USDA

United States Department of Agriculture

Imported Fire Ant: Quarantine Treatments for Nursery Stock, Grass Sod, and Related Materials

Updated January 2015

Animal and Plant Health Inspection Service
APHIS 81-25-001

Issued September 2013
Slightly revised March 2014
Updated per changes to PPQ Treatment Manual: January 2015

This publication supersedes "Imported Fire Ant 2007: Quarantine Treatments for Nursery Stock and Other Regulated Articles," Program Aid No. 1904, which was issued in December 2006.

Photo credits: All photos are USDA-Animal and Plant Health Inspection Service (APHIS) file photos unless otherwise noted.

This document is intended to supplement and clarify the Federal Imported Fire Ant Quarantine (Title 7, *Code of Federal Regulations*, Part 301.81), the PPQ Treatment Manual, and the Imported Fire Ant Program Manual M301.81, which are published by USDA's Animal and Plant Health Inspection Service, Plant Protection and Quarantine. Approved quarantine treatments are subject to change. Always consult with your State plant regulatory agency before applying quarantine treatments.

Contents

General Information

Imported fire ants (IFA) are notorious hitchhikers and are readily transported long distances when articles such as soil, nursery stock, and other items are shipped outside the infested area. Provisions of the Federal Imported Fire Ant Quarantine (Title 7, *Code of Federal Regulations* [CFR], part 301.81) were invoked May 6, 1958, in an effort to slow or prevent the artificial spread of IFA (*Solenopsis invicta* Buren, *S. richteri* Forel, or their hybrids). Figure 1 depicts the parts of the United States quarantined for IFA as of December 2011.

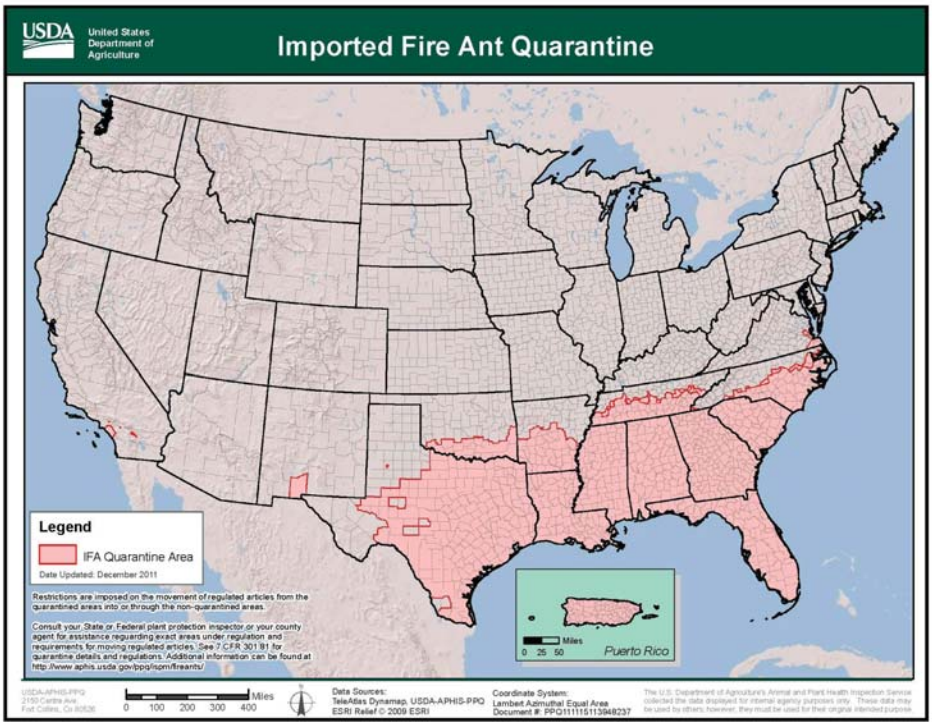

Figure 1. Imported Fire Ant Quarantine map, December 2011.

This document offers a handy reference of treatment options for shipping regulated articles, such as nursery stock, from within the IFA quarantine area to a destination outside the IFA quarantine area (such as shipping from Louisiana to Illinois or Colorado). This includes shipments passing through non-quarantine areas, even if destined for another IFA quarantine area (such as shipping from Florida to Orange County, CA). If you are shipping nursery stock or another regulated article within the IFA quarantine area (such as from Georgia to Louisiana), you do NOT have to follow these Federal requirements, but you must check for any State regulations regarding other plant and soil pests.

The electronic APHIS-Plant Protection and Quarantine (PPQ) Treatment Manual is updated more frequently than this printed document. In order to have the most recent information regarding treatments, please routinely check the online PPQ Treatment Manual located at:
www.aphis.usda.gov/import_export/plants/manuals/ports/downloads/treatment.pdf.
Go to "Domestic Treatments" in the bookmarks section, then to "Imported Fire Ant (D301-81-10)".

The most recent IFA quarantine map is located at:
www.aphis.usda.gov/plant_health/plant_pest_info/fireants/downloads/fireant.pdf.

To determine whether you are in a quarantine area by your zip code, visit USDA's Web site at:
www.aphis.usda.gov/plant_health/plant_pest_info/fireants/zipcode.shtml and click the "check your zip code now" link.

The State plant regulatory officials/inspectors are your first line of communication regarding the Federal IFA Quarantine. See page 18 for a complete listing of State plant regulatory officials and USDA State Plant Health Directors in States regulated for IFA or go to:

State plant regulatory officials: www.nationalplantboard.org/member/index.html
USDA State Plant Health Directors: www.aphis.usda.gov/services/report_pest_disease/report_pest_disease.shtml

List of Regulated Articles

The following regulated articles require a certificate or permit before they can be shipped outside the IFA quarantine area. This document will address those articles associated with nurseries and sod growers (highlighted in red below).

1. IFA queens and reproducing colonies of IFA.
2. Soil, separately or with other things, except soil samples shipped to approved laboratories (consult with a State or Federal inspector for a list of approved laboratories). Potting soil is exempt if commercially prepared, packaged, and shipped in original container.
3. Plants with roots and soil attached, except house plants maintained indoors and not for sale.
4. Grass sod
5. Baled hay and straw that has been stored in contact with soil.
6. Used soil-moving equipment.
7. Any other products, articles, or means of conveyance of any character whatsoever not covered by the above, when it is determined by an inspector that they present a hazard of spread of the IFA and the person in possession thereof has been so notified.

Certificates authorizing movement of regulated articles are issued by quarantine officials when certain approved procedures have been utilized to ensure that the regulated article(s) are free from IFA infestation. See page 18 for a complete listing of State plant regulatory officials and USDA State Plant Health Directors.

Containerized nursery plants grown outside the greenhouse environment have the potential for IFA infestation.

Statutory Authorities Enabling Quarantine Action

Legislation enabling USDA to promulgate an IFA quarantine is part of the Plant Protection Act of June 2000 (7 United States Code [USC] 7701 et seq.)

Authorized Insecticides—updated January 2015

Insecticides listed in this document have been registered under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA 7 USC § 135 et seq., 1972), as amended, or have been approved for use under an exemption (sections 18 or 24[c] of FIFRA). ***Instructions, precautions, and directions for use on the pesticide label must be carefully followed.*** As of January 2015, the following insecticides are approved by USDA for the treatment of regulated articles under the IFA quarantine. This list of labels is NOT inclusive, and an updated and detailed list of insecticide labels is available on the Web at: www.aphis.usda.gov/plant_health/plant_pest_info/fireants/downloads/IFA_QuarantineLables.pdf

Common Name	Trade Name examples	Formulations†	Use pattern
Abamectin	Award®II	Bait	Field grown
Bifenthrin	Talstar®, Onyx Pro®, etc. (many)	G, F, EC	Container, B&B, sod
Chlorpyrifos	Dursban®, Chlorpyrifos	E, G	Container, B&B, field grown, sod
Diazinon	Section 24(c) only, contact State plant regulatory official		
Fenoxycarb	Award®	Bait	Field grown
Fipronil	Topchoice®, Fipronil	G	Container, sod
Hydramethylnon	Amdro®Pro	Bait	Field grown
Metaflumizone	Siesta™	Bait	Field grown
Methoprene	Extinguish®	Bait	Field grown
Pyriproxyfen	Distance®	Bait	Field grown
Tefluthrin	No label currently available	G	Container

† WP and W = wettable powder, E/EC = emulsifiable concentrate, G = Granular

Approved Treatments

Approved treatments for the various categories of regulated articles are contained in this section and in the PPQ Treatment Manual, which can be found online at:
www.aphis.usda.gov/import_export/plants/manuals/ports/downloads/treatment.pdf.
Go to "Domestic Treatments" in the bookmarks section, then to "Imported Fire Ant (D301-81-10)". This online manual is updated within weeks of a new treatment being added to the approved treatments.

Nursery Stock in Containers

There are four methods for treating containerized nursery stock and different pesticides are approved for use in these methods.

- Immersion/Dip—bifenthrin and chlorpyrifos
- Drench—bifenthrin and chlorpyrifos
- Topical—bifenthrin
- Incorporation—bifenthrin, fipronil, and tefluthrin

Method 1—Immersion or Dip Treatment for Container Plants (not common for containerized stock)

Two insecticides are approved for this use pattern:

- Bifenthrin
- Chlorpyrifos

Equipment—An open-top, watertight immersion tank sufficiently large to accommodate the treating solution and plants will be needed. Drain plugs and valves will facilitate drainage after treatment. Use all personal protection equipment as required on the insecticide label. *Important: Do not allow runoff from the treatment area.*

Step 1—Choose an appropriate site.

- Locate the immersion tank in a well-ventilated place.

Step 2—Choose immersion tank.

- Choose an appropriate sized immersion tank that will allow complete submersion of the root/soil portion of the plant.
- Allow room for displacement of liquid solution as the plant is immersed so that no treatment liquid overruns the top of the tank.

Step 3—Immerse the plants.

- Do not remove plastic containers with drain holes before immersion.
- Immerse the containers, singly or in groups, so that the soil is completely covered by the insecticidal solution.
- Allow the plants to remain in the solution until bubbling ceases. Thorough saturation of the containers with the insecticide solution is essential.

Step 4—Remove the plants from the dip solution.

- After removal from the dip, set the plants on a drainboard until adequately drained.

Step 5—Maintain appropriate level of treating mixture.

- As treating progresses, add freshly prepared insecticide mixture to maintain the liquid at immersion depth.

Step 6—Dispose of solution.

- Dispose of tank contents 8 hours after mixing. Disposal must comply with label instructions, as well as State and local regulations.

Pesticides Approved, Dose Rates and Certification Periods for Immersion of Container Plants

Pesticide	Formulation	Dose Rate Lb ai/100 gal H2O	Certification Period
Chlorpryrifos*	EC	0.125 lb ai	30 days
Bifenthrin*	EC or F	0.115 lb ai	180 days
		0.05 lb ai	120 days
		0.025 lb ai	60 days

* use labels with use pattern listed on label

Exposure period—plants are certifiable upon completion of treatment (follow reentry interval [REI] instructions on label).

Caution: Environmental factors significantly affect phytotoxicity. It is recommended that a small group of plants be treated at the appropriate rate under the anticipated growing conditions and observed for phytotoxic symptoms for at least 7 days before a large number of plants are treated. Dwarf yaupon, some varieties of azaleas, camellias, poinsettias, rose bushes, and variegated ivy may show phytotoxicity to chlorpyrifos.

Method 2—Drench Treatment for Container Plants

Two insecticides are approved for this use pattern:

- Bifenthrin
- Chlorpyrifos

Equipment—A large-capacity bulk mixing tank, either pressurized or gravity flow, for mixing and holding the insecticide solution. Properly equipped hoses and watering nozzles that can be attached to the mixing tank and used to thoroughly saturate the container with the insecticide solution.

Step 1—If using bifenthrin determine dry weight bulk density of potting media (see page 17 for instructions).

Step 2—Choose an appropriate site with regard to potential runoff and ventilation.

Step 3—Determine amount of treating solution per container, total amount of treating solution required, and calibrate equipment.

- Volume of treating solution must be 1/5 (20 percent) the volume of the media in the container (minimum required).
- *Example*. A trade gal container is ca. 6"w x 7"h and in theory is ca. 3 quarts. If the container is filled within 1" of the top of the container, then use the height of 6". Therefore 1/5 volume of a trade gal container filled within 1" of the top is ca. 19 oz (rounding up).
- For many, calibrating is determined by how long (number of seconds) it takes for equipment to apply 19 oz (ca 2.5 cups) solution if treating all trade gallon containers.

Step 4—Treat containers.

- Apply treating solution to the point of saturation with a minimum of your predetermined 1/5 volume of a single container.

Step 5—Dispose of solution.

- Dispose of tank contents 8 hours after mixing. Disposal must comply with label instructions, as well as State and local regulations.

Pesticides Approved, Dose Rates and Certification Periods for Drench of Container Plants

Pesticide	Formulation	Rate of Application Amount formulation/100 gal H_2O or ppm	Certification Period
Chlorpryrifos*	4EC	4 fl oz	30 days
	2EC	8 fl oz	30 days
Bifenthrin*	23.4%EC	25 ppm**	180 days
	7.9%F	25 ppm**	180 days

* use labels with use pattern listed on label
** ppm based on dry weight bulk density of potting media, see table below and page 17 for instructions regarding bulk density determination.

Amount of Product by Formulation type to add to 100 gal water Based on Bulk Density of Potting Media

Potting media bulk density* lb/cu.yd.	Bifenthrin 7.9% flowable** Oz formulation/100 gal H_2O	Bifenthrin 23.4% EC** Oz formulation/100 gal H_2O
200	2.4	0.8
400	4.8	1.6
600	7.2	2.4
800	9.6	3.2
1,000	12.0	4.0
1,200	14.4	4.9
1,400	16.8	5.7

* see page 17 for instruction regarding bulk density determination.
** these rates are listed under High Drench Application Rate on labels

Exposure period—plants are certifiable upon completion of treatment (follow reentry interval [REI] instructions on label).

Diazinon may be registered by a State under FIFRA, sec. 24(c), Special Local Needs, for treatment of containerized non-bearing blueberries and fruit and nut plants. Check with your State regulatory official for 24(c) labels, treatment rates, and certification periods.

Caution: Environmental factors significantly affect phytotoxicity. It is recommended that a small group of plants be treated at the appropriate rate under the anticipated growing conditions and observed for phytotoxic symptoms for at least 7 days before a large number of plants are treated. Dwarf yaupon, some varieties of azaleas, camellias, poinsettias, rose bushes, and variegated ivy may show phytotoxicity to chlorpyrifos.

Method 3—Topical Treatment for Container Plants

This topical application method of treatment was developed when the Talstar®10WP formulation was the most common formulation available for bifenthrin. This formulation is no longer available for nursery uses, but the treatment language was transferred to the flowable and EC labels of bifenthrin. While this topical treatment is approved, it is not generally used.

One insecticide is approved for this use pattern:

- Bifenthrin

Caution: This method is approved only for treatment of nursery stock in 3- and 4-quart containers.

Step 1— Determine dry weight bulk density of potting media (see page 17 for instructions).

Step 2—Prepare treatment solution.

- Based on container size and bulk density of potting media, mix appropriate amount of bifenthrin in 1,000 oz water (or equivalent, based on number of pots to treat).
- Apply 1 fl oz of treating solution to each of the containers evenly distributed over the surface of the potting media.
- Irrigate all treated containers with 1.5 inches of water following treatment.

Pesticides Approved, Dose Rate and Certification Periods for Topical Drench of Container Plants

Potting media bulk density* Lb/cu yd	Bifenthrin 7.9% Flowable**		Bifenthrin 23.4% EC**		Certification Period
	Oz F/1,000 oz H_2O 3-qt pots	Oz F/1,000 oz H_2O 4-qt pots	Oz EC/1,000 oz H_2O 3-qt pots	Oz EC/1,000 oz H_2O 4-qt pots	
200	3.6	5.2	1.2	1.8	180 days
400	7.2	10.4	2.4	3.5	180 days
600	10.8	15.6	3.7	5.2	180 days
800	14.4	20.8	4.9	7.0	180 days
1,00	18.0	26.0	6.1	8.8	180 days
1,200	21.6	31.2	7.3	10.5	180 days
1,400	25.2	36.4	8.5	12.3	180 days

* see page 17 for instructions on dry weight bulk density determination
**use labels with use pattern listed on label

Exposure period – plants are certifiable upon completion of treatment (follow reentry interval [REI] instruction on label).

Method 4—Incorporation of Granular Insecticides into Potting Media for Container Plants

Three insecticides are approved for incorporation into potting media:

- Bifenthrin
- Fipronil
- Tefluthrin

Note: An online search conducted in March 2013 did not produce any fipronil or tefluthrin labels with this use pattern and rate of application.

Equipment—use soil-mixing equipment that will adequately mix and thoroughly blend the required dosage of pesticide throughout the potting media.

If you have your media prepared offsite by another company, granular insecticide may be premixed for you. However, once media is prepared and granular insecticide incorporated, the "clock" starts on the certification period. Therefore, to retain the maximum certification period for container stock, the premixed media should be used to pot nursery stock as soon as possible.

Step 1—Determine how long a certification period is required for the nursery stock you are potting.

Step 2—Determine dry weight bulk density of potting media (see page 17 for instructions).

Step 3—Calculate amount of granular product to mix per cubic yard of potting media based on dry weight bulk density, or use table from label.

Pesticides Approved, Dose Rate and Certification Periods for Incorporation of Granular Products into Potting Media for Container Plants

Insecticide*	Dose Rate (ppm)	Certification period
Bifenthrin	10	6 month
	12	12 month
	15	24 month
	25	Continuous**
Fipronil	10	6 month
	12	12 month
	15	24 month
	25	Continuous**
Tefluthrin	10	18 month
	25	Continuous**

* use labels with use pattern listed on label

** continuous certification if all other provisions of IFA Free Nursery Program are met (see page 11)

Amount of Granular Bifenthrin 0.2% Formulation to add to 1 cubic yard of Media Based on Dose Rate and Bulk Density of Potting Media

	Amt. of granular bifenthrin 0.2% based on bulk density of media (lb/cu yd)						
Dose Rate	200	300	400	500	600	800	1000
10	1.0	1.5	2.0	2.5	3.0	4.0	5.0
12	1.2	1.8	2.4	3.0	3.6	4.8	6.0
15	1.5	2.25	3.0	3.75	4.5	6.0	7.5
25	2.5	3.75	5.0	6.25	7.5	10.0	12.5

* see page 17 for instruction regarding bulk density determination.

Exposure period—plants are certifiable upon completion of treatment (follow reentry interval [REI] instructions on label).

Calculation for amount of granular insecticide to mix into 1 cubic yard of potting media based on known dry weight bulk density of media

$$\frac{\text{Bulk density of media} \times \text{ppm}}{\text{Concentration of pesticide}} = \text{lb granular needed per cubic yard media}$$

Example: You want to treat 1 cubic yard of potting media with a bulk density of 500 lb/cu yd, with enough 0.2% granular bifenthrin for a 12-month certification period (12 ppm).

12 ppm = 12/1,000,000 = 0.000012
0.2% granular bifenthrin = 0.2/100 = 0.002

(500 x 0.000012)/0.002 = 3.0lb 0.2G bifenthrin/1 cu yd potting media

Note: Many nursery plants may require a longer certification than 24 months. When a plant is "potted up" into a larger container, the grower can use potting media with newly incorporated granular insecticide to surround and augment "old" media, therefore extending the certification period. For example, if a grower started a plant in a 1 gallon container on 3/1/10 with 12 ppm bifenthrin in the media, this plant now is certified for 12 months. On 2/28/11 (1 year later), the grower moves the plant into a 3-gallon container, and the potting media added to fill the container has been treated with 15 ppm bifenthrin. This plant may now be certified for an additional 24 months or until 2/28/13 (or for 24 months after the potting media was treated with the granular bifenthrin). This example illustrates the importance of recordkeeping to ensure the grower can verify certification of plants that have been repotted several times.

If the treatment in a container has "expired" (the certification period has been exceeded), there are two options:

1. Treat with an approved drench treatment, wait the REI period, then pot up as usual with media treated with granular insecticide for the certification period you desire.
2. Pot up the plant in non-treated media, and immediately drench the larger container with an approved drench treatment. This plant will then have the drench certification period (up to 6 months with a bifenthrin drench) before it will require an additional drench or another potting up with media treated with granular insecticide for the certification period you desire.

Federal IFA-Free Nursery Program for Plants in Containers

This IFA-Free Nursery Program is not mandatory for movement of nursery stock. Certification may be granted on the basis of other treatments listed on pages 6–10 of this document.

The IFA-Free Nursery Program is designed to keep nurseries free of IFA and provides a basis to certify containerized nursery stock on a continuous basis. The program has detection, control, exclusion, and enforcement components that, in combination, provide maximum control of IFA. This program is available for growers who wish to include the entire property in their IFA treatment program and thus be able to ship container stock on a continuous basis. Participating establishments must operate under a compliance agreement. Few nurseries participate in this program, but it is available for use. Please contact your State inspector to discuss whether this program is right for your nursery. Specific details may be found in the *Code of Federal Regulations* (7 CFR 301.81–11: Imported fire ant detection, control, exclusion, and enforcement program for nurseries producing containerized plants). This regulation is updated annually, so please go to the USDA, APHIS link to the current *Code of Federal Regulations* information:
www.aphis.usda.gov/plant_health/plant_pest_info/fireants/index.shtml

Nursery Stock—Field-Grown and Balled-and-Burlapped (B&B) Stock

There are three methods for treating field grown nursery stock, and different pesticides are approved for use in these methods—two post-harvest and one pre-harvest:

- Post-harvest B&B treatments
  - ♦ Immersion/Dip—bifenthrin and chlorpyrifos
  - ♦ Drench—chlorpyrifos
- Pre-harvest in field treatment—broadcast bait plus broadcast contact insecticide (chlorpyrifos)

Method 1—Immersion or Dip Treatment for Balled-and-Burlapped (B&B) Plants

Two insecticides are approved for this use pattern:

- Bifenthrin
- Chlorpyrifos

Equipment—An open-top, watertight immersion tank sufficiently large to accommodate the treating solution and plants will be needed. Drain plugs and valves will facilitate drainage after treatment. Use all personal protection equipment as required on the insecticide label and State and Federal laws. *Important: Do not allow runoff from the treatment area.*

Step 1—Choose an appropriate site.

- Locate the immersion tank in a well-ventilated place. The location should be covered if possible.

Step 2—Choose immersion tank.

- Choose an appropriate sized immersion tank that will allow complete submersion of the root/soil portion of the plant.
- Allow room for displacement of liquid solution as the root ball is immersed so that no treatment liquid overruns the top of the tank.

Step 3—Immerse the plants.

- Do not remove burlap before immersion.
- Immerse the root balls, singly or in groups, so that the root ball is completely covered by the insecticidal solution.
- Allow the plants to remain in the solution until bubbling ceases. Thorough saturation of the root ball with the insecticide solution is essential.

Step 4—Remove the plants from the dip.

- After removal from the dip, set the plants on a drainboard until adequately drained.

Step 5—Maintain appropriate level of treating mixture.

- As treating progresses, add freshly prepared insecticide mixture to maintain the liquid at immersion depth.

Step 6—Dispose of solution.

- Dispose of tank contents 8 hours after mixing. Disposal must comply with label instructions, as well as, State and local regulations.

Pesticides Approved, Dose Rates and Certification Periods for Immersion of Balled-and-Burlapped Plants

Pesticide	Formulation	Dose Rate Lb ai/100 gal H2O	Certification Period
Chlorpryrifos*	EC	0.125 lb ai	30 days
Bifenthrin*	EC or F	0.115 lb ai	180 days
		0.05 lb ai	120 days
		0.025 lb ai	60 days

* use labels with use pattern listed on label

Exposure period—plants are certifiable upon completion of treatment (follow reentry interval [REI] instructions on label).

Caution: Environmental factors significantly affect phytotoxicity. It is recommended that a small group of plants be treated at the appropriate rate under the anticipated growing conditions and observed for phytotoxic symptoms for at least 7 days before a large number of plants are treated. Dwarf yaupon, some varieties of azaleas, camellias, poinsettias, rose bushes, and variegated ivy may show phytotoxicity to chlorpyrifos.

Method 2—Drench Treatment for B&B Plants

One insecticide is approved for this use pattern:

- Chlorpyrifos

Equipment—A large-capacity bulk mixing tank, either pressurized or gravity flow, for mixing and holding the insecticide solution. Properly equipped hoses and watering nozzles that can be attached to the mixing tank and used to thoroughly saturate the root ball with the insecticide solution. Use all personal protection equipment as required by the insecticide label and State or Federal laws.

Step 1—Select a site for the treatment.

- Move the plants to a well-ventilated place normally used to maintain plants prior to shipment.
- Choose an appropriate site with regard to potential runoff and ventilation.

Step 2—Determine amount of treating solution per root ball, total amount of treating solution required and calibrate equipment.

- The total volume of the treating solution must be 1/5 (20 percent) the volume of the root ball.
- Volume formula for Cone = pi (R^2 + rR + r^2) h / 3 where R = Radius of top of cone, r = radius of bottom of cone, h = cone height, pi = 3.14.
    - *Example*. If you have a 25" root ball (top diameter) with a bottom diameter of ca. 10" and a height of ca. 12", the volume of the root ball is ca. 3061.5 cu inches or ca. 13.3 gal (using online conversion page). Remember: radius is 1/2 diameter.
    - 1/5 of 13.3 gal is ca. 2.6 gal treatment solution to be used over the course of the 2 drench applications (or ca. 1.3 gal per drench application).
    - Your State inspector or an extension agent can assist you with this calculation.
- For many, calibrating is determined by how long (number of seconds) it takes for equipment to apply 1.3 gal solution if treating all 25" root balls.

Step 3—Apply the treatment—UPDATED JANUARY 2015.

- The treatment will be enhanced by adding any agricultural wetting agent or surfactant.
- Do not remove burlap wrap from plants prior to treatment .
- Treat plants with the insecticide solution twice in one day.
- Apply one-half the total drench solution, wait at least 30 minutes, then rotate the root ball and apply the second one-half drench solution.
- Rotating or flipping the root ball between drench applications is required to insure all sides of the root ball are sufficiently treated.

Step 4—Dispose of solution.

- Dispose of tank contents 8 hours after mixing. Disposal must comply with label instructions, as well as, State and local regulations.

Pesticides Approved, Dose Rates and Certification Periods for Drench of Balled-and-Burlapped Plants

Pesticide	Formulation	Amt formulation/ 100 gal H_2O	Dose Rate Lb ai/100 gal H_2O	Certification Period
Chlorpryrifos*	4EC	4 fl oz	0.125 lb ai	30 days
	2EC	8 fl oz	0.125 lb ai	30 days

* use labels with use pattern listed on label

Exposure period—plants are certifiable upon completion of treatment (follow reentry interval [REI] instructions on label).

Method 3 – In field treatment of Field-Grown Plants (Pre-Harvest)

Several bait products and one contact insecticide are approved for this use pattern:

- Baits—UPDATED JNAUARY 2015
  - ♦ Abamectin
  - ♦ Fenoxycarb
  - ♦ Hydramethylnon
  - ♦ Metaflumizone
  - ♦ Methoprene
  - ♦ Pyriproxyfen
- Contact insecticide
  - ♦ Chlorpyrifos granular

Note: An online search conducted in March 2013 did not produce any chlorpyrifos labels with this use pattern and rate of application.

This in-field treatment is based on a sequential application of an approved bait followed by a broadcast application of a contact insecticide. The combination treatment is necessary since broadcast application of chlorpyrifos (or other short-term residual insecticides) usually does not eliminate large, mature IFA colonies, and baits are not capable of providing a residual barrier against reinfestation by new queens. Therefore, the approved bait application will drastically reduce the IFA population, while the contact insecticide (chlorpyrifos), applied approximately 5 days later, will destroy any remaining weakened colonies and also leave a residual barrier against reinfestation by newly mated queens for a period of time (certification period).

Pesticides Approved, Dose Rates, Exposure Periods, and Certification Periods for Infield Treatment of Field Grown Plants

Apply bait	3-5 days later apply contact	Exposure Period	Certification Period
Approved bait @ 1-1.5 lb ai/acre	Chlorpyrifos G @ 6 lb ai/acre	30 days after contact application	12 weeks after exposure period
	2nd chlorpyrifos application at 6 lb ai/acre at end of original certification period		12 weeks additional certification

Note: Treatment area must extend at least 10 feet beyond the base of all plants that are to be certified.

Apply the bait with any granular applicator capable of applying labeled rates of 1–1.5 lb bait per acre. Baits should be applied when ants are actively foraging, usually when air temperatures are between 65–90 °F. To determine if ants are active, place a food lure such as slices of hotdogs or potato chips in the area you plan to treat, wait ca. 30–45 minutes, and check the food lure for ants. Most seed or fertilizer granular applicators cannot be accurately calibrated to this low rate. A Herd® GT-77 Granular Applicator (Kasco Manufacturing; Shelbyville, IN) is frequently used in conjunction with all-terrain vehicles or farm tractors to apply IFA baits.

Grass Sod

There are three insecticides approved for treatment of grass sod. All treatments require broadcast application and an exposure period prior to the certification period.

- Bifenthrin—liquid
- Chlorpyrifos—liquid
- Fipronil—granular

Note: An online search conducted in March 2013 did not produce any chlorpyrifos labels with this use pattern and rate of application.

All treatments are applied as broadcast treatments with appropriate ground application equipment. Liquid treatments (chlorpyrifos or bifenthrin) should be applied at the rate of finished solution per acre as noted on the specific label, or the addition of an appropriate surfactant used at lower rates/acre of application. Read labels carefully. All treatments will benefit from irrigation after treatment, so it is recommended that one-half inch of irrigation be added after treatment.

Pesticides Approved, Dose Rates and Certification Periods for Broadcast Treatment of Grass Sod

Pesticide	Formulation	lb ai/acre per application	Total no. applications 1 week apart	Total lb ai/acre	Exposure Period	Certification Period
Bifenthrin	EC	0.2	2	0.4	28 days	16 wks
Chlorpyrifos	EC, WP	8	1	8	2 days	6 wks
Fipronil	G	0.0125	2	0.025	30 days	20 wks

Example: You are applying liquid bifenthrin to 10 acres of grass sod in the IFA quarantine area. Using a broadcast applicator, apply 0.2 lb. active ingredient (ai) per acre in an appropriate amount of water, and then 7 days later, apply a second dosage of 0.2 lb. a.i. per acre. After a 28-day exposure period, you may harvest and ship sod for 16 weeks. After that time, to continue harvesting from the same area, you would need to re-treat if allowed by the label.

Greenhouse-Grown Plants

Greenhouse-grown plants are certifiable without insecticidal treatment if the inspector determines that the greenhouse is constructed of fiberglass, glass, or plastic in such a way that IFA are physically excluded and cannot become established within the enclosure. Slat houses, shade houses, or open greenhouses do not qualify as physical barriers. Plants grown in these structures must be treated with an approved insecticide before they can be certified for movement.

Blueberries and Other Fruit and Nut Nursery Stocks

Certain States may have Special Local Needs labeling in accordance with section 24(c) of FIFRA for diazinon, which APHIS will recognize as a regulatory treatment for containerized nonbearing blueberries and fruit and nut plants. Follow label directions for use. Contact your State regulatory official for availability and instructions.

Soil Samples

Soil samples are eligible for movement when treated by heat or cold temperatures. Samples are certified for as long as the soil is protected from recontamination after the appropriate exposure period.

Treatment	Temperature °F (°C)	Exposure Period
Heat—dry or steam	150 °F (65.5 °C)	Until all parts of mass reach 150 °F
Cold—freezing	-10 °F to -20 °F (-23 °C to -28 °C)	24 hours minimum

Soil samples may be frozen in any commercial cold storage, frozen food locker, or home freezer capable of rapidly reducing to and maintaining required temperature. Soil samples will be placed in plastic bags—one sample per bag. The bags will be arranged in the freezer in a manner to allow the soil samples to freeze in the fastest possible time. If desired, the frozen samples may be shipped in one carton. Soil samples destined for an approved laboratory do not require treatment. Check with your State regulatory official or USDA State Plant Health Director for a list of approved laboratories.

Certification of Regulated Articles

All regulated articles moving interstate and outside the IFA Quarantine area must demonstrate compliance with the IFA Quarantine regulations (7 CFR 301.81). Establishments that regularly ship large quantities of regulated articles (nursery stock) outside the regulated area should enter into a compliance agreement. A compliance agreement is reviewed on a regular basis, and through this agreement, the grower is issued a stamp, a written statement or other means of certifying each shipment. Establishments that rarely ship outside the regulated area will need to call their State inspector several weeks prior to shipment and have each load issued a certificate or limited permit demonstrating compliance with the IFA regulations. This will require the inspector to be present for any treatments required prior to shipment. Contact your State inspector for details.

Recordkeeping

Recordkeeping for all restricted-use pesticides (RUPs) is required by FIFRA, 40 CFR Part 171, and the Food, Agriculture, Conservation and Trade (FACT) Act of 1990, commonly referred to as the 1990 Farm Bill. Section 11 of FIFRA and 40 CFR Part 171 require certified commercial applicators to maintain records of application of RUPs. The 1990 Farm Bill requires private pesticide applicators to keep records of restricted-use chemicals they apply (www.ams.usda.gov/AMSv1.0/pesticiderecords). Many State pesticide laws, including those for recordkeeping, are more extensive than Federal law, and certified private and commercial applicators must familiarize themselves with the State's pesticide laws and recordkeeping requirements.

Under Federal law, commercial applicators and those who contract with commercial applicators to apply RUPs to property owned by another person must maintain applicator records for at least 24 months from the date of pesticide use, and they shall include the following information [40 CFR 171.11(c)(7)]:

- Name and address of the person for whom the pesticide was applied;
- Location of the pesticide application;
- Target pest(s);
- Specific crop or commodity, as appropriate, and site, to which the pesticide was applied;
- Year, month, day, and time of application;
- Trade name and Environmental Protection Agency (EPA) registration number of the pesticide applied;
- Amount of the pesticide applied and percentage of active ingredient per unit of the pesticide used; and
- Type and amount of the pesticide disposed of, method of disposal, date(s) of disposal, and location of the disposal site.

Under Federal law, private applicators must maintain applicator records for at least 2 years. The nine required elements that must be recorded within 14 days of each RUP application are as follows (1990 Farm Bill):

- The brand or product name
- The EPA registration number
- The total amount applied
- The month, day, and year
- The location of the application
- The crop, commodity, stored product, or site
- The size of area treated
- The name of the certified applicator
- The certification number of the certified applicator

Approved State plans for certification of commercial and private applicators must include provisions requiring certified commercial applicators to keep and maintain for the period of at least 2 years routine operational records containing information on types, amounts, uses, dates, and places of application of RUPs, and for ensuring that such records will be available to appropriate State officials.

The term commercial applicator means a certified applicator (whether or not he/she is a private applicator with respect to some uses) who uses or supervises the use of any pesticide which is classified for restricted use for any purpose or on any property other than as provided by the definition of “private applicator.”

The term private applicator means a certified applicator who uses or supervises the use of any pesticide which is classified for restricted use for purposes of producing any agricultural commodity on property owned or rented by him/her or his/her employer or (if applied without compensation other than trading of personal services between producers of agricultural commodities) on the property of another person.

Many State pesticide agencies have developed recordkeeping forms for your convenience. Check with your State regarding specifics on recordkeeping requirements and forms. For States operating under Federal law for private applicator recordkeeping, forms are available at: www.ams.usda.gov/AMSv1.0/pesticiderecords.

Mitigative Measures

The following measures are required to minimize the impact of quarantine treatments on the environment and human health. Any person requesting certification to authorize the movement of regulated articles must adhere to these measures where applicable.

- All applicable Federal, State, and local environmental laws and regulations must be followed.
- Safety equipment and clothing (personal protective equipment [PPEs]), as specified by the label instructions, must be used and worn during treatments and inspections.
- Safety practices shall be communicated, and regulated establishment managers must require that on-the-job safety practices be followed.
- All pesticides must be applied, handled, stored, and used in accordance with label instructions.
- Empty pesticide containers must be disposed of in accordance with label instructions and Federal, State, and local regulations.
- Pesticide remaining in containers after completion of an application must be retained and disposed of in accordance with label instructions and Federal, State, and local regulations.
- Oral or written warnings must be provided to workers and the general public, indicating pesticide application areas during application and appropriate re-entry intervals (REIs).
- Owners or managers of regulated properties must take precautions to limit access to treated areas by the public, livestock, and wildlife.

Protocol for Collection of Nursery Potting Media for Bulk Density Determination

Contact your State regulatory official/inspector (see page 18) prior to collecting samples to determine where to submit samples and any costs associated with the work.

If the State does not provide specific instructions for sample collection, the following protocol can be used:

- Collect potting media from five different locations around the media pile for a total of approximately one-half gallon of media, and place in a heavy duty plastic bag. Do this for each different media type you want bulk density determined for. Double bagging may be necessary to ensure against breakage during shipping.
- If a sample form is not supplied by the State, please include with each sample:
    - ♦ Contact person name, phone number, mailing address, and email address;
    - ♦ Date sample collected;
    - ♦ Requested service: bulk density determination; and
    - ♦ Any additional remarks or comments, as needed.

State Plant Regulatory Officials (www.nationalplantboard.org/member/index.html)

Alabama
AL Department of Agriculture and Industries
Division of Plant Industry
1445 Federal Drive
Montgomery, AL 36107
334-240-7225

Arizona
Plant Services Division
Arizona Department of Agriculture
1688 West Adams
Phoenix, AZ 85007
602-542-0996

Arkansas
Division of Plant Industry
Arkansas State Plant Board
Post Office Box 1069
Little Rock, AR 72203
501-225-1598

California
Plant Health and Pest Prevention Services
California Department of Food & Agriculture
1220 N Street, Room 221
Sacramento, CA 95814
916-654-0317

Florida
Division of Plant Industry
Florida Dept. of Agriculture & Consumer Services
Post Office Box 147100
Gainesville, FL 32614-7100
352-395-4628

Georgia
Plant Protection Section
Georgia Department of Agriculture
1109 Experiment Street
Redding Building, Room 213
Griffin, GA 30223
404-586-1140

Louisiana
Louisiana Department of Agriculture and Forestry
Post Office Box 3596
Baton Rouge, LA 70821-3596
225-952-8100

Mississippi
Bureau of Plant Industry
Mississippi Department of Agriculture and Commerce
Post Office Box 5207
Mississippi St., MS 39762
662-325-8789

New Mexico
Bureau of Entomology & Nursery Industries
New Mexico Department of Agriculture MSC, 3BA
Post Office Box 30005
Las Cruces, NM 88003-0005
575-646-3207

North Carolina
North Carolina Department of Agriculture and Consumer Services
Plant Industry Division
1060 Mail Service Center
Raleigh, NC 27699-1060
919-707-3753

Oklahoma
Consumer Protection Services Division
Oklahoma Department of Agriculture, Food and Forestry
Post Office Box 528804
Oklahoma City, OK 73152-8804
405-522-5879

Puerto Rico
State Plant Quarantine Program
Puerto Rico Department of Agriculture
Post Office Box 10163
San Juan, PR 00908-1163
787-723-7725, 787-722-5301

South Carolina
Department of Plant Industry
511 Westinghouse Road
Pendleton, SC 29670
864-646-2135

Tennessee
Division of Regulatory Services
Tennessee Department of Agriculture
Post Office Box 40627
Melrose Station
Nashville, TN 37204
615-837-5338

Texas
Texas Department of Agriculture
Post Office Box 12847
Austin, TX 78711
512-463-5025

Virginia
Office of Plant and Pest Services
Virginia Department of Agriculture and Consumer Services
Post Office Box 1163
Richmond, VA 23218
804-786-3515

USDA, APHIS, State Plant Health Directors (www.aphis.usda.gov/services/report_pest_disease/report_pest_disease.shtml)

Alabama
USDA, APHIS, PPQ, SPHD
1st Floor ADP RM
1836 Glynwood Drive
Prattville, AL 36066
334-358-4920

Arizona
USDA, APHIS, PPQ, SPHD for AZ & NM
3640 E Wier Ave.
Phoenix, AZ 85040
602-431-3200

Arkansas
USDA, APHIS, PPQ, SPHD
1200 Cherrybrook Drive, Suite 100
Little Rock, AR 72211-3861
501-324-5258

California
USDA, APHIS, PPQ, SPHD
650 Capital Mall, Suite 6-400
Sacramento, CA 95814
916-930-5500

Florida
USDA, APHIS, PPQ, SPHD
8100 NW 15th Place
Gainesville, FL 32606
352-313-3040

Georgia
USDA, APHIS, PPQ, SPHD
1506 Klondike Road, Suite 306
Conyers, GA 30094
770-860-4020

Louisiana
USDA, APHIS, PPQ, SPHD
4354 S. Sherwood Forest Boulevard., Suite 150
Baton Rouge, LA 70816
225-298-5410

Mississippi
USDA, APHIS, PPQ, SPHD
505 Russell Street
Starkville, MS 39759
662-323-1291

New Mexico
USDA, APHIS, PPQ, SPHD
3640 E Wier Avenue
Phoenix, AZ 85040
602-431-3200

North Carolina
USDA, APHIS, PPQ, SPHD for NC & SC
930 Main Campus Drive, Suite 200
Raleigh, NC 27606-5202
919-855-7600

Oklahoma
USDA, APHIS, PPQ, SPHD
301 N. W. 6th Street, Suite 101
Oklahoma City, OK 73105
405-609-8840

Puerto Rico
USDA, APHIS, PPQ, SPHD
IBM Building
654 Muñoz Rivera Avenue, Suite 700
Hato Rey, PR 00918
787-766-6050

South Carolina
USDA, APHIS, PPQ, SPHD for NC & SC
930 Main Campus Dr., Suite 200
Raleigh, NC 27606
919-855-7600

Tennessee
USDA, APHIS, PPQ, SPHD
1410 Kensington Square Court, Suite 101
Murfreesboro, TN 37130-6902
615-907-7801

Texas
USDA, APHIS, PPQ, SPHD
903 San Jacinto Boulevard, Suite 270
Austin, TX 78701-2450
512-916-5241

Virginia
USDA, APHIS, PPQ, SPHD
5657 South Laburnum Avenue
Richmond, VA 23231-4536
804-771-2042