e-GRO Alert


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Volume 13 Number 1 January 2024

Quick Check for Spring

Use this quick checklist to help prevent spring season issues.

As the spring production season gets going, there are a few items that may be beneficial to check on. Addressing these issues before production begins will prevent fewer problems later on.

Figure 1. Cracks in the heat exchanger are more easily detected when it is near sunset. (Photo: Brian Whipker)

1. Furnace Inspection

With all the heat cycles, over time a furnace's heat exchanger can crack (Fig. 1). This releases gases into the greenhouse that even at low levels can be harmful to plants and result in lower leaf loss (Fig. 2). A few years back, a grower was complaining that their petunias were failing to bloom, especially closer to the furnace. On the visit to the greenhouse, a cracked heat exchanger was identified as the problem. The irony of the situation was the furnace gases were also acting as a plant growth regulator, and the grower was informed that the need for plant growth regulator applications were most likely required in the future once the furnace was repaired. Inspecting a heat exchanger is easier when it is darker and the open flame can more readily be viewed. For minor cracks, a product such as JB Weld will seal the cracks.

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2. Weeds

Eliminating weeds before kicking off the season will help prevent a lot of problems (Fig. 3). First of all, it helps to prevent future generation of weeds if it is done before seed formation. We have also found that weeds such as henbit can harbor several pests such as spider mites, whiteflies, aphids, and Western flower thrips. By removing weeds the inoculation source for infecting the spring crop is eliminated.

3. Insects

Going along with #2, removing all potential sources of insects helps stop a problem before it starts. For our research polyhouses at NC State University, we actively remove weeds to try to prevent problems. Overall we are pretty successful for we tend to rotate in an experiment and 8 to 12 weeks later clear out the plants. This helps to prevent the build up of insect populations and spread to a secondary crop.

Unfortunately, aphids have been our nemesis (Fig. 4). We start clean and then we have a pop up population of aphids appear in the greenhouse. No doubt that winged adults can enter the greenhouse through the cool cells and there are ample host plants outside our houses. We also suspect that the ants are encouraging the aphid population. They treat the aphids like a herd of cows and protect them and may even help move them to new locations on the plant. It is amazing how an aphid population can explode into a major problem, and for 2024 our goal is more scouting and prevention.

If you have had problems with mealybugs, then a thorough cleaning is needed. Mealybugs can survive 6 months in the greenhouse without a food source. They can be found along the bottom of a bench (Fig. 5).

Figure 2. Ethylene and other gases released from a cracked heat exchanger can result in lower leaf drop, especially during a cold snap when the furnace is running more frequently. (Photo: Brian Whipker)

Figure 3. Eliminate weeks in the greenhouse to help avoid any insects that may be feeding there and will move onto your spring crop. (Photo: Brian Whipker)

Figure 4. Aphids can flare up into a problem and scouting for an initial infestation will help avoid a larger situation. (Photo: Brian Whipker)

4. Check the Injector

Accurate fertilizer delivery is a must. Consider conducting a pre-season check of your injector system to make sure it is delivering the correct concentration of nutrients (Fig. 6). Typically if an injector fails, it delivers too little fertilizer. There are a number of videos and factsheets online that provide details on how to calibrate your injector.

5. Water Test

Annual water tests are important to determine if anything has changed. Submitting a water sample for nutrient analysis makes sense at the beginning of the spring season (Fig. 7). If one does this annually, then any trends can be determined.

All together going through a quick check will help avoid additional, larger problems during the spring season.

Figure 5. If mealybugs were a problem last year, then insect the benches for any hibernating populations. (Photo: Brian Whipker)

Figure 6. Check the fertilizer injector to ensure that it is properly functioning. (Photo: Brian Whipker)

Figure 7. Annual water tests will aid in determining if any changes occurred in your water quality. (Photo: Brian Whipker)

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