

GROWERTALKS

Paul's Pointers

6/1/2024

This is Very Important

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Did you see my “Is Something Bugging You?” article in the April issue of GrowerTalks? I provided several tips for maintaining a high level of pest control in the article.

Since I wrote the article, I’ve been thinking about how important it is to properly maintain the equipment used to make chemical applications (fungicides, insecticides and plant growth regulators). There are numerous types and differing variations of the tools, such as foggers, injectors and sprayers growers use for these applications. They each need to be maintained and used properly, but since I can’t cover them all here, I’ll focus on spray equipment in this article.

Pictured: Don’t underestimate the importance of maintaining your spray equipment.

Why is sprayer maintenance important?

Failure to keep this equipment in good shape will result in improper coverage of the chemicals being applied, inadequate pest control, the potential to cause injury to crops and may even reduce crop quality. Additionally, improperly maintained spray equipment could lead to safety issues. For example, faulty equipment and leaking parts could lead to direct exposure of the chemicals being applied to the applicator.

Properly maintained spray equipment not only improves the efficacy of the applications and decreases the total costs associated with a pest management program, but will greatly extend the life of the equipment. There are several important aspects of a sprayer maintenance program to consider.

Application essentials

I covered some of the following in the aforementioned article, but felt it’s important to re-emphasize these points here.

Coverage. Ensure consistent, thorough and uniform coverage is delivered with each application. Many products only work when they come into direct contact with the targeted pest or disease. It’s important to apply insecticides and fungicides in such a manner that the spray solution is applied to both the upper and lower leaf surfaces. Parts of the plant that receive inadequate coverage aren’t protected as well as where ideal coverage is obtained. Remember:

Coverage equals kill!

Volume. In order to obtain good coverage, it's important to use the right application volume. This will vary with the type of spray equipment being used, as well as with the product being applied. I've found this step is essential and can easily make the difference between a highly effective application and an ineffective one.

Growers should know in advance how much spray volume needs to be applied to any given area before the applications are made and ensure this volume is applied uniformly over the crop area. Are you targeting 100 or 200 gallons of spray solution per acre? I personally aim to apply 200 gallons per acre; this is roughly equivalent to 2 quarts per 100 square feet or 5 gallons per 1,000 square feet or 50 gallons of spray solution per 10,000 square feet.

Sprayer output. Growers must know in advance the output or gallons per minute (gpm) and the application pressure or pounds per square inch (psi) of the spray equipment. This information can be used to help growers determine how much spray solution and what the approximate time is needed to obtain the necessary application volumes and to achieve the appropriate coverage.

The equipment

It should go without saying that it's important to use the right tools for the job. You don't use a hammer to saw a board, so why would you use a sprayer to saturate the root zone? Sprayers should be used as intended (to make foliar applications). To optimize and fully understand how to use and maintain them, be sure to read the owner's manual and follow all the manufacturer's recommendations.

Keep them clean. This is often overlooked or not done properly. This is one of the most important aspects of sprayer maintenance. Clean the equipment between every use by running lots of water, warm water, very diluted soapy water or sprayer cleaning solutions through the pump, hoses and spray orifices. Get into the habit of triple rinsing sprayers between uses. This is not only good for the equipment, but it'll also prevent future crop phytotoxicity and ensure the efficacy of the products being applied isn't compromised.

Check the filters. Sprayers and spray guns often contain filters. Be sure to check and clean them regularly. This avoids plugging the pump valves and prevents the spray guns from clogging up, and keeps the anticipated output and distribution where it's supposed to be.

Check the nozzles. The nozzle orifices or openings wear over time causing the opening to become larger. This may not be visibly noticeable, but a larger opening does affect or modify the droplet sizes, output and distribution pattern, which in turn affects the application volume, coverage and control obtained.

Routine maintenance. Don't wait for the equipment to falter—set up a maintenance schedule. It's very important to routinely inspect the sprayers and to replace any worn parts. There are a number of parts, such as O-rings and gaskets, that become worn and could cause the equipment to not function normally, and could lead to more extensive and expensive repairs down the road if they aren't checked and replaced on occasion. Many manufacturers offer repair kits that contain the most common sprayer parts to help growers keep their equipment running smoothly. Additionally, it's important to check all hoses, gauges and the spray tank itself for signs of fractures, crack and leaks.

Calibration. From time to time, it's helpful to check the machine calibration to make sure it's delivering the proper volume (gallons per minute) that it's supposed to at the intended application pressure. This is a good time to check the nozzles for not only their output, but to verify they're emitting the proper spray pattern to ensure uniform and consistent spray coverage is being achieved.

Well-maintained and properly functioning equipment in combination with good application techniques will go a long

way to maximizing the effectiveness of spray applications. Don't underestimate the importance of maintaining your spray equipment. **GT**

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