



Greenhouse Pest Message, March 11, 2022

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Two of the most common issues I see in my travels are related to **planting depth** and **watering** issues, and not due to pests or diseases.

Planting plugs too deep for that species, and compacting the growing media adversely affect root health as plant roots need oxygen to grow. These problems occur in different sizes of operations and proper training and supervision of greenhouse workers is always challenging during this very busy time of year.

Here are some tips for handling growing media, plugs, filling containers and training greenhouse workers.

Handling Growing Media

How soilless growing media is handled can greatly influence the air space and available water for plant roots. The major goal is to preserve the air space or porosity to insure healthy root growth.

Add water to peat-based mixes before filling plug trays to help create more aeration. Satisfactory filling moisture is achieved if the slightest bit of visible water appears when squeezed between the fingers. Most growers work with a moisture content of 45%-55% by weight. If mixing your own media, thoroughly mix components, but do not over-mix, which will cause particle size to decrease. Over processed media quickly loses porosity, resulting in poor root growth and stunted plants.

To prevent compaction that encourages poor root growth, lightly fill containers, including plug trays, and brush the excess media off the top.

Once filled, avoid nesting or stacking trays on top of one another. Stacking containers causes compacted media with reduced air space. This damage cannot be remedied after creating this compaction. Always stagger trays!



Figures 1 & 2: Stacking trays causes media compaction (on right) whereas staggering plant trays helps avoid media compaction. (Photos by L. Pundt).

Handling Plugs

Inspect plugs for overall health and quality. Place plug trays on benches and water thoroughly with clear water, being careful to water plugs at the edges of the tray, as they often dry out sooner. Because of the small volume of growing media, plugs can dry out very quickly, so check plug trays 2 to 3 times a day for their watering needs. After the first watering, fertilize with a plug fertilizer such as 13-2-13 at 50 to 60 ppm at every other watering. Allow plants to acclimatize to greenhouse conditions for 24 to 48 hours before transplanting.

Filling Containers

Overfilling containers with substrate can lead to transplants becoming buried as they are moved on greenhouse carts into the production area. Filling containers too firmly with growing media makes it harder to dibble so that transplanters push the plugs and liners too forcefully into containers. This can damage tender young plugs directly or compacts the growing media.

Dibbling

If containers are dibbled too deeply before transplanting, plugs and liners can become buried. Dibbling too lightly can cause transplants to heave out of their pots when watered.

Training Transplanters

Properly training and supervising transplanters is critical to the health and survival of your crops. Handle plants gently and avoid planting them too deeply. Stems of tender seedlings can be injured if planters pinch the stems or nick the stems with long fingernails, leading to Botrytis stem canker.



Figures 3 & 4: Lavender plugs planted too deeply (on left) and heaving out of the media (on right). Photos by L. Pundt

At this busy time of year, it can be hard to take the time to check and see how the transplanting crews are doing. Often, there may be just one greenhouse worker who is planting the plugs too deeply. So, you may see just a few plants, and not all, that are planted incorrectly, when inspecting newly planted crops.

Here you can see the results with compacted media in some, but not all of the planted plugs. With the plugs that died, their roots could only grow into the top inch of media, because the compaction was so severe.



Figure 5: Random plants in a block declining to due to compacted media. Photo by L. Pundt



Figure 6: Declining plugs planted in compacted media. Photo by L. Pundt.

It is much easier to correct the problem on the transplanting line, than lifting, or properly settling plugs so they are planted at the correct depth after they are moved into the production area.

Initial Watering

Plants may settle more after their first watering. Too forceful a watering will also compact the growing medium.

For more:

Impact of Transplanting Practices on Plant Establishment & Health. e-Gro Alert: http://www.e-gro.org/pdf/2020_925.pdf

Transplanting Plugs and Grouping Plants, UMass Greenhouse Extension <https://ag.umass.edu/greenhouse-floriculture/fact-sheets/transplanting-plugs-grouping-plants>

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