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Zero Tolerance for Weeds in the Greenhouse

"Don't let weeds grow in the greenhouse." Growers know it, customers sense it, researchers understand it, and Extension agents preach it. But is zero tolerance for weeds an attainable goal?

Weeds can be a persistent problem in both production and retail greenhouses. Broadleaf and grass weeds in the greenhouse can harbor insect and mite pests, and can be a primary inoculum source for several important greenhouse plant diseases, such as impatiens and tomato spotted wilt viruses (ISWV and TSWV).

The problem isn't just biological, it is psychological too. A weedy greenhouse creates a poor impression, not just to customers, but to workers as well. Whether they are conscious of it or not, customers prefer to shop in greenhouses that are neat, clean, and appear to be well managed. They will shop around until they find a nicer shopping environment. A weed-free greenhouse also sends a message to workers that sanitation is important, and attention to detail is valued.

Weeds enter greenhouses as plants or seeds through wind, infested plant material, tools, equipment,

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Nary a weed to be found in this production greenhouse east of Pittsburgh.

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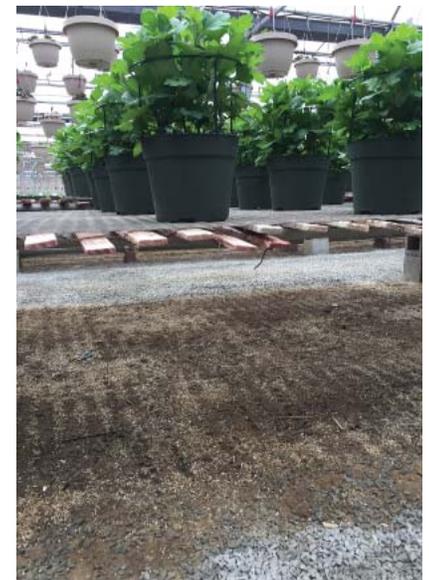
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Weeds growing under greenhouse benches (left) can harbor insect and mite pests, and can be a significant source of disease inoculum. Weed-free greenhouse floors (right) are the goal!

irrigation water, people and animals. Once annual weeds become established, they can set enormous amounts of seeds. Woodsorrel and bittercress, common greenhouse weeds, can even propel their seeds up to twelve feet when seed pods ripen.

In my work as an Extension educator, I have walked through my share of production and retail greenhouses. In most greenhouses, it is very common to find at least a few pockets of weeds, such as chickweed, spurge, woodsorrel, and various grasses. Occasionally I find weeds running rampant under greenhouse benches; I can usually spot other pest problems in these greenhouses without much trouble. Last week, however, I was thrilled to walk through a production greenhouse east of Pittsburgh, Pennsylvania, that was as close to weed-free as I have ever seen. For the better part of an hour I scouted the rows of this multi-bay gutter connect house and found nothing more than one single woodsorrel weed hiding in a crevice. Cement sectioned pathways and gravel flooring under the benches provided plenty of opportunity for weeds, but none were growing.

When I mentioned this to the grower who manages this house, she frowned and said "I have zero tolerance for weeds." Two of her workers nodded vigorously and added, "She just HATES weeds!". Zero tolerance for weeds is an attitude, backed by good management practices.

Best Management Practices for Greenhouse Weed Control:

1. **Prevention:** take steps to keep weed seedlings and seeds out of the greenhouse by using clean, sterile growing media, and clean plant material. Control weeds around the vicinity of the greenhouse through mowing and herbicide applications.
2. **Sanitation:** Scout frequently and control weeds immediately, while they are still small. Remove weeds from the greenhouse, especially if they are flowering. If possible, empty the greenhouse and allow it to heat up (solarize) once per year.
3. **Make No Deposits to the Seed Bank:** Do not allow weeds to flower and set seeds. Weed seeds may germinate over three or more years, so each new crop of weed seeds builds up the seed bank for many future years. This is an account to overdraw!
4. **Weed Blocks:** Landscape cloth or weed block fabric, sometimes topped with gravel, can be used as an effective barrier to weeds emerging from under the fabric. Avoid spilling dirt or growing media on the upper surface of the fabric, or weeds will readily germinate there.
5. **Use Herbicides Carefully:** several pre- and post-emergence herbicides are available for use in greenhouses. Of course it is critical to follow all label directions and to take the utmost care in applying herbicides inside a greenhouse, due to the risk of damaging crop plants via drift.

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