Cranberry Crop Management Newsletter

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WHEN LABELS DECEIVE

"The label's the law" is a common phrase used by Extension types to emphasize the importance of using products in a manner safe to the applicator, consumer, and environment. This is excellent advice because the health and legal consequences could be ugly if you did otherwise. But another side of labels is the information that chemical companies include in an effort to sell as much product as possible. This information is frequently confusing at best, and deceiving or outright false at worst.

To make my point, I will pick on the label for Kocide 2000 (Griffin Corp.), but Griffin is by no means the only company guilty of confusing issues on their labels. Kocide 2000 is labeled for use on "bacterial stem canker" of cranberry. Hmmm…as I flip through the Compendium of Blueberry and Cranberry Diseases, this disease is not to be found. There is a bacterial canker on blueberry, and there is a problem on cranberry called "canker" that might be caused by bacteria, but nobody has proven this. Furthermore, nobody has done any field trials with Kocide 2000 to see if it controls "canker". When I called Griffin about this, they said that Frank Caruso in Massachusetts had done some work on this. When I called Frank, he said this was untrue, and the first thing he'd do after we hung up is call Griffin to see where they got their story. Actually, the first thing he did was roll up his car windows since it had started pouring while we were chatting!

Also on the Kocide 2000 label are the vague terms "stem blight" and "leaf blight". These are not diseases, but rather are symptoms of a number of different diseases. Stem blight probably refers to Lophodermium twig blight, a problem in the Pacific Northwest. But by being sufficiently vague, the label is confusing to all. Kocide 2000 is also labeled for control of "tip blight" caused by Monilinia. This would mean cottonball primary infections. To my knowledge, nobody has tested Kocide 2000 for cottonball control. In the late 1980s Steve Jeffers found Kocide 101 to be ineffective in controlling primary and secondary cottonball infections. I don't know how they got the idea to list this as a use for Kocide 2000.

If you have questions about vague language on pesticide labels, you're not alone. I encourage you to call the appropriate Extension specialist to find out if there is research to back up label recommendations. Although labels are generally accurate and forthcoming when it comes to legal issues, biology is something else.

Patty McManus, Extension Plant Pathologist, UW-Madison

REPORTING ORBIT USE

The Section 18 permit for the fungicide Orbit (propiconazole) expired on July 31, and now is the time to report use of this product in Wisconsin. All cranberry growers in Wisconsin will soon receive a form to record their use of Orbit. Reporting Orbit use is required by the EPA, and future Section 18 or regular labels for Orbit will not happen if we don't provide them with use data. Reporting Funginex (triforine) use is not required by EPA, but this information would be useful as we continue to assess the need for fungicides to control cottonball. Please return the form by September 26 to: Patty McManus, Dept. Plant Pathology, 1630 Linden Dr., Madison, WI 53706.

Patty McManus, Extension Plant Pathologist, UW-Madison

REPORTING STINGER USE

While the Section 18 permit for STINGER will not expire until December 31, 1998, growers will still need to report their use of this herbicide. The reporting requirement allows both the EPA and the manufacturer to see usage patterns. A form will be sent to growers late this fall to report your usage.

Teryl Roper, Extension Horticulturist, UW-Madison

> The end of education is to see men made whole, both in competence and in conscience. For to create the power of competence without creating a corresponding direction to guide the use of that power is bad education. Furthermore, competence will finally disintegrate apart from conscience.
>
> John Sloan Dickey

RESISTANCE TO PESTICIDES

Pesticide resistance is the inherited ability of a pest to tolerate the toxic effects of a particular pesticide. As resistance becomes more widespread in a population, you have to apply more pesticide more often to control the pest. Over time that pest may not be controlled with applications of that particular pesticide. Once that happens, that pesticide is no longer a useful tool. Hundreds of pest species, mostly insects, have become resistant to one or more pesticides.

Where does pesticide resistance come from? When organisms reproduce, the offspring receive copies of the parent genetic material. However, the copies are not always perfect. Mistakes appear. These are called mutations. Many times the mistakes are of no consequence or are lethal. Sometimes, however, a mutation benefits an organism. An example is a mutation that confers pesticide resistance. Because pest populations are large, it is likely that within a population there will be a small percentage who are resistant to a particular pesticide along with a small percentage that are extremely susceptible. Resistant individuals survive pesticide applications and are able to pass along this resistance to at least a portion of their offspring. Because the pesticide kills most of the non-resistant individuals, the resistant individuals begin to make up a larger percentage of the surviving population. As this continues, eventually most of the population is resistant.

In many cases, pest populations that become resistant to one pesticide in a group also become resistant to other related pesticides. This is called cross-resistance. Cross-resistance happens because closely related pesticides kill pests in the same way; (all organophospates inhibit cholinesterase) if a pest can resist the toxic action of one pesticide, it can usually resist other pesticides that act in the same manner.

Given that pesticide resistance is an ever present threat, you need to understand what influences its development. In this way you can manage pests to minimize the chances for resistance to develop. The most important factors that influence the development of resistance are:

- The frequency of resistance in the pest population before using the pesticide of interest. Resistance may be entirely absent from a pest population , or it may be present in relatively few individuals. Obviously, no resistance is best.
- The chemical diversity of the pesticides used. If you always use the same pesticide or the same group or family of pesticides you won't be killing pests that are resistant to that pesticide or family of pesticide. When this happens the proportion of resistant individuals will increase more rapidly in the population.
- Persistence and frequency of use of a given pesticide. Resistance is more likely to develop against pesticides that have greater persistence ad that you apply often during a treatment season. These factors are less important for herbicides than for insecticides and fungicides. Even short lived herbicides can provide season-long weed control, and normally you apply the same herbicide only once per season.
- The proportion of the population exposed to the pesticide. Insect life cycles are generally very predictable, and you usually apply a pesticide when most of the insects are at the same susceptible stage. Thus, most non-resistant individuals are killed, which increases the proportion of resistant individuals in the surviving population. On the other hand, insects that migrate in from non-treated areas dilute this population.
- The length of the pest's life cycle. As with any other inherited trait, pesticide resistance will increase more rapidly if the pest has a short life cycle and many generation in a single season. This largely explains why; insect populations become resistant faster than weed populations.

In the past we responded to resistance by switching to different chemistry. New products became available regularly. Unfortunately, this is no longer the case. Today's new pesticides are more complex, difficult to synthesize and more expensive to develop and use. Even these products are subject to development of resistance. Obviously, switching products is no longer enough.

In developing your pest management program you should assume that pests can (and will) develop resistance to any pesticide you use against them. This means placing greater emphasis on resistance management. This may be more work in the short run, but will pay dividends in the long run as effective chemistry can be maintained.

Resistance management includes reducing frequency of application of any material, utilizing non-chemical approaches (BT's, nematodes), and population monitoring. This is part of the "integration" of integrated pest management.

Adapted from: Pest management principles for the commercial applicator: Fruit Crops, 3rd edition. UWEX, Madison.

Some never learn anything because they know everything too soon.

Author Unknown

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