

Don't get burned! Always review pesticide labels before application

A grower asked me to come out and help diagnose a problem with some plugs. What caused this damage? What was the solution? How could it be avoided in the future? After investigating potential causes, we determined it was phytotoxicity from a pesticide application. But it didn't have to end like this!

After receiving a call from a concerned grower, I went out to visit their facility and look at damaged plugs. Walking into the greenhouse, it was not too hard to find the damaged plug trays.

On of the first things I noticed looking at the damaged plants was the distribution of the damage (Fig. 1). At the periphery of the worst damage, there was a gradient from dead to unaffected. It looked like it could potentially be the edge of a spray application. Additionally, we weren't seeing all the plugs in that area of the greenhouse exhibiting the same symptoms. Rather, it was just bedding impatiens (*Impatiens walleriana*; Fig. 2) and mealycup sage (*Salvia farinacea*; Fig. 3). The fact that only two species was a very peculiar pattern to see.



Figure 1. While there were areas of dead plugs, the edges showed a gradient from dead to damaged to unaffected.

In diagnosing the damage, there were a few different patterns we observed. The younger bedding impatiens foliage appeared to melt out with increasing severity, whereas the mealycup sage was exhibiting necrotic spotting on leaves. After observing the damage, I started to talk through recent plant cultural decisions and growing environment conditions. There had been no heater failure, and these crops were nowhere near any vents, so cold damage was ruled out. We next considered nutrition. Necrotic spotting can be a symptom of micronutrient toxicity. However, mealycup sage can be grouped in the "general" category, with respect to pH requirements, growing best at a pH of 5.8 to 6.2 and not particularly



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susceptible to excessive micronutrients.

Additionally, fertilizer had only been applied twice and at a low concentration (with concentrations verified with an EC meter).

Just to be safe, samples from these plug trays were brought back to our lab and were examined by pathologists to identify- or rule out- a plant disease. Careful inspection, as well as some culturing for diseases, didn't turn up anything.

Based on the damage we saw, as well as the distribution of the damage, we carefully reviewed spray record of what had been applied in the greenhouse. The fact that the damage was clearly restricted to the bedding impatiens and mealycup sage stood out. After reviewing the labels of the active ingredients on the spray record, we found one active ingredient that had been applied that had a statement on the product warning to avoid applying the active ingredient on bedding impatiens and salvia. We found the likely culprit! And the worst part is, the damage could have been avoided.

Anytime a pesticide is applied, have the applicator take the time to familiarize themselves with what they are applying and how it should be used correctly. But this isn't just for the first time a pesticide is applied. Taking the time to review the label for a familiar chemical is always going to be a Best Management Practice to avoid mistakes that are otherwise preventable.

So, what is the way forward? Nothing can be done to save those plugs that were killed or badly damaged, so calls and emails were quickly placed to source 512 plugs trays of bedding impatiens and mealycup sage to make up for the lost seedlings. However, for those plug trays on the less-damaged side, the way forward is to grow the plugs as best as possible to grow new foliage that would cover the older, damaged leaves. Thankfully, these plugs are being grown for in-house use, not to be shipped out and finished by another grower. This means the grower can continue to grow healthy leaves during finishing to produce salable finished plants.

The spring is certainly a race, but take the time to review pesticide labels. Nobody has a perfect memory, and the few minutes it takes to review a label is a cheap investment relative to the potential cost you may pay for skipping this step.



Figure 2. Bedding impatiens (*Impatiens walleriana*) seedling plugs grown in a 512-tray with necrotic and melting-out cotyledons and true leaves.



Figure 3. Mealycup sage (*Salvia farinacea*) seedling plugs grown in a 512-tray displaying advanced necrotic spotting on fully expanded cotyledons and the first true leaves.

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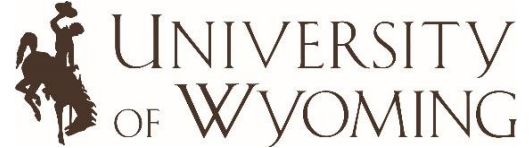
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