

**November 10, 2015**  
**Growing Spring Crops in Greenhouses - Get Ready for Spring 2016!**  
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**Greenhouse Sanitation**

Sanitation – the application of measures designed to protect plant health  
An Ounce of Prevention is Worth a Pound of Cure - \$\$\$

**Weeds**

Harbor Pests: Thrips, Whiteflies, Aphids, Spider mites, Viruses  
Encourages Habitat for Slugs, Fungus gnats, Shoreflies

Common Weeds

*Oxalis corniculata* & *O. Stricta*; Creeping and Yellow woodsorrel

Perennial

Ballistic Seeds

Spider mites, thrips, INSV, TSWV

*Cardamine hirsute*; Hairy bittercress

Winter annual – several generations ghse

Ballistic Seeds

Aphids, INSV, TSWV

*Senecio vulgaris*; Common groundsel

Winter annual – several generations ghse

Air blown seed

Aphids, thrips, whiteflies

*Stellaria media*; Common chickweed

Winter annual – several generations ghse

Thrips, aphids, viruses

Sources

Plant material – in pots

Media – compost

Outside ghse – vents, feet, etc

Weed Management:

Eliminate surface soils/bare ground

Geotextile Fabrics

Hand weeding

Herbicides – Read Label

Active Ingredient	Type	Target	Site	REI	Tradenames
Ammonium nonanoate	Post, NS, C	A, P, B, G		24	Axxe®*
Citrus oil	Post, NS, C	A, B, G	NF	4	Avenger
Clethodim	Post, S, C	A, P, G		24	Envoy Plus™
Diquat dibromide	Post, NS, C	A, P, B, G	NE	24	Diquat SPC 2L Reward®
Fluazifop-P-butyl	Post, S, Sys	A, P, G		12	Fusilide®II
Glufosinate-ammonium	Post, NS, Sys	A, P, B, G	NE	12	Finale®
Glyphosate	Post, NS, Sys	A, P, B, G	Empty	4	Many
Indaziflam	Pre	A, B, G	Empty	12	Marengo®
Pelargonic acid	Post, NS, C	A, B, G		12	Scythe®

Type: Post – Postemergent, Pre – Preemergent, NS – Non-selective,

S – Selective, Sys – Systemic, C – Contact

Target: A – Annual, P – Perennial, B – Broadleaves, G – Grasses

Site: NE – No Edible Crops, NF – Non Food Areas

## General Sanitation

CLEAN, CLEAN, CLEAN

Remove all crop debris, spilled potting soil, weeds

Sanitation Materials

Cleaners – remove deposits, no antimicrobial properties

Strip- IT

Sanitizers, Disinfectants, Algaecides

Antimicrobial

EPA registered pesticides

Quaternary Ammonium Compounds – Physan, Kleengrow, Greenshield

Floors, benches, walls, tools, pots, footbaths

Plants – Kleengrow & Physan – Read Label

Stable

Must remain wet – 10 minutes

Organic Matter reduces effectiveness

Hydrogen peroxide/dioxide & peroxyacetic acid – Oxidate, Zero-Tol, PERpose Plus,

Sanidate, X3

Floors, benches, pots, tools

Plants, dips, irrigation

Strong oxidizers

Sodium hypochlorite – Bleach

Pots, benches, flats, walls

Highly volatile, corrosive

Rinse

Do not pre-mix – short half-life

## Prevention

Inspect incoming plant material

### Quarantine area

Rogue – remove symptomatic plant material

Keep hoses off ground

Uses buckets/barrels with lids for discarded organic material

Pots

- Don't reuse if you had disease
- Pre-clean to remove organics
- Clean with disinfectant

Footbaths

- Clean weekly – replenish daily

Floors – remove soil debris

Benches – keep clean, use non-porous surface

Tools – Sterilize – use multiple tools to allow long enough soak