

Managing Liverworts

Liverworts (*Marchantia polymorpha*) are a common weed pest in herbaceous perennial production in greenhouses and container nurseries. They are branching, ribbon-like plants lacking distinct roots, stems and leaves. This results in a thick mat covering, preventing water and nutrients from reaching the root zone and reduce crop marketability. Hand weeding is time consuming and labor intensive.

Liverworts reproduce both sexually and asexually. They reproduce vegetatively by spores. Stalked, umbrella-like structures release these spores. Spores can live for up to one year.



Figure 1: Stalked, umbrella-like structures release spores. Figure 2: “Gemmae” inside cups splash out and germinate to make new plants. Photos by L. Pundt

Small, bud-like branches that are produced in cup-like structures on the surface of the plant also help spread liverworts. They also spread from pot to pot in water droplets as plants are watered overhead. Both sexual and vegetative reproduction can occur at the same time.

Liverworts thrive in conditions of high fertility, moisture and high humidity that are prevalent in enclosed greenhouses.

Cultural Practices to Help Prevent Liverworts

- Inspect incoming plants for signs of liverworts and isolate infected plants.
- Clean up liverworts from benches, walkways and drainage ditches.

- Clean and disinfect empty greenhouses between crops to remove spores.
- Store growing media properly to prevent contamination.
- Avoid overwatering crops and water according to plant need.
- Avoid topdressing slow release fertilizers for this contributes to increased fertility levels on the media surface and to the growth of liverworts.
- Proper plant spacing helps to reduce humidity levels.
- Liverworts lack true roots, so allowing the media to dry between watering, helps reduce their vigor.
- Use of coarse textured mulch helps reduce surface moisture levels. Mulch plants with parboiled rice hulls or rice husks to reduce liverwort establishment and growth.

In one study, containers top-dressed with ½ to 1 inch of rice hulls provided nearly 100 % liverwort control for 8 weeks with no adverse effects. This mulching depth is most suitable for larger sized containers. Rice hulls dry down the surface of the substrate, but they have a higher pH (6.5-8.0) than what is desirable for most greenhouse crops (5.8- 6.2). So, monitor pH regularly. Researchers found that even a ¼-inch topdressing could help suppress liverworts in smaller containers.



Figure 3: Use of rice hulls as a mulch. Photo by D. Ellis

The pre-emergence herbicides labeled for liverwort control in outdoor woody ornamental nurseries are not labeled for use in enclosed greenhouse structures.

If liverwort develops on greenhouse floors, walkways and under benches, non-selective, post-emergence herbicides such as ammonium nonanote (Axxe), or the algacide, sodium carbonate peroxyhydrate (GreenClean Pro) may be used to burn down liverwort in non-crop areas. Greenhouse sanitizers such as

hydrogen dioxide and peroxyacetic acid (ZeroTol 2.0) can be used between crop cycles to sanitize surfaces and kill spores.

By Leanne Pundt, UConn Extension, December 2018.

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