

When Poison is Profitable – Part II

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When it comes to pesticides, you've probably heard it before: "The label is the law." This is more than a mantra, it is federal code. Information with regards to where, what, how, and why pesticides can be used is on the label. Information on personal protective equipment (PPE) necessary for mixing and applying pesticides is on the label. Application methods, concentrations, mixing instructions, and toxicity are also on the label. Pesticide labels contain not only a myriad of valuable information, but they are also (literally) the law.

For example, if I am using an herbicide with the active ingredient glyphosate to kill weeds in my driveway, I can't just double the concentration of the chemical and kill with bravado. While I may use the full-strength product on a cut stump of a tree, doing so on weeds in my driveway is off-label and makes me a non-label-following lawbreaker. On the other hand, if the label says I can use a 2% concentration of a chemical to kill weeds in my woods, but I know that a lower concentration of 0.5% is all I need to kill Japanese stiltgrass, I can use the lower concentration and not break the law. In other words, I can't increase the chemical concentration beyond what the label says, but I may decrease it as needed. Sort of like driving - I am a lawbreaker if I exceed the speed limit, but (generally) not if I stay below it.

For anyone who's ever purchased an herbicide, one of your first thoughts may be something like "*Okay, the label is the law but it's so small I can't read it.*" While this is true, it is not an adequate defense in a court of law. Fortunately, if you have internet access, it's very easy to find pesticide labels and print them off in a larger font.

Let's discuss a few key aspects of what you will see on the front of an herbicide label. One of the biggest words will be the signal word, either *Caution*, *Warning*, or *Danger*. The signal word conveys the acute toxicity of the product's ingredients to humans based on physical contact and exposure possibilities (touch, consumption, breathing, etc.). "Caution" is found on the least harmful chemicals, and is the word used most often on products we apply for forestry practices. "Danger" is found on the most harmful chemicals. Chemicals with this word are generally restricted-use pesticides not available for purchase without a license. "Warning" is found on chemicals that fall somewhere between the others in terms of toxicity. All herbicide labels include the statement, "Keep out of reach of children."

The ingredient list is also important, especially when you are looking for something specific. The big name is the brand or trade name and means very little except to those in marketing. The real meaning of what's inside is listed in the ingredients, specifically the active ingredients. Glyphosate is a great example. According to the National Pesticide Information Center, there are over 750 products that contain glyphosate as an active ingredient. In some cases, these are simply different brands angling for your purchase; in other cases, there may be additional active ingredients; or the product may be labeled for different uses (such as aquatic versus terrestrial). The point is, it's important to read the

active ingredient list to find what you are looking for rather than looking for a particular brand name.

Who can apply herbicides? In forestry we rarely use restricted-use herbicides. But it should be noted that anyone who wants to apply restricted-use herbicides anywhere for any reason needs to be certified in the appropriate category (such as forestry). For non-restricted-use pesticides, it gets a little more nuanced. On your own land (or on land you lease), you may apply non-restricted use herbicides. If, however, you want to apply the same herbicide on land you do not own or lease, you need a commercial applicator license in the appropriate category. Now, if you want to apply (with permission) a non-restricted-use herbicide on your neighbor's (private) property simply to help the environment or to be neighborly (i.e., no compensation), you probably don't need to be certified.

Having said this, receiving training and certification may serve you well as it keeps you current on relevant laws, the latest research, and issues. The Virginia Department of Agriculture and Consumer Services has regulatory authority in the use and application of pesticides in Virginia. Virginia Cooperative Extension and the Virginia Tech Pesticide Programs office lead most of the educational training and recertification efforts in Virginia.

While most of this 2-part article has focused on using herbicides to control plants, herbicide use should be put into the context of Integrated Pest Management (IPM). In this case, the pest is a plant. Integrated management of pest plants is more than just killing them with a chemical. Integrated management considers timing, application methods, products, and alternatives to adequately treat the situation with minimal risk. Integrated management also considers the site after herbicide treatment. Would the site benefit from management inputs to help desirable plants grow, such as an understory burn to encourage oak regeneration? IPM considers all the tools and possible combinations of tools to meet your goals.

In lieu of herbicides, mechanical and physical control of some plants is possible. Perhaps you have a relatively small path or just scattered plants, such as garlic mustard. Pulling these before they go to seed is faster and easier than, and just as effective as, using herbicide. A multiflora rose bush can also be pulled out of the ground, but because of its root structure, the soil disturbance may be significant. IPM considers the pros and cons of both options. Biological control is another approach. An exciting development in this realm is happening right here in Virginia. Virginia Tech researchers are studying a fungus that kills tree-of-heaven. If this biological control becomes commercially available, not only does it have an advantage of very low risk, but it will also spread naturally, making repeated control efforts less likely.

Goats can even be part of an IPM approach. They are a mechanical control option, like hand-pulling plants. The special thing about goats is that they are more persistent than most humans. But, just like the other control options, there are risks to consider. If the goats are left in an area too long, damage can occur. Furthermore, they are not very discriminatory and will browse native plants as well as the exotic invasives.



Some of the items in your Integrated Pest Management kit may include an identification manual, hatchets, chemicals, and spray rigs.

Photo by: Lynn Davis, Virginia Tech.

Prevention of problems is another part of IPM and a reason why you may want to volunteer your services beyond your property boundaries. This was one of the primary motivators of the formation of Virginia's first Cooperative Weed Management Area, the Blue Ridge PRISM (Partnership for Regional Invasive Species Management). The PRISM, among other things, aims to create community-wide action to cooperatively knock back invasive species populations across property lines.

Effectively controlling pests is both more complicated than most people think AND more important. Thankfully, we have many tools at our disposal and pesticides, i.e. poisons, are one tool in the box. Poison can be profitable.

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