



Oregon State University Extension Service Master Gardener



Best Management Practices for Master Gardener Plant Sales to Avoid the Spread of Pests

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Overview

Plant sales are an important source of revenue and outreach for many Master Gardener Chapters. Master Gardener plant sales can draw hundreds of community members who are looking for good deals on quality plants. In many cases, a Master Gardener plant sale may be one of the few, or the only interaction that some members of the general public have with their local Master Gardener Program. Providing clients with plants that align with the Master Gardener mission of sustainable gardening, as well as plant tags that educate customers about proper care and cultivation, are two ways to extend the message of sustainable gardening plants and practices to the broader community.

As a general rule, Oregon's Master Gardener chapters are doing a wonderful job with their local plant sales. **This document is intended to provide guidance to help all of Oregon's Master Gardeners adopt procedures that will protect Oregon's natural resources from invasive pests, and to also amplify the message that Master Gardeners promote sustainable garden plants and practices.** Adopting a more sustainable approach to our plant sales will ultimately raise the profile of Master Gardener-sponsored plant sales, and will raise the confidence that our customers have in our plant materials.

Horticultural trade, including plant sales and plant swaps, have repeatedly been identified as an area of concern for the introduction and spread of invasive plants¹⁻⁵. The risk of moving invasive and emerging pests from plant materials and soil is underscored by [Quarantines and Control Area Orders](#) from the Oregon Department of Agriculture. Often, these quarantines and control orders are most applicable to commercial growers. However, they occasionally apply to non-profit plant sales and landscapers, such as with the Japanese Beetle, European Chafer, and Oriental Beetle Quarantine (603-052-0127).

In order to ensure that Master Gardeners and Master Gardener 501(c)3 Associations adhere to best management practices to reduce or eliminate the risk of invasive pest introduction and spread, OSU Extension and the Oregon Department of Agriculture have developed a set of guidelines for temporary plant sales.

1. Kay, S. H. & Hoyle, S. T. *Mail order, the internet, and invasive aquatic weeds*. *J. Aquat. Plant Manage* **39**, (2001).

2. Reichard, S. H. & White, P. Horticulture as a pathway of invasive plant introductions in the United States: most invasive plants have been introduced for horticultural use by nurseries, botanical gardens, and individuals. *Bioscience* **51**, 103–113 (2001).

3. Ward, J. New invasive weed threatens Coos County: the policeman's helmet, originating from India, sold illegally at garden market. *The World* (2018).

4. Robinson, B. S., Bennie, J., Inger, R., Early, R. & Gaston, K. J. Sweet flowers are slow and weeds make haste: anthropogenic dispersal of plants via garden and construction soil. *J. Urban Ecol.* **4**, 1–6 (2018).

5. Society, C. K. I. S. Invasive plant species for sale in Kootenay region: warning issued by watchdog council. *Boundary Creek Times* (2018).

Recommendations

In order to advertise a plant sale as a 'Master Gardener' plant sale in the state of Oregon, groups must:

- **Apply for and receive a temporary nursery license from the Oregon Department of Agriculture (ODA).**

Rationale: This is a legal requirement to conduct a non-profit plant sale in Oregon. It allows the ODA to identify plant sales within key areas of concern for invasive species spread, such as an area where quarantines are in place to prevent the movement of plants and soil outside of the quarantine boundaries.

Specific steps: For application instructions, see:

<https://www.oregon.gov/ODA/programs/NurseryChristmasTree/Pages/NurseryLicensing.aspx>

- **Only sell plants that are free from pests**

Rationale: Avoid the spread of pests and maintain the Master Gardener program's reputation for selling high quality plants.

Specific steps that support the sale of pest-free plants include:

- Start clean: Use clean containers, pots and trays. Use commercial or sterilized planting media. Sweep and sanitize any greenhouse or shade house benches, floors and structures as best as possible. Sanitize pruning shears and other equipment.

Rationale: Using clean containers, sanitized planting mixes and clean growing spaces will reduce the risk of disease, weed and insect introduction and spread.

- Only propagate from clean plant material. Examples include commercially grown plant starts, seed, purchased bulbs, cuttings from healthy plants grown in sterilized mix. Do not accept or sell plants donated from home gardens, or another similar source.

Rationale: Home dug plants moves garden/native soils, which has been identified as a vector for spreading invasive weed seed ⁴, soil-borne fungi (e.g. Potato wart on Solanceae), nematodes, and other soil-inhabiting invasives. Washing plant roots is not an acceptable method for removing soil from donated plants. Many plant pests are microscopic and will not be removed during root washing.

You may note that some commercial nurseries propagate and dig plants in/from 'native' soils. However, nurseries are subject to annual inspections to retain their commercial

4. Robinson, B. S., Bennie, J., Inger, R., Early, R. & Gaston, K. J. Sweet flowers are slow and weeds make haste: anthropogenic dispersal of plants via garden and construction soil. *J. Urban Ecol.* **4**, 1–6 (2018).

license. Potential problems, including risk of invasive species introduction, are identified and remedied on a regular basis. In addition, commercial nurseries have a strong economic incentive to actively eliminate risk of invasive species introductions and spread. Their plant materials could be rejected for sale by knowledgeable wholesale buyers, and/or their reputation and future sales could be damaged if invasives are detected in their stock.

- Visually inspect plant sale stock and remove diseased or infested plants before selling. Properly treat or remove any plants that appear infected or infested with diseases, insects, weeds, mollusks, etc. The Pacific Northwest Pest Management Handbooks and your county Extension faculty or staff can assist with proper diagnosis of plant issues.

□ **Only sell plants that are properly identified, cross-checked against state and local noxious weed lists, and tagged.**

Rationale: Master Gardeners should be educating clients about sustainable gardening. An accurate plant tag is an important part of educating clients about the identity and cultural care requirements of home garden plants. Opportunities for mis-identifying plants increase on untagged plants. Donated plants are also a concern over movement of infested garden soil-see above.

Specific steps to ensure plants are properly identified:

- Do not accept donated plants as these may be difficult to accurately identify, particularly during the vegetative stage thus risking unintentional sale of noxious weeds.
- Cross-check all plants against state and local weed lists.

Oregon's Noxious Weed List can be found here:

<https://www.oregon.gov/ODA/programs/Weeds/OregonNoxiousWeeds/Pages/AboutOregonWeeds.aspx>

Check with county Soil and Water Conservation District office for local weeds of concern:

<https://www.oregon.gov/oda/programs/naturalresources/swcd/pages/swcd.aspx>

- Label all plants for sale. The minimum recommended information to be added on a plant identification tag is the scientific name, common name(s) and cultivar (if known).

Resources and References

1. Counties that have successfully transitioned to more sustainable plant propagation methods include Douglas and Yamhill Counties. Local Master Gardener chapters might want to visit with the plant sale committees of these counties, to learn more about their specific procedures.
2. Plant Tag Printing: The Yamhill County Master Gardeners print 4" labels that have plant category (annual, perennial etc.), size (dimensions @ maturity), bloom color, bloom time, cultural requirements (sun, shade, water). The group supplements this information with a supply of bench cards that are used during the plant sale. The bench cards have color photos of plants in bloom, as well as plant information. The group uses a TTP 247 Plus Desktop Thermal Printer from OBC Northwest (<http://obcnw.com/desktopthermalprinter.aspx>; Item #FLETP247PLUS; \$597.15). Software is included with the printer.
3. Oregon Master Gardener Association Grants: Counties seeking funding to support the implementation of these recommendations should consider applying for an Oregon Master Gardener Association Extension Educator Grant or to the Karl Carlson Memorial fund. Information on these programs can be found at <https://omga.org/programs-and-awards/>.
4. Oregon Insect Pest Alerts can be found here:
<https://www.oregon.gov/ODA/programs/IPPM/InsectsSpiders/Pages/PestAlerts.aspx>

Acknowledgements

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**Case Study of Yamhill County Master Gardener Association Plant Sale Procedures
(with comments by Gail Langellotto, OSU Extension, Statewide Master Gardener Coordinator)**

Over the years, the Yamhill County Master Gardeners have adopted reduced risk practices to reduce or eliminate the threat of invasive species introductions. The bulk of the propagation work is divided among a greenhouse committee, and a perennial committee. Their procedures are outlined, below, with commentary on how specific practices work to reduce threat of invasive species introductions.

Individuals interested in reaching the plant sale committee chairs should contact the Yamhill County Extension office (<https://extension.oregonstate.edu/yamhill>). Since plant sale committee chairs may change over time, the local Extension office can connect you to the current plant sale chair(s).

This case study is divided into:

- Yamhill County Greenhouse Procedures
- Yamhill County Perennial Plant Propagation & Procurement Procedures
 - Perennial Propagation
 - Cuttings
 - Seed
 - Bare Root Fruit
 - Perennial Procurement
- What Is Needed to Assist Master Gardener Associations and Sustainable Plant Sales

Yamhill County Greenhouse Procedures

The greenhouse committee meets in late fall to review the previous year's sales and decides what to grow next year. A plan is developed from **where to buy seeds**; Sources Territorial Seeds, Ferry Morse, Burpee, Lake Valley, Livingston and seeds saved by MG's.

In December an order is placed with **Yoshitomi Bros for annuals plugs** that are not grown successfully in our unheated greenhouse. The order will be picked up in late March and transplanted to grow on for our plant sale,

In January a plan is developed for what seed will be planted during what week until the plant sale. The greenhouse is prepared for seed starting and seed starting begins in early February. We buy **Plug Germination Mix (PGX Blend)** from Growers Nursery Supply. Seeds are started in rows in open trays without drain holes. Trays are covered with plastic clear lids and placed under grow lights and heated gro mats. As seedlings are ready for transplanting they are transplanted into containers and placed on benches in the greenhouse to grow on until the plant sale.

Plants are **tagged with identification tags** and price tags, In late April a trip is arranged to go to **Yoshitomi to buy finished product** to supplement the annual plants we have grown.

An inventory is taken presale and post-sale.

Comment [GAL1]: Propagating from seed from a reputable source reduces issues with plant identification and invasiveness, as noxious weeds are not permissible for sale in Oregon.

Comment [GAL2]: Purchasing plant starts from a reputable source similarly reduces issues with plant identification and invasiveness.

Comment [GAL3]: Growing plants in media, rather than in soil that has been dug, reduces issues with invasiveness, by removing the possibility that the soil harbors invasive pests.

Comment [GAL4]: Plants that are properly tagged provide the customer with the basic information they need to successfully care for their plants.

Comment [GAL5]: Purchasing plants from a reputable source reduces issues with plant identification and invasiveness.

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Yamhill County Perennial Plant Propagation & Procurement Procedures

Perennial Propagation

We are not using material divided from Master Gardeners' gardens, effective 2018.

Cuttings: the vast majority of perennial plant material that we sell comes from cuttings. Cutting material comes from a variety of sources: members home gardens, plants growing in front of the Extension Office, plants in our display garden, and plants that YCMGA planted around the Yamhill County Fairgrounds. For the 2019 YCMGA sale, we will have 165 varieties propagated by cuttings, 31 varieties by seed, and 12 varieties from bare root purchases. This will be close to 80% of propagation by cuttings. It is the easiest way to propagate a wide variety of plants.

Lists of cuttings needed are generated on a weekly basis, depending on plant readiness (soft wood vs hard wood cuttings). In this email members are reminded of post-harvest care, sanitation, and general information regarding plant health. Material is inspected prior to being cut and stuck, for both vigor and for pests.

Plants are inspected for insects and insect activity (leaf damage for example) as well as vigor. For logical reasons low vigor plants are not propagated, as these would contribute to a low "take", reducing our sale bottom line and wasting our time. Likewise we are careful not to introduce insects into our growing systems. The originator of the cuttings is the first line of defense, checking for insects, and all committee members check as well, prior to cutting and sticking material.

Desired perennial cuttings are discussed in December – January prior to the cutting season that starts in mid- May.

Cuttings/plugs, and perennials from seed are transplanted in fall into 4" pots filled with ProGrow F5. These 4" pots are transplanted into gallons, once again into ProGrow F5.

Seeds: Perennial seed is purchased from reliable sources. Territorial Seed, Harris Seed, Botanical Interests, Nichols Garden Nursery and Outside Pride are some that we have used. Ed Hume, Ferry Morris, Lilly Miller & seed collected from member's gardens is less frequently used. Seeding directions on the packet or website are followed.

Comment [GAL6]: Purchasing seed from reliable sources reduces issues with identification and invasiveness.

Bare Root Fruit: YCMGA purchases bare root fruit stock from Weeks Berry Nursery; 503.393.8112; weeksberry.com They have been in operation since 1908. Bare root plants are potted into appropriate size containers with ProGrow F5 mix. ProGrow mixes are sold to a number of retail and wholesale nurseries.

Comment [GAL7]: Purchasing bare root stock from a reputable source reduces issues with identification and invasiveness.

All planting is done at Yamhill County Fairgrounds, either in the GH or outside on picnic benches. The picnic benches are covered with plastic prior to work starting. A surface sanitizer (such as Lysol or alcohol) used on clippers prior to work starting.

Perennial Procurement

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Purchases are made by the Propagation Chair, often with input from committee members. Approximately 2-3 weeks before the sale we look to see if there are any gaps in our plant pallet, generally where there has been a crop failure; or where we would like to have some color. These plants are purchased from Peoria Gardens, near Corvallis. They are a very sustainability oriented company and use beneficial insects on a routine basis. I purchased plants from them during my professional career. From year to year we make a practice of varying the plants for sale. This is to prevent our offerings from becoming stale in the public's eyes. We track plants going back at least 2 years. Weeks Berry Plants are ordered in August, when the current catalog come out.

Comment [GAL8]: Purchasing plants from a reputable source reduces issues.

Comment [GAL9]: Purchasing plants from a reputable source reduces issues.

Soil: is purchased from ProGrow and delivered by them. It is stored in our greenhouse. We use their F5 mixture. pro-gromixes.com Sherwood, OR 1.503.682.3500.

An inventory of perennial plants is taken, presale and post-sale, at the same time as the greenhouse annuals inventory.

What Is Needed to Assist Master Gardener Associations and Sustainable Plant Sales

- A method for introducing garden divisions into our plant mix and a quarantine approach of some kind. Hosta, Iris, Grasses, Sedums are some that are quicker to propagate from divisions.
 - Yamhill County is shifting to procurement of these plants, rather than propagation. Specifically, a client sale number has been obtained from Ball Horticulture so that plants such as Iris, Grasses, Hostas and other perennials can be purchased directly from wholesale growers. These growers will take care of any and all inspections, certifications and so on. Along with plants purchased from Peoria Gardens, Yamhill County MG's should be able to introduce new plants for sale. YCMGA sale costs will go up, but our past experience with purchased plants indicates that we should be able to recover all costs, plus a (variable) profit.
- Specific notification from OSU Extension faculty, regarding insects and invasive plants to look out for.