Experiments in Liverwort Management for Nursery Crops©

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POSTER SUMMARY

There are several reasons why ornamental growers should control liverwort (*Marchantia* sp.) in nursery crops. Liverwort reduces the marketability of the crop, lowers crop quality further by harboring insects, such as whiteflies and thrips and other pests such as mites, slugs and snails, and/or diseases. The growth of liverwort is not desirable as it costs money to remove and thereby reduces the profit per pot.

The following experiments evaluated two techniques for pre-emergent and one post-emergent control for liverwort. The experiments included walnut shells, bio discs, and acetic acid.

The walnut shells used in the experiments were of two different sizes. One size used was ¼ inch and applied to 1-gal pots. The second was 1/16 inch and used on propagation material in 2-inch pots. This product is cheaper then bio discs, but potentially labor intensive due to the necessity for thorough coverage. If applied properly, the walnut shells proved to be extremely effective in pre-emergent liverwort control and at a lower initial cost.

The bio discs trialed in this experiment consisted of compressed human hair and were used on 1- and 5-gal pots. Cost of the product and initial investment in labor may be outweighed by reduced labor cost in repetitious removal of liverwort and other weeds. The discs can also be used multiple times further reducing labor in weed removal, but proved effective only on single-stem material. Bio discs proved extremely effective at preventing liverwort as a method of pre-emergent control. When used as post-emergent control, liverwort populations died after several weeks and in some cases, grew over the sides of the discs. Thorough coverage and conforming the discs to pots and stems of a specific crop is necessary for liverwort pre-emergent and post-emergent control.

Acetic acid was applied at various rates and different stages of liverwort growth. The rates were optimized for the highest kill rate and to eliminate potential phytotoxicity. Four rates were initially tested: 5%, 3.75%, 2.5% and 1.25%. Optimal rate for minimal phytotoxicity was 1.25% as demonstrated with *Coleonema pulchellum*. Three applications were applied at weekly intervals.

With higher rates, washing the acetic acid off leaves and stems with water resulted in reduced phytotoxicity and a higher kill rate of liverwort populations. The acetic acid level of 1.25% provided a statistically significant kill rate with minimal, if any, phytotoxicity and the lowest labor required.

The objective of the experiments was to compare efficacy of walnut shells, bio discs, and acetic acid for pre- and post-emergent liverwort control in nursery crop production.