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Important pesticide handling considerations

This is a CEU article.

By Stephen H. Futch and Ryan Atwood

Before you or those you supervise do any pesticide tasks, a number of factors should be carefully considered prior to any pesticide handling or application activity. The first and foremost consideration is the precautionary practices that you must incorporate into your work activity to protect the safety of everyone, including applicators, workers, others who may be nearby, as well as the environment.

These safety considerations can prevent or reduce the severity of many pesticide accidents. Safety should be your number-one concern each time you or your workers handle any pesticide. Pesticide safety training is

required and should be conducted on a regular basis to ensure all workers have knowledge of pesticide safety concepts. Worker protection standards (WPS) require new employees be trained on a number of pesticide topics before pesticide handling tasks (pesticide handler) or within five days of employment (agricultural workers) if working in areas that have been treated with a pesticide within the last 30 days.

SAFETY STEPS

The first safety step is to read the applicable sections on the pesticide label before you open a pesticide container or begin handling tasks. The label will provide precautions and instructions that must be followed in order to ensure that the product or products are handled and applied in a safe and environmentally sound manner. Be sure you understand all labeling instructions. If unsure of the labeling information, seek additional advice from knowledgeable sources. Proper training of employees on labeling will help to ensure that pesticides are handled in a safe manner. If language comprehension is an issue, have the information translated into the appropriate language to ensure that all concepts are fully understood by all handlers involved.

Once the pesticide has been selected, personal safety of all involved in the application process is a key concern. To minimize pesticide handling issues, one must wear all personal protective equipment (PPE) as required on the label for all handler tasks. Some pesticide labels will require additional pesticide safety equipment for the mixer or loader as compared with the pesticide applicator. You must also make sure that the required PPE is clean, in good operating condition and worn correctly. Individuals involved in spill cleanup, repairing or maintaining application equipment, transporting, storing or disposing of containers must also utilize proper PPE for the specific task being assigned. Required PPE is not an option, but a requirement per the label and the law.

Handlers and workers should avoid drinking, eating, use of tobacco products or other activities that could permit exposure to the pesticide. When taking a break, wash and then remove gloves and wash your hands and face



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thoroughly to minimize exposure risks. This washing process should take place prior to eating, drinking or going to the toilet.

Practices should also be developed to minimize the spread of pesticides to other objects or surfaces. Any time contact is made with other surfaces after handling pesticides, the surfaces potentially become contaminated. Surfaces that could become contaminated include any work surface like seats in automobiles, chairs or floors if shoes are contaminated. At home, surfaces could become contaminated if pesticide-contaminated clothing is not removed before workers return home and they contact other surfaces.

Proper instructions should be provided to all who use pesticides on proper sanitation, personal hygiene and environmental hazards associated with pesticide usage. Individuals should be aware of how they may become exposed, ways to reduce exposure, methods to minimize heat-related risks and ways to properly respond to emergencies. It is the employer's legal responsibility to ensure all are well-informed and that they are taking all precautions required by the pesticide label.

Spill clean-up equipment should be readily available at all times and employees should be aware of where this equipment is located. This equipment should include, but is not limited to, containment devices (containment snake, soil and absorptive material), shovel, broom and containers to place contaminated material into during the cleanup process. This clean-up process should not be conducted unless employees are properly trained and provided with proper PPE to conduct the clean-up activities.

As part of WPS, decontamination equipment must be available at the mix-load site. Equipment required includes soap, single-use towels, water and a clean change of clothing. The type of soap or single-use towels is not important, but must be in adequate supply to properly decontaminate the body, if it is contaminated with pesticides or solutions that may contain pesticides or in the case of workers contacting treated plant parts. The decontamination water source must be separate from the mix water and of a quality and quantity to allow it to be used in decontamination. The clean change of clothing may be of cover-all type and must be large enough for the workers to fit into after decontamination. Requirements for decontamination supplies are the same for agricultural workers with the exception of the

Reaching Younger Consumers with Florida Citrus Messages

By Ken Keck



The current White House administration has placed the health of our nation's children in the spotlight. We know that it is crucial to develop healthy eating and lifestyle patterns during children's formative years, so these patterns become ingrained as positive habits when they reach adulthood.

FDOC has several marketing initiatives under way to educate today's children about the health and wellness benefits of Florida citrus.

We have launched a new program targeting more than 50,000 students in Polk, Highlands and Hardee counties. In partnership with a contract vendor, By Kids For Kids, we've developed educational materials featuring citrus that meet state curriculum standards.

More than 2,800 kindergarten through fifth-grade teachers will have access to teachers' guides, classroom activities, interactive games and flyers for parents detailing the history and benefits of citrus.

FDOC will recruit citrus growers in these counties to serve as citrus ambassadors, visit local schools and bring the citrus industry to life for students.

The school program will include a creative competition encouraging kids to utilize art, music, acting and writing skills to celebrate Florida citrus. Entries will be featured on the program Web site and prizes will be distributed to individuals and schools.

By housing the school program online, we will be able to share Florida citrus educational materials with interested teachers outside of the three-county area. We will be monitoring and evaluating this test program to determine the feasibility of expansion if future resources permit.

FDOC will also reach out to School Foodservice Directors to generate increased awareness about the benefits of Florida orange juice. We will distribute educational materials, along with information about proper storage and handling, at the state and national School Nutrition Association conferences and through the school section of FloridaJuice.com.

We know that parents are the ultimate purchase decision-makers and we will be communicating through Parent Teacher Association conferences to reinforce the health benefits of Florida citrus.

FDOC advertising is targeted to reach a new consumer segment, "It's Just Juice + Families," which makes up 45 percent of the population and offers the greatest potential for orange juice growth. This target skews younger than the median age of our previous target (37 vs. 48), and includes families with children at home.

We will encourage parents and young consumers to drink orange juice every day through strategically placed advertising on children-friendly networks, such as Nickelodeon (Dora the Explorer, SpongeBob Square Pants), family-focused movies on FX and TBS (Dr. Seuss Horton Hears a Who, Kung Fu Panda, Shrek, Cat in the Hat), and an original Hallmark movie featuring orange juice being consumed and enjoyed by the actors. We will also create online custom games featuring orange juice for the Game Show Network.

On behalf of Florida growers, FDOC will continue to work diligently to increase orange juice consumption among today's children who will become tomorrow's purchasers of Florida citrus.

The mission of the Florida Department of Citrus is to grow the market for the Florida citrus industry to enhance the economic well-being of the Florida citrus grower, citrus industry and the state of Florida.

Ken Keck, Executive Director, can be reached at 863-537-3999.

For more information, visit www.FDOCGrower.com



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requirement of a clean change of clothing if pesticides were applied within the last 30 days.

First aid equipment should be readily available for all workers and pesticide handlers. The first aid kit should be well-stocked and include an eyewash dispenser that will provide a gentle flushing action in the event an eye or eyes become contaminated with a pesticide.

Employees should also be properly trained in what to do in an emergency situation and be familiarized with the signs and symptoms of pesticide poisoning. In poisoning situations, get the person out of the exposure as quickly as possible, call for medical assistance and provide first aid. In these emergency situations, workers who stage the rescue must be properly protected before beginning emergency tasks with the proper PPE necessary to ensure safety.

PRE-APPLICATIONS

A number of pre-application decisions may contribute to added safety when selecting a pesticide. When deciding on a pesticide, choose the safest and most effective pesticide for controlling the desired pest. If you are unsure as to product selection, contact

an appropriate pest control expert in the area for the target crop. These experts may include the pesticide dealer, manufacturer representative, trade associations or your local Florida Extension Service agents.

Pesticides have many different types of formulations. Each formulation will have advantages and disadvantages for a particular application. Select the material that best fits your specific situation, requirements, application equipment and site. For example, emulsifiable concentrates tend to be easily absorbed through the skin or can injure some plants. Dusts may leave a visible residue on soil and plants, or drift from the target site. Granular products may require incorporation into the soil.

The type of equipment that you wish to use may also be a factor in your pesticide selection process. Some labels specify that the product must be applied in a specific amount of spray volume per acre or perhaps require a specified spray droplet size, limiting the type of application equipment that can be safely and legally used.

ENVIRONMENTAL FACTORS

Applicators must also be aware of environmental conditions during the

application. Applicators must consider wind conditions which might move the pesticide away from the application site as this movement off-site can create undesirable problems and significant legal issues. Movement from the application site is commonly referred to as drift. During the application, the higher the application pressure and the smaller the droplet size, the greater the tendency for the product to move or drift off-site. When these factors are combined with wind, they pose an increasing risk for off-site movement. Applicators have a legal requirement to direct the pesticide to the target crop and apply pesticides in a manner that prohibits drift.

Moisture on the plant surface may impact pesticide activity. Too much surface moisture may dilute the pesticide or allow it to run off the target surface before becoming evenly distributed on the target surface.

Temperature can also influence pesticide effectiveness. Low temperatures may slow down the pesticide uptake or the movement of pests, thereby limiting their contact with treated plant surfaces. High temperatures, when combined with low humidity, increase the likelihood of pesticide vaporization. Once in the vapor form, pesti-



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cides can drift from the application site and settle onto non-target areas. Some labels prohibit the use of a specific product if temperature exceeds a given range.

Rain or irrigation too soon after the pesticide application could carry the pesticide off the plant surface. Pesticide labels may have statements that prohibit application within a stated time prior to rain.

When using contact herbicides, the treated plant needs to be actively growing to achieve maximum weed control. Plants that are under drought stress or recently damaged by frost may not effectively absorb or metabolize the herbicide, and will not be as effectively controlled as plants that are not stressed.

HEAT-STRESS FACTORS

When selecting a pesticide, consider the PPE that will be required to be worn during the application period. Select a PPE type that is designed to be as cool as possible. Required PPE, when combined with workplace conditions, can impact the heat stress potential that the workers may experience. Consider ways to minimize heat stress such as adjusting application scheduling (morning, night applications vs. mid day), workload, heat factors (temperature, air movement, sunlight) and be sure to have an adequate supply of drinking water readily available.

Adequate water is essential to keep the body cool. Remember that evaporation of sweat from the skin aids in keeping the body cool and maintaining a constant core temperature. Under conditions of high temperature, strong air currents, heavy work load and direct sunlight, a loss of as much as one gallon of water per hour is possible. If water lost by sweat is not replaced, the risk of heat stress dramatically increases. Thus, keeping properly hydrated is essential to the safety of your workers.

When selecting a pesticide, it is the responsibility of all to ensure that pesticide product is safely and effectively used to minimize adverse impact to individuals or the environment. Safe pesticide use is everyone's responsibility.

Reference source: Applying Pesticides Correctly, by Tom Dean and Norm Nesheim, University of Florida, Gainesville, FL.

Stephen H. Futch is a multi-county citrus Extension agent based at the Citrus Research and Education Center, Lake Alfred; Ryan Atwood is a multi-county Extension agent based at the Lake County Extension Service, Tavares.

Important pesticide handling considerations test

To receive one Core continuing education unit (CEU), read "**Important pesticide handling considerations**" in this issue of *Citrus Industry* magazine. Answer the 20 questions on the magazine's Web site (www.citrusindustry.net) or mail the answers and application information to the address at the bottom of the form. The article and test set will be valid for up to one year from the publication date. After one year, this test will no longer provide a CEU.

1. Safety should be your number-one concern each time you or your workers handle any pesticide. Circle one T F
2. WPS requires all new pesticide handlers to be trained within five days of working with pesticides. Circle one T F
3. The amount of PPE worn by pesticide handlers is optional. Circle one T F
4. The first step for pesticide safety is to read the applicable section or sections on the pesticide label. Circle one T F
5. PPE is not required when cleaning up a pesticide spill. Circle one T F
6. You should avoid drinking or eating while mixing pesticides. Circle one T F
7. PPE should not be worn home after pesticide application due to the risk of contaminating other surfaces. Circle one T F
8. Companies have a legal responsibility to ensure all employees are well-informed and are taking precautions that are required by the pesticide label. Circle one T F
9. A pesticide spill cleanup process should not be conducted unless you are properly trained and you have the required PPE. Circle one T F
10. Decontamination equipment must be available at the mix and load site. Circle one T F
11. The same PPE is required for both workers and pesticide handlers under WPS. Circle one T F
12. Employees should be familiar with the signs and symptoms of pesticide poisoning. Circle one T F
13. All pesticide formulations have similar advantages and disadvantages. Circle one T F
14. Spray volume is not an issue for low-volume application. Circle one T F
15. Off-site movement of pesticide does not create a significant legal issue. Circle one T F
16. Moisture on the plant leaf surface does not impact pesticide activity. Circle one T F
17. Low temperature does not slow down the uptake or movement of pesticides into the plant. Circle one T F
18. The consideration of PPE worn during the application period is a factor in selection and application of pesticides. Circle one T F
19. To minimize heat stress, you could adjust the application scheduling. Circle one T F
20. The loss of as much as one gallon of water per hour is possible when working under conditions of high temperature, strong air currents and heavy work load. Circle one T F

Pesticide Applicator CEU Form

First Name: _____ Last Name: _____

Email: _____

Pesticide License Number _____

Address _____

City _____ State _____ Zip: _____

Phone Number: _____

Please mail the answer sheet or a copy of the form to: Dr. Steve Futch, Citrus Research & Education Center, 700 Experiment Station Road, Lake Alfred, FL 33850.

If you have questions regarding this form, test or CEUs, please email Steve Futch at shf@ufl.edu or call (863) 956-1151, ext. 1202.