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Upcoming Extension Workshops & Industry Events

January 23-25 - FNGLA Tropical Plant & Industry Show / Broward County Convention Center, Ft. Lauderdale, FL
Registration: http://fngla.org/TPIE

Jan. 25 – Agritunity Workshop on Aquaponics / Sumter County Extension
Registration: http://agritunity2013reg-eorg.eventbrite.com/#

January 29 - Review & Exams Ornamental/Turf and Private Ag Pesticide Applicator Licenses / 8:00a-4:00p / Lake County Extension / CEUs Available!
Registration: http://jan2012reviewclass.eventbrite.com/

January 31 - Review & Exams Limited Pesticide Applicators Licenses / 8:00a-4:00p / Osceola County Extension / CEUs Available!
Registration: http://occeu.eventbrite.com/

February 13 – Integrated Pest Management Update / Mid-Florida Research & Education Center, Apopka / Details TBA

February 27 – New Technology for Commercial Vegetable Production IFAS CEU day (video conference) / Lake County Extension
Registration: 352-343-4101

March 5 - Green Industries Best Management Practices (GI-BMP) / 7:45a-4:00p / Orange County Extension Education Center / CEUs available!
Registration: http://bmp.eventbrite.com

March 31 - Review & Exams Limited Pesticide Applicators Licenses / 8:00a-4:00p / Lake County Extension / CEUs Available!
Registration: 352-343-4101

April 20-21 – Central Florida Landscape and Garden Fair / Lake County Extension Discovery Gardens / Details TBA

For more information and links to other programs go to any of the following links:
http://lake.ifas.ufl.edu/calendar.shtml
http://orange.ifas.ufl.edu/cfnurseries/
http://www.seminolecountyfl.gov/extensionservices/commercial/commercial.aspx
http://calendar.ifas.ufl.edu/calendar/index.htm

Statement on "Least Toxic" & "Last Resort"

from Nov/Dec 2012 Issue of Chemically Speaking

Recommendations and decisions to use "least toxic pesticides" and "pesticides as a last resort" have flourished in the last decade, but according to three scientific organizations – the Weed Science Society of America (WSSA), the American Phytopathological Society (APS) and the Plant-Insect Ecosystems Section of the Entomological Society of America (P-IE ESA) – these are not the correct approaches to the pesticide component of an Integrated Pest Management (IPM) program. The three organizations have joined to take an objective look at these two descriptions and prepared a position statement.

It is essential to practice integrated pest management (IPM), whether managing weeds, insect pests or plant disease - on the farm, on commercial sites, on public lands, or in or around the home. Key components of IPM include making the habitat unfavorable for pests, excluding pests where feasible, using proper sanitation practices, monitoring the infestation level, knowing the pest tolerance level for the specific situation and implementing the necessary management practices. Judicious use of pesticides is a critical component of many IPM programs. Judicious (careful) use refers to various practices - following all label directions and making all appropriate stewardship decisions required in the particular situation. This includes applying a product registered for the target pest(s) after accurate pest identification, and consideration of the level of infestation and the potential for economic, health or other negative pest impacts. Careful use extends beyond pesticides to household chemicals, automobiles, medicines, alcoholic beverages, and countless other products that are part of our daily lives.

"Least toxic" implies there are pesticides available for every pest spectrum that are least toxic to everything else. This is not true. The toxicity of a pesticide depends on what is being evaluated and who or what may be affected. It is also important to remember that toxicity is not the same as risk, which is dependent on both toxicity and exposure. The risk associated with the use of pesticides and other chemicals is managed by establishing safe exposure levels based on the toxicity specific to each product. Assigning a "most" or "least" toxic rating does not equate to actual risk when the product is properly applied.

"Last resort" implies that pesticides will work as well when every non-chemical control technique is attempted first. However, delaying application of a pesticide can cause buildup of the pest(s) in crops, gardens, buildings and other sites, with negative impacts on yield, quality and/or health. In fact, delaying treatment can significantly increase the ecological and economic damage to crop and non-crop areas. Using pesticides as the last line of defense can result in a more limited choice of pesticides, as well as reduced crop tolerance, the need for higher rates, and less effective control because of higher infestation levels and/or more tolerant pest stages. For example, seedling weeds and early-stage insect larvae and diseases are usually more easily controlled than later pest stages. Effective pesticide choices, when they

are applied as a "last resort," means fewer options to rotate pesticides, which is a critical step in preventing a pest from becoming resistant to a pesticide. "Last resort" pesticide strategies may also increase the need for multiple products and higher application rates to control the pest effectively. The term also suggests pesticides are always the worst choice, which is not true. First using non-chemical techniques that are ineffective or inefficient has the potential to add to the cost of pest management, intensify the pest problem or create new problems.

Finally, by branding pesticides as the "last resort" choice certainly does not stimulate a strong public interest in funding education on their proper use. Pesticides are widely used, but discretionary federal funding of the U.S. Pesticide Safety Education Program has been eliminated in 2011 and 2012. This program is vital to educate pesticide users and dealers who must be certified to apply or sell pesticides, and to teach the public how to use pesticides safely. There is no benefit or scientific basis to simplistic messages like "use least toxic pesticides as a last resort" for the large number of pesticide users who apply pesticides according to the label and practice good stewardship. Nor are these messages beneficial for those who neither seek training nor adequately read the label believing instead that it is safe, practical, and effective to simply choose a product considered a "least toxic pesticide" and apply it only as a "last resort." These messages hinder pesticide safety and stewardship education and practices that are in the best interest of the pesticide user, our food supply, public health and ecosystem preservation. (WSSA/APS/P-IE ESA joint statement, 11/12/12).

Avoiding Fungicide Resistance

Adapted by Matt Lollar from EDIS Publication PI94

Fungicide resistance was first observed in the 60s and has only become more prevalent with the introduction of systemic fungicides. Resistance can oftentimes occur as early as two years after the release of a new commercial product. The two most common traits of a resistant pathogen are extremely large populations and a rapid rate of reproduction. This is due to the fact that large populations contain extensive genetic diversity. It only takes a couple resistant individuals to create an entirely new population in a short amount of time. After fungicide application, a small resistant population survives through natural variation, becoming the majority by re-infesting the host.

Cross-Resistance vs. Multiple-Resistance

Over 50 different fungicide active ingredients and an extensive list of trade products are on the market. Unfortunately, many of these active ingredients fall under the same mode of action affecting less than 20 growth mechanisms. Cross resistance occurs when a plant pathogen cannot be controlled by fungicides of the same mode-of-action. An example of cross-resistance is a pathogen resistant to fungicides in the triazoles or pyrimidines chemical groups. These are both demethylation inhibitors (DMI) that disrupt sterol synthesis. Multiple-resistance is more serious and occurs when a pathogen is not controlled by fungicides with different modes of action. An example of multiple-resistance is a pathogen resistant to fungicides that inhibit two different modes-of-action, such as being resistant to both mitosis and protein synthesis inhibitors.

Indicators of Resistance

There are several key warning signs in determining a pathogen's potential to become resistant. Resistance may occur if a product is persistent in the environment or is used repetitively over an extended period of time. Only one gene of the fungus needs to mutate in order for resistance to occur. The product can also easily be metabolized by the target fungus. If the pathogen multiplies rapidly, then subsequent generations and large populations will eventually become resistant. Consequently, some fungicides are at a greater risk of becoming resistant to pathogens. Some, but not all of the products at risk include: azoxystrobin, thiophanate-methyl, and metalaxyl.

In order to help reduce the incidence of resistance, the Fungicide Resistance Action Committee

(FRAC) encourages the manufacturer to indicate the mode-of-action group in a uniform location on the label. This provides producers with an easy way to quickly check for a products mode-of-action. Check out the following publication for a good list of products available in Florida, their modes-of-action, and their resistance risk: http://edis.ifas.ufl.edu/pi131

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