Agtrol Int'l.—Added to their label for this growth regulator the use on red globe seeded grapes.

LORSBAN (chlorpyrifos)—Dow AgroSciences—Added to their label the control of dogwood borer on apples.

PREVICUR FLEX (propamocarb hydroxide)—Aventis—This is the new trade name that this product is being sold under for late blight control on potatoes. It is also known as Tattoo.

SERENADE (Bacillus subtilis *QST 713)—Agraquest*—Being developed for use on tomatoes, potatoes, peanuts, walnuts, grapes, apples, and pears to control such diseases as fire blight, scab, powdery mildew, gray mold, downy mildew, and late blight.

Turf/Ornamental

AVG—Valent—Being developed for use on ornamentals as a growth regulator to extend flower longevity and reduce flower senescence, flower bud abscissum, and leaf yellowing.

DELTAGARD T/O (deltamethrin)—Aventis—Added to their label the control of azalea caterpillars, California oakworm, case bearers, and firebrats.

FASCINATION (GA 4+7/BA)—Valent—A new plant-growth regulator being developed for use on Easter lilies and oriental lilies to prevent leaf yellowing and to prolong flowering. Registration is expected in 2001.

NOVALURON—Makhteshim-Agan—This new product will be marketed in the United States by Uniroyal for use on ornamentals. It is an insect-growth regulator effective against caterpillars, whiteflies, thrips, and fungus gnats. Registration is expected in 2001.

PRO GIBB (GA)—Valent—Being developed on ornamentals to break flower bud dormancy, increase flower number and size, promote earlier flowering, and increase stem elongation.

TAENURE (Metarhizium anisopilae)—*Taensa*—A soil-applied bio-insecticide used to control black vine weevils and other soil insects on ornamentals. U.S. registration on greenhouse ornamentals is expected in 2001.

TETRASAN (etoxazole)—Valent—A new insect-growth regulator that is expected to be registered in 2001 on ornamentals.

Many

ACTARA (thiamethoxam)—Syngenta—Registration is expected this year for use as a foliar spray on cotton, apples, pears, cole crops, cucurbits, potatoes, fruiting and leafy vegetables, grapes, pecans and tobacco. [insecticide]

ASCEND 30 (TCMTB)—Gustafson—Being developed as a seed treatment to prevent molds and fungi on seeds in storage.

CABRIO/HEADLINE (pyraclostrobin)—BASF—A new strobelurin fungicide being developed for use on cereals, peanuts, grapes, vegetables, bananas, citrus, and turf.

CALYPSO (thiacloprid)—Bayer—A new neonicotinoid insecticide being developed to control numerous insects on fruit trees, cotton, vegetables, potatoes, and other crops.

CRYOLITE BAIT—Gowan—A new bait formulation to be used on ornamentals and nonbearing tree and vine crops to control black vine weevil and strawberry root weevil.

DIAZINON—EPA and the manufacturers of this product have agreed to a 4-year phaseout on many uses. This agreement cancels indoor household use on 3-1-2001, and all retail sales will stop 12-31-2002. For lawn, garden, and turf uses, manufacturing will stop 6-1-2003, and all sales end 8-1-2003. The manufactured active ingredient will be scaled down by 25 percent in 2002 and 50 percent in 2003. Registration will be cancelled on the following crops: alfalfa, celery, red chicory, citrus, coffee, cotton, cowpeas, cucumbers, dandelions, forage grass, lespedeza, parsley, parsnips, peanuts, pecans, potatoes, rangelands, sorghum, soybeans, strawberries, sugarcane, sweet potatoes, Swiss chard, tomatoes, and turnips. [insecticide]

DIMILIN (diflubenzuron)—Uniroyal—Added to their label the use on rangeland and noncrop areas (field borders, fencerows, roadsides, farmsteads, ditch banks, wasteland, and CRP land) for grasshopper and mormon cricket control. Also, the addition of grasshopper control in cotton and soybeans.

ELEXA-4 (chitosan)—Safe Science—Received EPA registration to use on tomatoes, tree fruits, cucurbits, ornamentals, strawberries, grapes, and other crops to control gray mold, powdery mildew, and botrytis.

ENVIDOR (spirodiclofen)—Bayer—A new miticide being developed for use on citrus, pome fruit, stone fruit, grapes, and other crops.

GRAMOXONE MAX (paraquat)—Syngenta—This new formulation will be available for the 2001 season. It is a 3-lb-per-gallon material, while Gramoxone Extra is a 2.5-lb-per-gallon–product; therefore, you can treat more acres per container. [herbicide]

IKI-220—ISK Bio Sciences—A new class of systemic insecticides being developed to control aphids on various crops.

MATRIC (chromafenozide)—Nippon Kayaku/Sankyo—A new insect-growth regulator being developed for use on rice, tea, vegetables, ornamentals, and other crops.

PLATINUM (thiamethoxam)—Syngenta—Registration is expected this year; Platinum is to be used as a soil-applied treatment on fruiting and leafy vegetables, grapes, pecans, cole crops, cucurbits, potatoes, and tobacco. [insecticide]

PRISM (clethodim)—Valent—Added to their label the control of canarygrass and rabbitsfoot grass.

QUADRIS (azoxystrobin)—Syngenta—Received an EPA registration to use on field corn, popcorn, and sweet corn to control rust and gray leaf spot. Also received EPA registration on bulb vegetables, canola, cotton, cucurbits, leafy vegetables, potatoes, rice, root and tuber vegetables, soybeans, tomatoes, and wheat.

RONILAN (vinclozolin)—BASF—The company has requested EPA to phase out the uses on this product over a 3-year period, except on canola, turf, and nondomestic wine grapes. The request is for onion, raspberries, and ornamental uses to phase out immediately; kiwi and chicory by December 2001; lettuce and snap beans by July 2004; and import tolerances on peppers and cucumbers by January 2001. [fungicide]

SMOLDER (Alternaria destruens)—Platte Chemical Co—A new organic biopesticide used to infect dodder and suppress its early stages of growth. A granular formulation is applied to the ground at emergence of the dodder, and a WP is used as a foliar spray.

STEWARD (indoxacarb)—DuPont—Being developed for use on apples, pears, cole crops, cotton, sugarbeets, and corn. [insecticide]

TAEGRO (Bacillus subtillis)—*Taensa*—A new bio-fungicide being developed to suppress diseases in vegetables, potatoes, turf, and ornamentals.

TAERAIN anisopilae)—Taensa—A bio-insecticide used to control whiteflies, thrips, and mites on vegetables, fruit and nut crops, and ornamentals. U.S. registration is expected in 2001.

VOLCK SUPREME OIL (petroleum oil)—Valent—Added to their label the use on pistachios and added the control of Pacific spider mite and parthenole canium soft scale.

Other

AGRICULTURAL CHEMICAL SALES—Company rankings of ag chem sales worldwide for 1999 are as follows: Syngenta, $7.36 billion; Pharmacia/ Monsanto, $5.1 billion; DuPont, $4.46 billion; Aventis, $4.33 billion; BASF/ Cyanamid, $3.53 billion; Dow AgroSciences, $2.27 billion; Sumitomo, $673 million; FMC, $632 million; and Rohm & Haas, $535 million.

BASF—The company has purchased ExSeed Genetics, based in Owensboro, KY. The company is strong in starch-technology research.

BAYER—The company has completed the acquisition of Flint (trifloxystrobin) fungicide from Syngenta.

CLOFENTEZINE—Aventis—The company has sold the rights to this miticide to Makhteshim-Agan. It is sold under the names Apollo and Acaristop, with annual sales of about $10 million.

DOW AGROSCIENCES—The company has agreed to a 50:50 joint venture with Cheminova of Denmark to develop and market a new pyrethroid insecticide. The new joint venture, which is based in Switzerland, will be called Pytech Chemical. The company has agreed to sell formulated cloransulam-methyl herbicide (First Rate) to Monsanto for weed control in soybeans. Monsanto will sell the product under the trade name Amplify.

ELF ATOCHEM—This division of ATOFINA Chemicals became Cerexagri, a wholly owned subsidiary of ATOFINA Chemicals, effective 1-1-2001. Headquarters will be maintained in Philadelphia, PA.

EMERALD BIO AGRICULTURE—This is a new company created by the merger of two bio-pesticide companies, Auxein and Mycotech. It will be headquartered in Lansing, MI. The main products will be Auxi Gro (GABA) disease-control and yield-enhancer product, the bio-insecticides Mycotrol and Botani Gard (based on *Beauveria bassiana)*, Valero/Cinnamite (cinnamaldehyde) insecticides, and Nemasys nematodes.

LADDOK S-12 (bentazon/atrazine)—BASF—The company has made a marketing agreement with Sipcam Agro for them to market this improved formulation on corn.

LINDANE—Kanoria—EPA has issued an intent to suspend the use of this insecticide in the United States. *(FR,* vol 65, 12-28-2000)

MAKHTESHIM-AGAN—The company has acquired the fungicide Nimrod (bupirimate) from Syngenta. The product is used to control powdery mildew on fruit and vegetables and is sold mainly in Europe. The company is planning on purchasing the rights to two active ingredients from Syngenta. Propaquizafop is a postemergence herbicide used to control grasses in broadleaf crops and is sold under the trade names Agil, Shogun, Falcon, and Claxon. Tua-fluvalinate is a synthetic pyrethroid insecticide sold under the trade names Mavrik and Klartan.

QUAZATINE—Aventis—The company has sold this fungicide to Makhteshim-Agan. Quazatine is sold under the trade names Panoctine, Ravine, and Kenopel. Annual sales were around $10 million per year.

SYNGENTA—The company announced its plans for an $18-million expansion of its plant in St. Gabriel, LA, to manufacture Touchdown herbicide.

SYNGENTA—The company will close the former Zeneca Western Research Center in Richmond, CA, by 12-31-2001.

TOMEN—This Japanese trading company plans to merge its ag chemical and pharmaceutical trading operations with Nichimen, another Japanese trading company, in April.

WOODSTREAM CORP—The company has completed its purchase of Verdant Brands.

2001 QUICK GUIDE—The 2001 edition is now available. This is a quick guide to the registrations of insecticides, herbicides, and fungicides on the crops grown in the United States; what each product controls; and the trade names they are sold under. Price, $21.95 each plus tax, if applicable, and $4.50 shipping. Order directly from Thomson Publications, P.O. Box 9335, Fresno, CA, 93791. Phone, (559)266-2964; or fax, (559)266-0189.

(Michelle Wiesbrook, unless otherwise noted, adapted from Agricultural Chemical News, *January and February 2001.)*

The *Illinois Pesticide Review* is published six times a year. Subscriptions are available by mail for $15. To order (VISA or MasterCard), call (800)345-6087 or (217)333-2666. Make checks payable to the University of Illinois and send to Linda Kennedy, ACES/ITCS Marketing and Distribution, 528 Bevier Hall, MC 184, 905 S. Goodwin, Urbana, IL 61801.

The newsletter is on the Web at http://www.aces.uiuc.edu/~pse/

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

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