

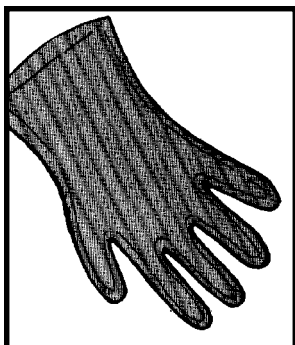
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Comments from the Coordinator

Many of you have requested information about the "glove talk" developed by Sandy Perry, specialist with the MSU Pesticide Education Program. In this issue, Sandy has generously provided the text for that talk, as well as the EPA glove chart. If you are interested in giving the talk, Sandy lists a supplier and price for the different types of gloves.

Pesticides and food have been in the news frequently in the last 2 months. First, EPA finally released its long-awaited grocery store brochure about pesticide residues in food. Soon after, Consumers Union released a technical report, summarized in the March issue of Consumer Report Magazine, scoring foods based on residue. This was closely followed by an Environmental Working Group press release on the 10-year anniversary of the Alar fray, criticizing the continuing presence of pesticides on apples. But surprisingly, despite the publicity, the Pesticide Education Program has received few questions or comments related to these press releases. All of these developments are discussed in this issue.

Christina DiFonzo
Pesticide Education Coordinator/Field Crops Entomologist



Worker Protection Standards (WPS)—Protective Gloves

Sandy Perry, Pesticide Education Program, Michigan State University

I first presented this material as part of a safety seminar series in 1998. The positive response from growers was very gratifying. I presented it as a train-

the-trainer segment at the Pesticide Education Program In-Service (10/98) for Extension Agents, hoping they would pass the information along to their audiences. The response from Agents and Groundwater Technicians has exceeded my wildest expectations. I'm presenting the information here—as a more complete set of notes—to encourage even more people to get the word out.
-Sandy Perry

Protective Gloves for Handling Pesticides

We wear gloves to protect ourselves from contact with pesticides. All pesticide labels give options for the type of glove material to wear. These options are not random selections, but based on the ability of that material to withstand the pesticide formulation for the longest time.

The pesticide active ingredients are dissolved in carrier solvents such as water, alcohols and petroleum distillates. All solvents (except water) are able to penetrate glove materials faster than the pesticide active ingredient alone. In other words, the solvents carry the pesticide through the glove material and into contact with your skin. Glove materials differ in their resistance to particular solvents—the ones that hold the solvent at bay the longest, protect you from pesticide contamination the longest.

Gloves can be reused because the solvents evaporate. Be sure to allow time for gloves to air out between wearings.

Categories (A-H) on Pesticide Labels and the EPA Glove Chart*

The letter designation refers to the carrier solvent and its concentration in the pesticide formulation, not the type of pesticide. It is not necessary to remember what each letter stands for as long as you use the EPA glove chart to choose the most protective types of gloves. The letter designation is found on labels under *Precautionary Statements*. There will also be several choices of glove materials listed on the label.

- A) Any dry or water-based pesticide formulation
- B) Any pesticide with acetate as the carrier solvent

- C) Any pesticide with alcohol as the carrier solvent
- D) Any pesticide with halogenated hydrocarbons as the carrier
- E) Any pesticide with ketones (such as acetone) as the carrier solvent
- F) Any pesticide with ketone and aromatic petroleum distillates mixture as the carrier solvent
- G) Any pesticide with aliphatic petroleum distillates (such as kerosene, petroleum oil or mineral oil) as the carrier solvent
- H) Any pesticide that has aromatic petroleum distillates (such as xylene) as the carrier solvent

Question: You have two pesticide formulations with the same active ingredient. One is a dry or water-based formulation and the other is a solvent-based formulation. Can you wear the same glove materials for each?

Answer: The solvent-based formulation will have a smaller selection of glove materials than the dry or water-based formulation. Always read the label.

Question: The pesticide label does not say if the liquid portion is water or some other type of solvent. How can I know for sure?

Answer: Solvents are classified as part of the inert ingredients and therefore not always disclosed on the label because formulations are trade secrets. You will know if the pesticide is water-based if waterproof gloves are required. If chemicalproof gloves are required and a category letter is not given, use only the glove materials listed on the label.

When the Label Wording May Get Tricky

When EPA first began requiring specific glove category letters to be included on labels, they made the “A” category optional. This is because gloves in the “A” category only have to be waterproof, not chemicalproof—so any glove material gives high protection as long as it doesn't have holes. Some labels only state that WATER-PROOF gloves are required and don't give material options. EPA has changed its mind — to keep labels consistent— and now requires all category letter to be disclosed, but some of the manufacturers haven't caught up.

There are also some labels that do not carry a letter category even though chemicalproof gloves are required. In those cases use only the glove materials listed on the label for that product.



Glove Materials (prices per pair are based on the 1998 Gempler's catalog)

- 1) **Barrier Laminate** (foil type) - the most chemically resistant, but uncomfortable, with poor dexterity because of design limitations (\$6.00).
- 2) **Butyl Rubber** (≥ 14 mils) - a synthetic rubber that is resistant to gas and water vapors, good choice for certain fumigants. Good dexterity (\$17.00).
- 3) **Nitrile Rubber** (≥ 14 mils) - Resists punctures better than other materials. Good dexterity, and slip-proof grip. Comes in a range of lengths, thicknesses, and lined or unlined (\$2.50 for 15 mil).
- 4) **Neoprene Rubber** (≥ 14 mils) - a synthetic rubber with good dexterity - remains flexible at low temperatures. Some versions have a 2 color process allows you to tell when the coating material is wearing thin (\$2.00).
- 5) **Natural Rubber** (latex)(≥ 14 mils) - good only for dry or water based formulation. (\$12-19.00)
- 6) **Polyethylene** - (no information available)
- 7) **PVC** (≥ 14 mils) - 20 mil thick gloves (\$2.00). Liquidproof PVC coated gloves can be used for protection against anhydrous ammonia (\$4.00)

8) **Viton** (≥ 14 mils) - The most chemically resistant glove available for the recommended categories. 30 mils thick but very flexible and comfortable to wear. Very expensive (\$150.00/pair).

Ranking Terminology (at bottom of glove chart)

High: Clean or replace at the end of each day's work. Rinse off pesticides at rest breaks.

Moderate: Clean or replace within an hour or two of contact.

Slight: Clean or replace within 10 minutes.

None: No protection.

TIPS: Keep one set of gloves for pouring and mixing concentrates and another set for spraying. Allow plenty of time for gloves to air out between uses.

With a permanent magic marker, write the name of the glove material on the inside of the glove cuff. It will save confusion later. The manufacturers label the glove packages with the name of the material, but not the gloves themselves.

Never use gloves that contain a lining.

***The EPA glove chart is available as Extension Bulletin AM 106. This version is 6 inches by 7.5 inches, on glossy paper with an adhesive backing.**

EPA CHEMICAL RESISTANCE CATEGORY SELECTION CHART
For use when PPE section on pesticide label lists a chemical resistance category

The Worker Protection Standard requires that labels of pesticides used on farms, and in forests, nurseries and greenhouses list the type of personal protective equipment (PPE) that must be worn with each product. Labels will refer to chemical resistance categories (A-H) for PPE. Items in these categories are made of materials that the pesticide cannot pass through during the times indicated below the chart. Choose the category of resistance that best matches the handling task duration. The categories are based on the solvents used in the pesticides, NOT the pesticides themselves. Therefore, there will be instances where the same pesticide with two different formulations (WP and EC, for example) will require PPE from two different chemical resistance categories.

SELECTION CATEGORY LISTED ON PESTICIDE LABEL	TYPE OF PERSONAL PROTECTIVE MATERIAL							
	Barrier Laminate	Butyl Rubber \$ 14 mils	Nitrile Rubber \$ 14 mils	Neoprene Rubber \$ 14 mils	Natural Rubber * \$ 14 mils	Polyethylene	Polyvinyl Chloride (PVC) \$ 14 mils	Viton \$ 14 mils
A (dry and water-based formulations)	high	high	high	high	high	high	high	high
B	high	high	slight	slight	none	slight	slight	slight
C	high	high	high	high	moderate	moderate	high	high
D	high	high	moderate	moderate	none	none	none	slight
E	high	slight	high	high	slight	none	moderate	high
F	high	high	high	moderate	slight	none	slight	high
G	high	slight	slight	slight	none	none	none	high
H	high	slight	slight	slight	none	none	none	high

* includes natural rubber blends and laminates

HIGH: Highly chemical-resistant. Clean or replace PPE at end of each day's work period. Rinse off pesticides at rest breaks.

MODERATE: Moderately chemical-resistant. Clean or replace PPE within an hour or two of contact.

SLIGHT: Slightly chemical-resistant. Clean or replace PPE within ten minutes of contact.

NONE: No chemical-resistance. Do not wear this type of material as PPE when contact is possible.





Chemical Update

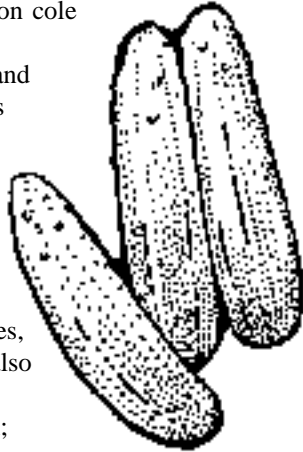
The following information provides registration status of particular pesticides and should not be considered as pesticide recommendations by MSU Extension.



New Registrations/Label Additions

Insecticides

- Actara (thiamethoxam; Novartis)—registration expected in 2000 for use on corn (soil applied) to control various soil-borne insects. Registration for use on cole crops, pome fruits, potatoes, cucurbits and other vegetable crops to control aphids, Colorado potato beetle, flea beetles, leaf hoppers, leafminers, plant bugs, thrips, whiteflies, and other insects is also expected in 2000.
- Baythroid (cyfluthrin; Bayer)—air application on carrots, peppers, radishes, and tomatoes added.
- Declare (methylparathion; Griffin)—a new formulation available this season for use on corn, soybeans, wheat, alfalfa, potatoes and some vegetable crops.



Herbicides

- Dual (metolachlor; Novartis)—control of common waterhemp and tall waterhemp added to the label.
- Envoy (clethodim; Valent)—registered for use on conifer trees and non-bearing food crops for grass control.
- Epic (flufenacet/isoxaflutole; Bayer)—registered to control grasses and broadleaf weeds in corn.
- Tupersan (siduron; PBI Gordon)—Bermuda grass suppression in bentgrass golf greens and use on roadside slopes and other areas applied via hydro-seeding have been added to the label.

Label Deletions/Cancellations

Insecticides

- Cascade (fonophos; Zeneca)—a turf product voluntarily withdrawn from the market due to the high cost of re-registration.
- Kelthane (dicofol; Rohm & Haas)—all residential uses will be deleted from the label and mixer loaders will be required to wear additional protective equipment. As of 12/31/98, all WP formulations must be in water-soluble bags. Application of the

liquid formulation by hand-held equipment will be eliminated. Closed mixing systems will be required for liquid formulations on dry beans. All applications are limited to one per year. On strawberries, applications will not exceed 2 lb. ai/acre/year.

- Oftanol (isofenphos; Bayer)—due to the high cost of re-registration the company has voluntarily proposed to cancel the registration for this turf product. This will be effective on the 2E registration on 9-30-99 and the technical registration on 12-31-99.
- Triumph (isazophos; Novartis)—a turf product voluntarily withdrawn from the market due to the high cost of re-registration.
- Rovral (iprodione; Rhose-Poulenc)—The following label changes have been proposed: cancellation of all residential uses; increases in the pre-harvest interval on strawberries from 0 days to “do not apply after first flower” and on stone fruits from 7 days to “do not apply after petal fall;” a proposed reduction in the application rate on table grapes from 4 times per season to one application per season at early to mid bloom; limiting the maximum number of applications on turf and ornamentals to 6 per year (24 lb. ai/acre/year); and, cancellation of all uses on herbaceous ornamental seed.

Requested Cancellations

Unless withdrawn, the following registrations will be canceled by July 26, 1999 (product names followed by manufacturer).

- Alpha 412; Unichem
- Asulam Technical; Rhone-Poulenc
- Chem-Tox Low Odor Flea Spray, Mycotrol GHOF and GHES for Rangeland and Improved Pastures (*Beauveria bassiana*), Mycotrol GHOF and GHES for repackaging use only, Mycotrol GHES for Crops; CTX Inc.
- Cuprinol No. 30 Clear Wood Preservative; Sherwin-Williams Co.
- Dupont Morix DF herbicide and Dupont Karmex DF herbicide; Griffin
- Gold Crest Vengeance Rodenticide; Agrevo Env. Health
- Guthion 2S, Guthion 3F Insecticide, Guthion 50% Wettable Powder Crop Insecticide, Guthion 35% Wettable Powder Insecticide, Guthion Solupack 35% Wettable Powder in Water Soluble PA, Guthion



- technical, Guthion 2L, D-Con Mouse Killing Station; Bayer
- Hi-Yield 7.5% Bromacil Liquid Concentrate, Hi-Yield 2.5% Bromacil Liquid Weed Killer; Voluntary Purchasing Group
- Marlate 400 Flowable Concentrate (methoxychlor), Marlate 300 Methoxychlor Flowable; Kincaid
- Orthene Turf, Tree, and Ornamental Spray WSP; Valent.
- Prentox larva-Lur; Prentiss Inc.
- Prokol Axinphos-M; Gowan Azinphos-M 50W; Gowan.
- Ridall-Zinc Tracking Powder for Control of House Mice; Liphatech
- Rinse Disinfectant – Sanitizer-Deodorizer; Dickler Chem. Labs
- Ronilan Fungicide 50W; BASF
- Sinbar Herbicide registration in Oklahoma, Oregon, Penn., Virginia, and Washington; Dupont
- SMCP Para-Blox Weather Proof Rat Bait Fish and Grain, SMCP 110, SMCP Para-Blox Kills Rats PRF Paraffin Rat Bait Fish, Commercial size Para-Blox Cereal and Molasses, Kills Rats with Para-Blox, Pelletized Slug and Snail Bait, Crumalized Slug and Snail Bait; AFC Diphacinnone 0.1%, Di-Mix 110, 1% Rotenone Garden Dust; Sureco Inc.
- Unicorn Coumaphis Screw-worm Sprays; Unicorn sprays.



(Based on *Pest. & Tox. Chem News*, 2/4/99)

Miscellaneous

- **Monsanto** has announced a licensing agreement with Nufarm Ltd. that allows Nufarm to register its brand of **glyphosate** herbicide for use on RoundUp Ready crops. The brand name for the Nufarm glyphosate is Credit. Monsanto has also reached an agreement with Micro Flo to supply glyphosate herbicide. The agreement allows Micro Flo to register its own brand of glyphosate products, which can be used on RoundUp Ready crops. This agreement also applies to Micro Flo's parent company BASF. Monsanto has also announced a toll manufacturing agreement with Dow AgroSciences to the rights to glyphosate registration data on a worldwide basis except for Japan. The agreement allows Dow to register its own brand of glyphosate, which can be used on RoundUp Ready crops. Lawn and garden uses were not included.

- **Monsanto** is developing genetically engineered **cotton** that will bring colored cotton and added disease resistance. The company expects to supply up to 3 million acres of *Bt* cotton seed for the 1999 season. Monsanto has also genetically engineered a new potato, **New Leaf Plus**, that contains the *Bt* gene and also resists the potato leafroll virus.
- **The Phosphine Task Force** has proposed to the EPA the following risk mitigation measures for phosphine (aluminum/magnesium) products:
 - Notify authorities of on-site workers at least 24 hours prior to application.
 - Have a certified applicator within 50 feet of the operation.
 - Prohibit the aeration of rail cars, vehicles, or containers en-route.
 - Placard fumigated structures.
 - Wear personal protective equipment
 - Require a two-man operation for any activity that involves entry into a fumigated structure.
 - Establish a 500-foot buffer and restricted zone around all fumigated structures.
 - Require seal leak testing for fumigated structures and establish a minimum distance from residences when used to fumigate rodent burrows.
- **Dupont** has been issued an experimental use permit to use 40.88 pounds of the insecticide Avaunt on 1000 acres of apples, cole crops, lettuce, and tomatoes to evaluate the control of various insect pests. The program is authorized only in the States of Arizona, California, Florida, Maryland, Michigan, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Texas, Virginia, Washington, West Virginia, and Wisconsin. The permit is effective from February 9, 1999 to February 9, 2000 and is issued with the limitation that all treated crops will be destroyed or used for research purposes only (Federal Register, Doc. 99-4972, 3/2/99).

(Unless otherwise noted, sources for the Chemical Update are from *Ag. Chem. News*: 2/15/99)





Standards for Organic Production Revised

After receiving thousands of comments last year, USDA has revised its proposed national standards for organic production. Under the new proposal, antibiotic-treated, genetically engineered (for example, *Bt* corn or RoundUp Ready beans) and irradiated food will *not* be considered organic. Still being discussed are the issues of organic feed in livestock production and the use of sewage sludge on fields.

Transgenics in the News

Mycogen has requested an Experimental Use Permit (EUP) for field testing of transgenic corn producing the cry1F endotoxin of *Bt*. The field testing would be done on more than 1,500 acres in 14 states, including Michigan, in 1999 (Federal Register, Feb. 10, 1999).

Environmental and organic farmer organizations filed a lawsuit against EPA in February, claiming the agency violated the law by registering transgenic crops that produce *Bt* toxins. The lawsuit contends EPA did not carry out an environmental impact statement prior to approving the *Bt* crops, and that EPA should never have registered *Bt* crops because they may cause adverse environmental effects. Also the lawsuit claims that EPA allowed the resource of "*Bt* susceptibility" to be transferred from the public to private companies. Insects have remained susceptible (except for isolated cases) to *Bt* for years, allowing organic farmers to use *Bt* sprays. With the advent of *Bt* transgenic crops, however, organic farmers say that resistance will occur quickly, eliminating *Bt* sprays as a tool for organic production (some info from *Pest & Tox. Chem. News*, 2/18/99).



Worker Protection Standards Q&A

Question: I'm confused about what pesticide records I must keep for whom and for how long. Can you give me a list?



Answer:

Private Applicators:

A. The *Worker Protection Standard* (WPS) requires that records of all pesticide applications (general-use and restricted-use) be kept available for workers at the central notification site for 30 days after the expiration of the restricted entry interval (REI).

B. *General-use pesticides*. There are no state or federal requirements to keep general-use pesticide records beyond the 30 days where WPS applies. However, to gain protection under the Michigan Right-To-Farm Guidelines, farm operators are required to keep records of all pesticide applications (general-use and restricted-use) for three years following the applications.

C. *Restricted-use pesticides* are required by federal law to be recorded no later than 14 days following the pesticide application and must be maintained for 2 years following the application.

Commercial Applicators:

A. *General-use pesticides*. Michigan requires that general-use pesticide records be kept for at least one year following application.

B. *Restricted-use pesticides*. Michigan requires that restricted-use pesticide records be kept for at least three years following application. Federal law requires that all commercial pesticide applicators, both agricultural and non-agricultural, furnish a copy of the application data to the customer within 30 days of the restricted-use application.





Food Quality Protection Act Information

For more information, contact a regional MDA office or Dr. Christina DiFonzo,
MSU Pesticide Education Program (517) 353-5328.



Consumer Brochure Hits the Stores (or at least the Web)

EPA released the long-awaited consumer right-to-know brochure in early February. Over 4 million copies of the brochure were sent to grocery stores across the country—100 copies for 41,000 stores. Stores are not required to display the pamphlet, however, and I have not seen it in any stores in Lansing. The brochure is available on the Internet at www.epa.gov/pesticides/food.

The final version is certainly different from the previous draft released in January 1998. That 8-page draft, called "Pesticides on Food," talked extensively about government agencies and regulations, and organic produce as an alternative for reducing dietary residues. The January '98 draft was heavily criticized by all sides as either falling short (failing to tell consumers about toxic poisons) or going too far (unfairly promoting organic, unnecessarily alarming consumers). The newly released final version is only 4 pages, and has been renamed "Pesticides AND Food: What you and your family need to know." It still mentions organic, but only briefly, discusses IPM, and waters down mention of potential health effects of pesticides. While grocery, food processor, and commodity groups are happy with the changes, consumer and environmental groups aren't pleased and feel that the brochure does not adequately warn the public about residues (from EPA web page).



Michigan State University - Summary of FQPA Activities in 1998

FQPA significantly changes EPA's tolerance-setting process, and as a result will likely effect the availability of pesticides for both food and non-food uses, perhaps as early as August 3, 1999, the first major deadline under the law. By that date, EPA set a goal to review tolerances for the "worst" pesticides, products that especially might affect children. These products are organophosphates (OPs) and carbamate insecticides, and EBDC fungicides.

Pesticides that do not meet the new FQPA standards must either be mitigated (use patterns must change) or eliminated (some or all uses must be dropped). Impacts could include:

- Changes in labeling or restricting of use patterns of important pesticides.
- Loss of critical pesticide uses, particularly for minor crops, which are smaller markets for pesticide producers and thus "expendable." Michigan has many minor food and non-food crops.
- Increases in production costs. Traditional broad-spectrum products would likely be replaced by newer, more expensive alternatives that only control a narrow range of pests.
- Potential for pesticide resistance. Loss of certain classes of pesticides could lead to resistance to remaining products that are being overused.
- Loss of minor crop acreage in the state as production costs increase and Michigan growers are left at a competitive disadvantage.

Current Issues with FQPA implementation: EPA is currently implementing FQPA, deciding which pesticides meet the new standards and if/how to mitigate or eliminate those that do not. This process is not easy, and there are some crucial impediments to effective implementation:

- Difficulty following the FQPA process, and keeping stakeholders informed.
- Lack of real-world pesticide use data for many crop and non-crop systems.
- Scarcity of good residue data for some crops and drinking water sources.
- Little residue data from non-food (residential) exposures for many pesticides, and no standard methods to obtain this information.
- No or few effective and economically sound alternatives for OPs, carbamates, and/or EBDCs in some



(particularly minor) crops.

- Lack of time and money for research to develop alternative pest management strategies.

Because of Michigan's unique position as the third most agriculturally diverse state in the U.S., Michigan State University has worked hard, both locally and nationally, to address Food Quality Protection Act education and implementation. The following is a summary of some of the FQPA-related activities that took place in 1998.

Pesticide Use Surveys. MSU has responded to EPA's need for actual pesticide use data in several ways. Campus specialists and extension staff respond directly to requests for information from EPA. Specialists also conduct targeted pesticide use surveys for important Michigan commodities, such as Christmas trees, dry beans, and sugarbeet. Finally, MSU staff worked with the National Agricultural Statistics Service to develop a special Michigan-specific supplement to the biannual national vegetable survey. Because of relationships developed by MSU staff with EPA, survey data from Michigan is directly funneled to the proper offices at the Agency.

Residue Data. In 1998, MSU's IPM and Pesticide Education programs cooperated with the Michigan Department of Agriculture on an EPA-funded study of pesticide residues on important Michigan crops. The crops tested were apples, asparagus, blueberries, cherries, cucumbers, grapes, peaches, and potato. Results of this study were generally favorable, with residues usually either not detected or well below current tolerances. This residue data will be provided directly to EPA in April, 1999.

Crop Profiles. The MSU Pesticide Impact and Assessment Program, as part of a wider USDA effort, is currently developing profiles of 17 important Michigan crops. These profiles detail acreage, timing, pests, and production practices for each crop, and will help EPA make decisions about pesticide risk mitigation and elimination under FQPA. The profiles are also on the Internet at <http://ipmwww.ncsu.edu/opmppiap/subcrp.htm>, so they can be accessed by anyone needing information

Research. MSU researchers are working to develop alternative pest management strategies to mitigate or replace the use of OPs, carbamates and EBDC fungicides. As part of that effort, faculty and administrators are using a "Pesticides at Risk" database, developed at MSU, to assess critical pest management needs in Michigan and to target research and funding. Also on the research front, MSU is working with the Michigan Department of Agriculture to keep the USDA laboratory open in Niles, Michigan, and to utilize its facilities. For many years this lab provided expertise and insects for biological control programs around the country; as the need for alternatives grows, it is important to have the Niles lab available for research.

Local Participation. In 1997, MSU faculty began a biweekly breakfast meeting to share information as FQPA unfolded. This group, now the Michigan Pest Management Action Team, doesn't meet as frequently, but it has expanded to include participants from MSU, the Michigan Department of Agriculture, commodity groups, Farm Bureau, and state government.

National Participation. MSU representatives attend many of the FQPA related meetings in Washington to remain informed about the issues. Several faculty also serve on national committees (for example, the Tolerance Reassessment Advisory Committee—TRAC) or have been called to testify at FQPA related hearings.

Extension Education. Since 1997, MSU faculty have lead the way locally in FQPA education, providing talks around the state to thousands of growers. The Pesticide Education program cooperated with Michigan Farm Bureau on an FQPA satellite broadcast to all Michigan counties in February 1998. These education efforts have translated into national attention, as MSU faculty have been asked to speak at meetings around the country on FQPA and potential impacts on minor crops. MSU has also developed FQPA-related extension materials, including brochures and slide sets aimed at a grower/ commodity audience. Literally thousands of brochures have been distributed around the country and the slide sets were distributed to pesticide programs in all 50 states.

Recent FQPA Developments

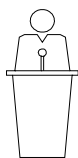
Make your own toxic fruit salad at the Environmental Working Group's "All You Can Eat" web site, <http://www.foodnews.org/>. The EWG site gives you the opportunity to make a fruit salad, fill a shopping basket, or plan a meal, then click a button to see what pesticide residues may potentially be on the food. When you submit a food list, the computer randomly selects a corresponding residue from a database of thousands of actual U.S. government food test results. Sometimes a residue is present, sometimes it is not. For example, a mythical yummy breakfast of bacon, eggs, toast, and coffee came back with 8 pesticides: chlorpropham, chlorpyrifos-methyl, DDE, DDT, dieldrin, malathion, pirimiphos-methyl, and TDE. When I reran the breakfast, I got 4 pesticides, the next time 5. The site is an interesting teaching tool and frankly a lot of fun for a bored pesticide educator stuck in the office for too long. But some caveats—when a residue profile is generated for a prepared food, it is not clear whether the corresponding residue data is based on fresh or processed product. Also, the site ignores dose, simply reporting presence/ absence of residue. And the site didn't mention all those nasty natural carcinogens present in my java, or all the fat associated with the juicy bacon....



Incidentally, after playing Fruit Salad Roulette, check out the EWG website to view the full-page ad placed in the New York Times on February 23, 1999. The ad addresses the 10th anniversary of the removal of Alar from the market. The ad says "SOMETHING TO CHEW ON: 10 Years After Alar, Apples Still Need a Cleanup," and features 10 apples, with bites taken out, and a currently used pesticide named under each fruit (<http://www.foodnews.org/nytimes.html>).

Another recent development was the release of a Consumer Union technical report, "Do You Know What You're Eating?" The full technical report can be downloaded from the Consumer Union website at <http://www.ecologic-ipm.com/> —look under "reports." A summary of the complete report was published in the March 1999 issue of Consumer Reports magazine as "How Safe is Our Food." The authors analyzed U.S. government food residue data from 1994 through 1997, more than 27,000 samples. They developed a toxicity index that takes into account frequency of residue detection on a food, the average amount of residue

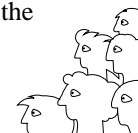
present, and the relative toxicity of the individual pesticides present on a food item. They then compared the calculated toxicity indices of various foods. For the nuts and bolts explanation of the index (assumptions, equations, etc.) you will have to read the full technical report. Of the 27 foods examined by Consumer Union, apples, grapes, green beans, peaches, pears, spinach, and winter squash had the highest toxicity indices. This was a function of either residues being found more frequently on these crops, or the relative toxicity of residues being greater. The authors also say that U.S. produce usually had a higher toxicity index than its foreign counterpart. The report is not without its critics. Many people are questioning the assumptions made by the authors in constructing the toxicity index, while others are criticizing the implication that U.S. food is unsafe due to the presence of residues. "Do You Know What You're Eating" raises a lot of complicated and interesting issues, and I refer you to the full report for a clearer understanding of the topic.



Pesticide Applicator Recertification Seminars

This partial listing of recertification seminars was provided by MDA. Certified applicators and registered technicians may earn recertification credits by attending these programs. For additional information, call the MDA Lansing office at (517) 373-1087.

NOTE: Renewal of pesticide applicator certification credentials can be done by taking the appropriate exam(s) or by obtaining the necessary number of recertification credits by attending approved seminars.



Date	Seminar	Location	Credit	Category	Phone #
4/1	Integrated Turfgrass Mgmt	Holland, MI	2	Com Core,3A	(517)545-9025
4/5	Pesticide Applicator Review Session	Monroe, MI	3	Com Core,1A,1B,1C,2	(734)243-7113
4/6	Ant Mgmt Survival Course	Los Angeles, CA	2	7A,7B,7C	(800)777-8570
4/7	Ant Mgmt Survival Course	Ontario, CA	2	7A,7B,7C	(800)777-8570
4/8	Ant Mgmt Survival Course	San Diego, CA	2	7A,7B,7C	(800)777-8570
4/8	Farm Safety & Training Mtg	St. Johns, MI	2	1A,1B,1C,2,3A,3B,Com	(517)335-0017
4/20	IFC Pesticide Stewardship Sem-Day 1	Baltimore, MD	4	Com Core,7A,7C,ST,C	(913)782-7600
4/21	FISA Good Manuf Pract-Day 2	Baltimore, MD	2	Com Core,7A,7C	(913)782-7600
4/29	Degesch America Recert. Program	Charlottesville, VA	4	Com Core,Priv, ST	(540)234-9281
4/26-30	Good Manuf. Pract. for Food Industry	Danville, IL	14	7A,7C,8	(217)442-1800
11/9	Stewardship Seminar-Day 1	Atlanta, GA	4	Com Core,7A,7C,ST,C	(913)782-7600
11/10	FISA Good Manuf Pract-Day 2	Atlanta, GA	2	Com Core,7A,7C	(913)782-7600
11/12	OPCA Training School	Cincinnati, OH	4	Com Core,7A,7B	(614)789-9020
11/13	OPCA Training School	Cleveland, OH	4	Com Core,7A,7B	(614)789-9020

Instructions for recertification training seminar attendance and training seminar dates are posted at the MDA website: <http://www.mda.state.mi.us/industry/semsked.html>

