

# Nursery News

October 2006

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Oregon  
Department  
of Agriculture

## Nematodes: Microscopic eelworms to 40 foot giants

**Scott Rose, horticulturist**

*Nematodes or roundworms are present just about everywhere on earth. They can survive in hot springs and even the ice in the earth's poles. There are freshwater nematodes and marine nematodes. Many live in the soil and perform beneficial purposes, breaking down organic matter, even preying upon some organisms we call pests. Some nematodes interact with mycorrhizal fungi. Most go unnoticed, and many have not been classified because of their size and their diverse habitats.*

Some say nematodes are second only to insects as the most diverse group of animals on earth. There are over 10,000 known species. A few nematodes parasitize other animals, and some parasitize plants. Hookworms and

pinworms parasitize other animals. The human disease elephantiasis is caused by a nematode transmitted by a mosquito. Most nematodes are microscopic. However, one species of nematode that parasitizes sperm whales can reach 40 feet in length.

### Plant parasitic nematodes

Most plant parasitic nematodes are microscopic. They range in size from .02 to .04 inches in length. There are approximately 2,500 species of plant parasitic nematodes. Some plant parasitic nematodes can develop from egg to egg-laying adult in as little as 8-14 days during warm summer months.

Plant parasitic nematodes are generally classified within one of four categories that involve their typical feeding habits and mobility.

#### Sedentary endoparasites

These nematodes penetrate roots as vermiform (wormlike) juveniles, and start feeding. Their bodies swell, and development and reproduction occur with mouthparts anchored to the host. All nourishment is sustained at this connection. Examples are root-knot nematodes and cyst nematodes.

#### Migratory endoparasites

These nematodes remain vermiform throughout their life cycle. The body penetrates the root and is capable of feeding without localized or permanent feeding sites. The root lesion nematode is an example.

#### Sedentary ectoparasites

These nematodes partially penetrate the root where their head establishes permanent feeding sites. Citrus nematodes parasitize this way.

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## Migratory ectoparasites

These nematodes stay outside the root, feed at multiple sites and pierce the root. Examples are the dagger and the sting nematodes.

Plant parasitic nematode/host interactions differ depending on the host parasitized and the type or types of nematodes present.

Root lesion nematodes (*Pratylenchus spp.*) cause localized lesions and necrosis. The feeding and wounding caused by this nematode puts stress on the host and has been associated with early dying and replant disease of some crops. The host list for root lesion nematodes is quite large. In addition, the wounding of the roots is known to facilitate the entry of other soil borne pathogens such as fusarium and verticillium. The dagger nematode (*Xiphinema spp.*), the needle nematode (*Longidorus spp.*), and the stubby root nematode (*Trichodorus spp.*) are known virus vectors and have facilitated the spread of such serious viruses as tobacco mosaic, cherry leaf roll, arabis mosaic, grape fanleaf, and tomato ringspot, to name a few.

Some root-infesting nematodes induce root abnormalities that cause root swelling, galling and stubbiness. Probably the most common example of this is the northern root-knot nematode (*Meloidogyne hapla*). This nematode causes gall-like abnormalities on the root. Like most plant parasitic nematodes, these nematodes cause the plant to be stunted and exhibit symptoms generally associated with malnutrition and water stress.

Cyst forming nematodes (*Heterodera spp.* and *Globodera spp.*) are probably the most difficult of all plant parasitic nematodes to control. These root-infesting nematodes produce long lived cysts. The cysts can contain up to 600 eggs and are protected from the environment by the remnant female nematode that produced the eggs. These cysts are easily carried to new locations and, like most nematodes, are moved from one location to another by the movement of soil, equipment, water, and plant material. Cysts can lie dormant for a considerable period of time until a host-plant's exudate stimulates the eggs to hatch. Because it is difficult to control these types of nematodes, many are of quarantine significance.

A number of migratory nematodes move to above-ground plant parts. They migrate in a film of water. The bulb and stem nematode (*Ditylenchus spp.*) can infest underground plant parts such as bulbs and tubers, but also stems and leaves. The host list for this nematode includes many ornamental plants, as well as, field crops like potato and alfalfa. The foliage nematode (*Aphelenchoides spp.*) attacks common ornamentals such as chrysanthemum, hosta, anemone, fern and lily. Foliar nematodes can also infest some aquatic plants. Some *Aphelenchoides* nematodes may subsist on certain fungi when higher plant hosts are unavailable. The flowers and seed nematode (*Anguina spp.*) can be a pest in certain grass seed crops and grain crops. These nematodes enter plant tissue through minute openings.

The pine wood nematode (*Bursaphelenchus xylophilis*) is unusual in that it hitchhikes a ride with wood boring longhorn beetles. The beetle picks up the nematode when it attacks stressed conifer trees and vectors it to new sites as it flies to new areas.

Many nematodes can parasitize and reproduce on common field weeds. The common dandelion, Canada thistle, lambsquarter, wild carrot, common plantain, chickweed, common groundsel, and redroot pigweed are a few of the weeds that can host plant parasitic nematodes, even when a commercial crop is not growing in the field. Because of this, a soil test may indicate the existence of plant parasitic nematodes, even though the commercial crop being grown may not be affected. The OSU Nematode Testing Service, 541-737-5540, is an excellent resource and can assist growers when plant parasitic nematode problems are a concern.

Nematode identification and control is not easy. Laboratory analysis is generally required, and many factors must be considered to deal with nematode infestations that have been determined to warrant control. Obviously, prevention is the best way to not be impacted. Test new ground before planting, and plant only clean, certified stock.

Chemical control is costly and the products registered must be applied by experienced licensed applicators. Cultural control strategies involve knowing what particular type of nematode you are dealing with and determining where vulnerabilities exist. Some control strategies involve letting the land go fallow, crop rotation (remove the host), flooding, keeping foliage dry, adding soil amendments, deep plowing, and adjusting the time of planting. It is always beneficial to make sure plants are not stressed and given ample nutrients and water to reduce the impacts associated with plant parasitic nematodes. Some planting stock can be given hot water treatments to eliminate nematodes already established in nursery stock. Temperature and timing are critical to avoid plant damage and efficacy.

The potato cyst nematode was found in southern Idaho in April 2006. In response, Canada initiated a ban on all soil going to Canada. This includes nursery stock with soil on the roots. If the nematode is found in Oregon, the same ban will extend to Oregon nursery stock.

# 2006 *Phytophthora ramorum* survey

*Nancy Osterbauer, plant health program supervisor and Gary McAninch, horticulture program supervisor*

Oregon Department of Agriculture (ODA) has completed its *P. ramorum* federal order certification for 2006. The certification program inspections began on February 15 and were completed on June 30. Nurseries inspected for the presence of *P. ramorum* included 938 nurseries that grow host plants and 1,000 that grow non-host plants.

ODA staff collected 67,765 samples from 1,208 growing areas to test for the presence of the pathogen. Thirteen sites tested positive for the *P. ramorum* pathogen which represents 1 percent of the growing areas samples. The USDA confirmed nursery protocol was enacted at all 13 sites. A total number of 37,363 delimitation samples were collected and tested from the 13 positive sites. Confirmed nursery protocol has been completed at 11 of the 13 sites. The remaining two sites are almost completed. Other *Phytophthora* species were detected in 178 growing sites (15 percent of the growing areas sampled).

ODA, again, conducted a statewide survey of Christmas tree plantations. A total of 4,480 samples were collected from 113 plantations for pathogen testing. No *P. ramorum* was found at any of the plantations surveyed, although other *Phytophthora* species were detected at 2 percent of the sites. This is the fifth consecutive year no *P. ramorum* has been found in Oregon Christmas trees.

A *P. ramorum* survey of Oregon retail nurseries that sell *P. ramorum*-susceptible plants was also conducted. The survey included 121 sites and 4,940 samples. One nursery was found positive for *P. ramorum* and other *Phytophthora* species were found at an additional five retail outlets

## Certification process

*Gary McAninch, program supervisor*

The ODA has changed the schedule it uses to conduct the federally mandated *Phytophthora ramorum* inspection and certification program. The certification process will now be conducted over a nine-month period beginning in February and ending in October.

For the past two years, inspections took place from February through June. The new extended schedule will allow us to conduct a majority of the inspections outside of the spring shipping season, minimizing disruption to the industry. The new schedule will also help the ODA's Plant Health Laboratory by providing a more even flow of plant samples submitted for analysis. ODA switched to the new schedule in August with approximately 160 nurseries receiving inspections by the October 15

deadline. Certification inspections will begin again in February. Nurseries that already have federal *P. ramorum* certification, but did not receive an inspection this fall, are still certified to ship *P. ramorum* host plants in 2007.

## Confirmed nursery protocol: Record requirement

*Jan Hedberg, lead horticulturist*

The USDA mandatory confirmed nursery protocol (Version 7.0, September 1, 2006), used when a nursery has been found to contain *Phytophthora ramorum* infected plant material, has recently been updated. As a nursery, growing host and associated host plant material, some of those changes are important for you to note.

- All Oregon nurseries growing and shipping host and associated host plants have signed a compliance agreement with the USDA and the ODA. This was required before you were issued the federal shield that allows you to ship *P. ramorum* host plants out of state. Part of this compliance agreement requires that you maintain records of all incoming and outgoing shipments of *P. ramorum* host plants for 24 months. Records are to include species and variety of cultivar. These records shall be available for inspection by regulatory officials.
- The new confirmed nursery protocol will require an infected nursery to provide (within 10 working days) incoming and outgoing shipping records for a 12 month period. This is so that the states receiving the material can inspect and sample to prevent the possible introduction of *P. ramorum* into their environment. The records will need to be provided to the USDA Western Region Office within the 10 day period or federal legal action can be started.
- It is very important that shipping records be kept up to date and accurate so that if you are required to present them, you can do so in the time required.

## How does the USDA decide what plants are placed on the host list and associated host list regulated for *Phytophthora ramorum*?

*Bev Clark, horticulturist*

The list keeps expanding for host plants regulated for *P. ramorum* and plants associated with the pathogen. Many people have asked what the difference is between the two lists. I will try to clarify this.

Plant genera listed on the "Proven hosts regulated for *Phytophthora ramorum*" are plants that have been found to be naturally infected with *P. ramorum*. These host genera have undergone the traditional testing used by plant pathologists, called Koch's postulates. Koch's postulates is used in order to establish a causal relationship between a microbe, the disease and the host. Plant pathologists use the following steps to verify this relationship.

1. The organism must be found in all plants suffering from the disease, but not in healthy plants.

2. The organism must be isolated from a diseased plant and grown in pure culture.
3. The cultured organism must cause the same disease when introduced into a healthy plant.
4. The organism must be re-isolated from the experimentally infected plant.

Once the relationship is established using Koch's postulates, the genus is placed on the host plant list. The timeline to prove Koch's postulates varies with each genera.

Plant genera listed on the "Plants associated with *Phytophthora ramorum*" list are naturally infected plants from which *P. ramorum* has been cultured and/or detected using PCR (polymerase chain reaction). Traditional Koch's postulates have not yet been completed, nor documented and reviewed for each of these associated plants. These reports must be documented and reviewed by PPQ before they will be listed.

Based on the above information, as of September 21, the following genera have been added to the "Plants associated with *P. ramorum*" list. They are *Castanopsis orthacantha*, *Cornus kousa x Cornus capitata*, *Distylium myricoides*, *Eucalyptus haemastoma*, *Ilex purpurea*, *Loropetalum chinense*, *Manglietia insignis*, and *Parakmeria lotungensis*. Koch's postulates have been completed on the four species: *Acer pseudoplatanus*, *Aesculus hippocastanum*, *Laurus nobilis* and *Michelia doltsopa*. These have been added to the list, "Proven Hosts Regulated for *Phytophthora ramorum*".

The entire updated list can be found at [www.aphis.usda.gov/ppq/ispn/pramorum](http://www.aphis.usda.gov/ppq/ispn/pramorum).

## Nursery research project reports now online

### Nursery Research Assessment Fund

**Gary McAninch, program supervisor**

*Twenty-six nursery research grant pre-proposals were received for the 2005 grant year. These requests were in competition for approximately \$222,000 collected through nursery research assessment fees.*

The Nursery Research and Advisory Committee, in cooperation with the Oregon Association of Nurseries Research Committee, selected 17 research projects to fund that met research priorities. The ODA Advisory Committee also voted to provide a \$30,000 grant to the National Horticultural Research Institute. Several research projects not funded, or only partially funded by ODA grant dollars, were recommended to receive funding from several independent private sources including: The Oregon

Association of Nurserymen, J. Frank Schmidt Memorial Trust, Tree Disease Fund, and private industry.

The 17 industry sponsored nursery research final reports for 2005 are now online and can be read in full at [oregon.gov/ODA/PLANT/NURSERY/grant\\_list\\_2005.shtml](http://oregon.gov/ODA/PLANT/NURSERY/grant_list_2005.shtml). Look for 2006 final research reports at the same Web site in January of 2007.

## Nursery licenses and selling to unlicensed "nurseries"

**Jan Hedberg, lead horticulturist**

*Several times in the last year ODA has been asked to provide certification on "nursery stock" originating from a non-licensed source.*

Oregon law (ORS 571.057) requires nurseries to be licensed. Anyone operating as a grower, dealer or agent needs to be licensed. Anyone who sells over \$250.00 of nursery stock per year is required to license. Advertising nursery stock for sale by use of signboards, public communications media, or transporting or storing nursery stock for sale is considered a nursery activity.

Licensed nurseries have their stock inspected and certified for shipping and sale to customers in other states and counties. Licensed nurseries are inspected regularly. Licensed nurseries know the rules of the receiving states or counties. They ship with a shipping permit that indicates to the receiving regulatory agency that this is a professional nursery, and the risk of the shipment being infected with a pest or disease of concern is very low. The shipping permit carries a fair amount of "trust". The receiver "trusts" that the stock is coming from a licensed nursery and that it is "safe." Shipping permits are required for all nursery stock shipped by all states. Most customers will require a shipping permit for each shipment.

Purchasing nursery stock from an unlicensed "nursery" or selling to an unlicensed "nursery" breaks that trust. The stock loses the assumption of cleanliness and the risk of spreading dangerous pests and diseases is increased. It may appear to be a loophole that can save you some money, but it is, in reality, a noose that will snare you and cause you to lose trust, goodwill and customers.

Brokers who intend on selling and shipping nursery stock need to be licensed. You may not be growing the stock, but you are selling and shipping it to customers in states that require the material to be certified. Certification issued to a grower will not include a broker's business name. Many brokers are leery of having their customers know from whom they are purchasing their plant material.

The purpose of licensing, inspecting and certifying nurseries and their stock, is to help provide the cleanest,



safest, pest and disease-free nursery stock to your customers. This is good for the Oregon nursery industry and good for your business.

## Weeds for sale

**Christy Brown, horticulturist**

*This year nursery inspectors found several noxious weed species being offered for sale in Oregon nurseries. All were “B” designated weeds, which means that they already occur in the state, but often with limited distribution. In some cases weeds on this list are targeted for control measures. It is important that we don’t sell these weeds while at the same time trying to kill them.*

The Oregon Department of Agriculture maintains a list of noxious weeds that are prohibited from sale in the state. Most of the plants on this list are so undesirable that no one would consider them as nursery products. However, a percentage of these weeds became problematic because their desirable attributes brought them to the nursery trade. As the noxious weed list increases, many plants added are of the latter kind. These nursery-denizen weeds sometimes linger in the trade or occasionally resurface.

The following is a profile of three plants considered noxious weeds in Oregon that have been found for sale in the state this year:



***Iris pseudacorus.*** Credit: Robert H. Mohlenbrock @ USDA-NRCS PLANTS 1995

*Iris pseudacorus* is also known as “yellow flag iris” and was added to the Oregon noxious weed list in February 2005. This rhizomatically clumping perennial is an aquatic invader that spreads easily by seed along water channels. It is a proven pest in waterways along the Atlantic, Pacific and Gulf coasts. Native vegetation in irrigation ditches and along rivers in central Oregon is currently threatened.



***Polygonum cuspidatum.*** Credit: Britt Slattery, US Fish and Wildlife Service @ INVASIVE.ORG

*Polygonum cuspidatum* is also known as *Fallopia japonica*, “Japanese knotweed,” and “Mexican bamboo.” Japanese knotweed is a strongly competitive plant that thrives in disturbed areas, waste areas and riparian zones. Dense colonies four to nine-feet tall are formed by creeping rhizomes. Infesting populations can be found in many Oregon sites, mostly west of the cascades. This weed excludes native vegetation and can greatly alter the regeneration of trees on disturbed ground. Japanese knotweed was first listed as a noxious weed in Oregon in 1998, but was added to the “T” list earlier this year. As a result, it has become a priority weed, and management efforts are being dispatched.



***Euphorbia myrsinites.*** Credit: Steve Dewey, Utah State University @ INVASIVE.ORG

*Euphorbia myrsinites* is also known as “donkey tail” and “myrtle spurge.” Until being listed as a noxious weed in 2004, it was a popular nursery plant and can still be found in many prized rock gardens. Unfortunately, this euphorbia is a competent invader of rangeland in arid areas of the west including parts of Utah, Colorado, and Washington. Infestations in Oregon occur in Umatilla, Wallowa and Baker counties. Ejecting seeds that stick to animals and vehicles aid in the uncontrollable dispersal of this weed. In addition to displacing desirable rangeland species, this plant exudes an irritating latex that can cause rashes, swelling and blistering of the skin.

# Summary of Oregon and federal plant quarantines for plants shipping into and within Oregon

Plant material	Areas under quarantine	Quarantine	Provisions
Allium spp: onion, garlic, leek, chives, shallots; all ornamental varieties.	All of U.S.; all of Oregon except Crook, Deschutes, and Jefferson counties.	Allium disease control area order.	Sets, seedlings produced within the three counties, or from certification program. True seed exempt.
Apple, crabapple trees and parts.	Oregon, Washington	Apple ermine moth.	Articles prohibited movement unless accompanied by certificate
Blueberry plants, blueberry fruit.	All of U.S. east of and including ND, SD, NE, KS, OK, TX.	Blueberry maggot.	Plants certified washed bareroot; Fruit certified cold storage treated.
Blueberry plants.	All of U.S. and all countries.	Blueberry scorch virus.	Official certification of freedom from blueberry scorch.*
Plants in growing media, sod, any other potential articles.	AZ, CA, HI, NM, TX, UT, WA. Also, snail culture/shipping prohibited within OR.	Brown garden snail and other exotic phytophagous snails.	Certificate of freedom from snails.*Articles free of growing media excepted from certification.
Crataegus, Cydonia, Malus, Prunus Pyracantha, Pyrus, Sorbus.	Washington; British Columbia.	Cherry bark tortrix moth.	Articles prohibited movement unless accompanied by certificates. Less than 2 inch caliper exempted.
Chestnut, chinquapin, all parts, nuts in shell. (Note: horse chestnut not included).	All of U.S.	Chestnut blight, large and small chestnut weevils, oriental chestnut gall wasp.	Material prohibited from states east of and including CO, MT, NM, WY. States west of above: material admitted with certification.
Elm, Zelkova and Planera: All parts, including wood with bark, except seed.	All of U.S. except AK, AZ, FL, HI, LA, NM, UT.	Dutch elm disease, elm yellows phytoplasm.	Quarantine areas: material prohibited unless ODA exempted. Other states: material certified
Flowering annual, perennial, and vegetable, field crops (see quarantine).	All of U.S. except: AK, AZ, CA, HI, ID, NV, NM, UT and WA.	European corn borer.	Certification required.
All pine plants, parts with terminal buds or shoots; except cut, non-prop. Items between 10/20 and 12/31.	CT, DE, IL, IN, IA, ME, MD, MA, MI, MO, NH, NJ, NY, OH, PA, RI, WA, WV, WI.	European pine shoot moth.	No pine from quarantined areas unless certified fumigated. Pine from all other areas must have origin certificate.
Grape ( <i>Vitis sp.</i> ) plants; various ornamental plants + soil.	AL, AR, CA, FL, GA, LA, MS, MO, NC, SC, TX; Mexico; Oregon: any infested site.	Glassy-winged sharp-shooter (a leafhopper); Pierce's disease.	Treatment/certificate of freedom from leaf-hopper for all plants and grapes tested Pierce's-free.
Grape plants ( <i>Vitis spp.</i> ), all parts except fruit.	All of U.S.	Grape quarantine: grape pests and diseases.	Pre-notification and certification for each shipment. No field grown stock. <i>Vitis labrusca</i> exempt.
Plants and plant parts including logs, wood chips, and pulpwood.	CT, DE, DC, IN, KY, ME, MD, MA, MI, MN, NC, NH, NJ, OH, PA, RI, TN, VT, VA, WI, WV.	Gypsy moth (F)	Plant material certified free from gypsy moth.*
Plants in growing media, sod, soil, hay, straw.	AL, AR, FL, GA, LA, MS, NC, OK, SC, TN, TX.	Imported fire ant (F)	Certificate of freedom from imported fire ant.*
Kudzu and purple loosestrife: all plants, plant parts and seeds.	All of U.S.	Invasive plants: Kudzu and purple loosestrife	Prohibited
Plants in growing media, sod, bulbs, rhizomes, crowns, all plant parts, soil, humus, compost, manure	AL, AR, CO, CT, DE, GA, IL, IN, IA, KS, KY, ME, MD, MA, MI, MN, MS, MO, NE, NH, NJ, NM, NY, NC, OH, OK, PA, RI, SC, TN, TX, VT, VA, WV, WI, DC; ON and QB, Canada.	Japanese beetle	Plants in soil or growing media must be certified as fumigated or otherwise treated.* Washed bare-root plants, bulbs, etc. require certification.
Oak, chestnut, chinquapin, tanbark oak: all parts except seed. Leaf-mold included.	All of U.S.	Oak wilt disease	Certificate affirming origin state and plants free from oak wilt disease.
Pine - all species, all parts, cut trees, branches, bark, logs.	Individual counties in IL, IN, MD, ME, MI, NH, OH, PA, NY, VT, WI, WV.	Pine shoot beetle (F)	USDA certification required.
All Prunus: almond, apricot, cherry, nectarine, peach, plum, and prune.	See quarantines, various states.	Peach diseases: Peach yellows MLO; peach mosaic virus, peach rosette MLO.	Refer to quarantine text for details.
Crataegus, Cydonia, Malus, Prunus, Pyrus	All of U.S. east of and including ND, SD, NE, KS, OK, TX, part of UT. Canada east of and incl. Manitoba.	Plum curculio	Certificate required for all fruit and growing media.
Hop plants and all parts, except dried cones.	All of U.S. except Idaho and Washington.	Powdery mildew of hops	Certification from ID and WA. Other states prohibited.
Various ornamental plants (see federal order).	States of California, Oregon and Washington are regulated.	Sudden oak death disease (F)	Certificate (see federal order). Prenotification of shipment required.

\* Shipper must notify Oregon Department of Agriculture of shipment; Oregon receiver must hold shipment for department inspection. For additional information contact: Oregon Department of Agriculture, Plant Division, 503-986-4644, FAX 503-986-4786. Mail: 635 Capitol Street NE, Salem, Oregon, 97301-2532. <http://oregon.gov/ODA/PLANT>

Rule 603-054-0027 requires the receiver of all imported trees and shrubs to notify the ODA Plant Division of the shipment no more than two days after the shipment. ODA may require the material to be held for inspection and release. For further information contact ODA, Plant Division, 503-986-4644, FAX 503-986-4786. Mail: 635 Capitol Street NE, Salem, Oregon, 97301.

Oregon Labeling and Certification Law states that all nursery stock and other plant material shipped into or within Oregon must be accompanied by a nursery stock certificate and/or the required permits or tags of the state of origin, and be free from injurious pests, diseases, and noxious weeds. Each unit (container, bundle, cargo box, etc.) must show that it contains nursery stock, seedlings, other plant material, or seeds, and must be conspicuously marked with the name and address of the shipper and consignee, and where the product was grown. nursery stock, seedlings, other plant material, or seeds, and must be conspicuously marked with the name and address of the shipper and consignee, and where the product was grown.

# Summary of state and federal destination requirements for plant shipments from Oregon

Plant and Parts	Destination	Regulation	Requirements
All plants	All states and Oregon	Nursery certification	Shipping certificate
All plants	All states and Oregon	Sudden oak death	Federal certificate
All plants	Wyoming	Wyoming license	Contact WY. Department of Agriculture
All plants	All states and Oregon.	Noxious weeds	Plants free from weeds
Broom plants (Cytisus)	Washington	Noxious weeds	C. scoparius cultivars prohibited
Burning bush, Norway maple, and Japanese barberry*	Massachusetts (as of 1/1/06) New Hampshire (as of 1/1/07)	Noxious weeds	Species, named cultivars and varieties prohibited
All plants	AL, AR, FL, MS, NC, TN, VA, WV	Brown garden snail	Certificate
Misc. tropical plants **	California	Burrowing nematode	Certificate
Apple (bareroot exempt)	Calif., counties (see list ***)	Apple maggot	Certificate
Apple, hawthorn, pear	AZ, ID, WA	Apple maggot	No fruit on trees
Apple	All states and within Oregon	Apple ermine moth	Certificate
Barberry, Mahoberberis, Oregon grape	See protected states listed below. ****	Black stem wheat rust disease	Federal certificate
Camellia	Tennessee, Texas	Camellia flower blight	Certificate
Cherry (bare-root OK)	California	Cherry fruit fly	No fruit, soil certificate
Chestnut, chinquapin (nuts included); oak, tanbark oak (acorns exempt)	California	Chestnut bark disease; oak wilt disease	Certificate
Chestnut, chinquapin (nuts included)	Washington	Chestnut diseases and insects	Certificate
Dogwood	Florida	Anthraxnose disease	Florida permit
Elm, planera, zelkova	Nevada	Dutch elm disease	Plants prohibited
Grape plants	CA, ID, NY, WA	Pests and virus diseases	Certificate
Grasses, sod, straw, hay, straw-packing prohibited	California	Cereal leaf beetle	Treatment certificate
Hemlock	OH, WI	Hemlock woolly adelgid	Certificate
Hemlock	MI, ME, NH, VT	Hemlock woolly adelgid	Prohibited
Hops	Washington	Verticillium wilt	Certificate
Mint	ID, MN, MT, NV, UT, WY	Mint wilt (Verticillium)	Certificate
Pecan, hickory	New Mexico	Pecan weevil	Certificate
Persimmon (Diospyros)	California	Persimmon root borer	Prohibited
Pine (all)	CA, HI, MT, NV	European pine shoot moth	Certificate
Pine: Austrian, resinosa, Scotch	California	Cereal leaf beetle	Certificate
Ribes (all species)	DE, MA, ME, MI, MT, NC†, NH, OH, RI, VA, WV († prohibited)	White pine blister rust	Destination state permit
Rose	Indiana, New Jersey	Rose virus	Certificate
Solanaceous plants (eggplant, pepper, potato, tomato)	California	Colorado potato beetle	Certificate
Walnut plants (nuts okay)	Arizona, California	Brooming disease	Certificate
* MA has prohibited the trade of 12 plants: <i>Acer platanoides</i> , <i>Acer pseudoplatanus</i> , <i>Berberis thunbergii</i> , <i>Euonymus alatus</i> , <i>Iris pseudoplatanus</i> , <i>Lonicera japonica</i> , <i>L. maackii</i> , <i>L. morrowii</i> , <i>L. tatarica</i> , <i>Lonicera x bella</i> , <i>Miscanthus sacchariflorus</i> , and <i>Myosotis scorpioides</i> .			
** For information contact: Oregon Department of Agriculture, Plant Division. 503-986-4644, FAX: 503-986-4786. Mailing address: 635 Capitol Street NE, Salem, Oregon 97301-2532. <a href="http://oregon.gov/ODA/PLANT">http://oregon.gov/ODA/PLANT</a>			
*** Calif. counties: Contra Costa, El Dorado, Fresno, Kern, Kings, Madera, Merced, Monterey, San Benito, San Joaquin, San Luis Obispo, Santa Barbara, Santa Cruz, Stanislaus, Tulare, Ventura. Counties regulate apple/crabapple unless bareroot and free of fruit.			
**** Protected states: IL, IN, IA, KS, MI, MN, MO, MT, NE, ND, OH, PA, SD, WV, WI, WY and WA.			
We encourage growers to visit the National Plant Board Web site: <a href="http://www.nationalplantboard.org/F&amp;SQS/sqs.html">http://www.nationalplantboard.org/F&amp;SQS/sqs.html</a> to check individual state restrictions.			

Oregon Department of Agriculture  
635 Capitol Street NE  
Salem, Oregon 97301-2532

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# Prepare in advance for nursery stock exports

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- Shipments of nursery stock to foreign countries or to US territories overseas usually require an inspection and a phytosanitary certificate. Some states in the US also require a phytosanitary certificate, a certificate of quarantine compliance (CQC), or other certificates for shipments of certain plant materials.
- Oregon Department of Agriculture (ODA) horticulturists can provide the necessary inspections and certification for these shipments. Nurseries should follow certain steps in order to receive these services in a timely and efficient manner:
1. Determine, well in advance, the export requirements to the destination country, US territory, or state. This will avoid delays in having your shipment certified in situations where the requirements may include a series of inspections, laboratory testing for diseases or nematodes, fumigation or other treatments, or the procurement of an import permit. Import permits are issued by the importing country and may be required for all or some plant material to certain countries. The import permits may state certain conditions that must be met in order for the plant material to be certified. Some plants may be entirely prohibited. Contact the ODA Plant Division at 503-986-4644 for information about these requirements.
  2. Request an inspection and certification as much in advance as possible (preferably several days to a week), information about these requirements.
3. Have the plant material that is being exported assembled on the loading dock or in another area that is accessible for inspection prior to the horticulturist's arrival at the nursery.
  4. Provide the horticulturist with the following information for each shipment:
    - The exporter's name and address
    - The importer's name and address
    - The quantity and common name of each type of plant in the shipment
    - The botanical name of all plants in the shipment
    - The origin (county and state) of the plant material
    - The method of transportation (i.e. airmail, air freight, truck, etc.)
    - Fumigation certificates or other treatment records, if required
    - A copy, where required, of a valid import permit

Plant material can then be inspected and certified for export, provided it is free from quarantine pests, practically free of other pests, and meets all other requirements of the importing country, territory or state.