

Outsmarting Western Flower Thrips

Progress is steady and we are continuing our efforts to investigate UV-C light for management of western flower thrips (WFT). AFE has been a strong believer in our research and a supporter of our program. So – are we making progress? You better believe it! We have gone from a strictly laboratory study to testing UV-C in the real world – in a greenhouse. We can now say there is great promise for your commercial operation in the future to include UV-C light as a significant component of a successful integrated pest management program for thrips.

Under lab conditions, we have shown several important facts: even though adults lay their eggs inside the leaves of ornamentals, the vast majority do not hatch after exposure to UV-C. We can also kill about 60% of immature thrips with a single UV-C treatment. You may say – “*that is lousy*” – BUT a single dose of UV-C also kills some adults and alters the behavior of survivors, which may limit feeding and reproduction. For example, surviving adults lay fewer viable eggs than those not exposed to UV-C. And remember, UV-C kills the eggs too. Additionally, we find that UV-C treatment of plants can reduce thrips feeding due to changes in leaf quality. Put each of these revelations together with an integrated management strategy, and WFT may become much less of a concern in your greenhouse.

We are now in the process of what is called “proof of concept,” taking our laboratory results and showing how UV-C can work in a typical greenhouse situation. One of our first tasks is designing a piece of equipment that will easily fit on a commercial greenhouse bench and move at a steady rate down the bench, exposing plants to a dose of UV-C. This is a bit tricky because UV-C does not pass through leaves; thus we must direct the light from multiple angles, including below and from the sides of plants. We are now determining and optimizing the actual amount of UV-C that reaches thrips on the undersides of leaves.

In addition, we are in the process of locating a commercial company to help us design this specialized piece of equipment. Our research also involves a closer look at the practicality of UV-C usage from a grower’s perspective: how easy will it be to add this thrips management method to your toolbox?

Another logical question to ask is, “Does UV-C damage plants?” It can seriously damage plants at a high dose, but the dosages needed to reduce thrips populations are generally below that critical rate. We have tested this hypothesis on a number of ornamental species, but more information is required on a wide range of plant species, and we are continuing to test with new varieties. Our progress is steady, and we are hopeful to finish this valuable work in the very near future. Stay tuned!



Left: Healthy thrips larva.

Right: Dead larva after UV-C treatment.