

Organic Production II: Poinsettia Propagation

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By Paul Fisher, Kate Santos, and David Goudreault, University of New Hampshire, Durham, NH 03824. Paul.Fisher@unh.edu, tel 603 862 4525, fax 603 862 4757.

We are currently investigating organic methods for plant propagation. We view organic plant propagation as a potential niche market for direct retail sales and there also may be a market to provide transplants for organic finished plant and field crop growers. This report discusses regulations affecting organic plant propagation, and also outlines our crop plan for a first attempt at organic propagation of poinsettia cuttings.

Regulations that affect organic plant propagation

There are some key differences between propagation of plant material that can be certified as “organic” based on the USDA National Organic Program Standards versus conventionally-produced propagation. Regulations for organic production are fairly new and are evolving, and there are aspects of the regulations that are unclear for plant propagation. Two useful web sites are the USDA National Organic Program Standards <http://www.ams.usda.gov/nop/indexIE.htm> and OMRI (the Organic Materials Review Institute, www.omri.org) and specifically the OMRI searchable brand name list (http://www.omri.org/OMRI_datatable.htm).

Greenhouse facility: Except for very small scale production (<\$5000 annually), the production area must be organically certified by a USDA-approved agency, which requires no application of prohibited materials for three years before harvest, and formal application and inspection. There must be a distinct boundary and buffer zone from conventional production areas.

Product mix: If there are organic and conventional production areas at the same location, the organic facility must produce different cultivars and products. Genetically-modified cultivars are not permitted. Tissue cultured and material are permitted.

Plant material: Must normally be propagated from stock plants grown organically for one year, although there are exceptions for annual plants where organically-grown seed or planting stock are not available.

Growth hormones and regulators: Synthetic rooting hormones and plant growth regulators are mainly prohibited, although some natural hormone extract products and gibberellins (ProGibb) are permitted.

Media: Cannot include synthetic pre-plant fertilizers, synthetic wetting agents, or other synthetic products (probably including synthetic polymers in stabilized media). We have used a peat/perlite growing medium with a yucca extract, and a pre-plant fertilizer based on bone meal, dried blood, lime, and other amendments.

Fertilizer: Cannot include synthetic nutrient sources. We have used a water-soluble product based on microbially-digested bone meal, dried blood, and sulfate of potash. There are restrictions on use of raw manures.

Wetting agent: must be organically acceptable. For example, we have used a yucca-based product that is not as effective as Capsil (organosilicone) but has worked reasonably well in the medium but rather poorly for foliar applications.

Pest and disease control: Preparations of living microorganisms are permitted, along with some botanical and mineral extracts, but check that the particular formulation/brand name is included on the OMRI-approved list because many products contain prohibited synthetic ingredients. For example, we are using *Trichoderma harzianum*, *Bacillus subtilis* and *Beauveria bassiana* EPA-registered products that are OMRI-approved. The azadirachtin (neem) product Aza-Direct is OMRI-approved and we will use this in our trials, but Azatin and Ornazin are not approved. We are also purchasing live biological controls (*Steinernema*, *Encarsia*, *Eretmocerus*) which are permitted by the national organic production standards.

Certain materials can be included for sanitation of growing areas and irrigation systems, for example calcium hypochlorite, sodium hypochlorite, chlorine dioxide, hydrogen dioxide, ozone gas, and peracetic acid.

Here is our current fertilizer and pest/disease crop plan for rooting poinsettia cuttings (actual actions may vary depending on control product availability and responding to crop needs):

Week	Nutrient management	Pest/disease management
0	Water in with clear water because media is pre-charged with slow-release fertilizer.	Apply Yucca Extract (ThermX70) as a wetting agent
1		No pest action, except a spray application of <i>Bacillus subtilus</i> (Rhapsody) for disease control. Spray <i>Beauveria</i> (Naturalis) if whitefly are present.
2	Fertilize as needed by E.C results and color of the foliage with Omega 6-6-6 @ 200ppm N once	Drench <i>Trichoderma</i> (Plantshield) for root diseases. Drench with <i>Steinernema</i> (nematodes) for fungus gnats. Spray <i>Beauveria</i> (Naturalis) if whitefly present and introduce <i>Encarsia</i> & <i>Eretmocerus</i> parasitic wasps for whitefly control. Spray <i>Bacillus subtilus</i> (Rhapsody) for disease control.
3	Fertilize as needed by E.C results and color of the foliage with Omega 6-6-6 @ 200ppm N once	Drench with <i>Steinernema</i> (nematodes) for fungus gnats. Spray <i>Beauveria</i> (Naturalis) if whitefly present and introduce <i>Encarsia</i> parasitic wasps Spray <i>Bacillus subtilus</i> (Rhapsody) for disease control.
4	Fertilize as needed by E.C results and color of the foliage with Omega 6-6-6 @ 200ppm N once	Drench with <i>Trichoderma</i> (Plantshield) for root diseases. Drench with <i>Steinernema</i> (nematodes) for fungus gnats. Spray <i>Beauveria</i> (Naturalis) if whitefly present and <i>Bacillus subtilus</i> (Rhapsody) if disease present. Introduce <i>Encarsia</i> & <i>Eretmocerus</i> parasitic wasps for whitefly.