



Department of Agriculture
STATE OF HAWAII

LICENSED

PERIOD 2014-2016 LIC. NO.

8003.16
Disc.

**Imidacloprid
Insecticide**

Couraze™ 2F **Insecticide**

**For uses in pest management and suppression of insect
vectored diseases and maintenance of plant health.**

ACTIVE INGREDIENT:

Imidacloprid, 1-[(6-Chloro-3-pyridinyl)methyl]-

N-nitro-2-imidazolidinimine 21.4%

OTHER INGREDIENTS: 78.6%

100.0%

Contains 2 pounds of imidacloprid per gallon.

SHAKE WELL BEFORE USING

STOP - Read the label before use

KEEP OUT OF REACH

OF CHILDREN

CAUTION

For **PRODUCT USE** Information Call 1-800-548-6113
For **MEDICAL Emergencies ONLY** Call 24 Hours A Day 1-866-303-6950
For **TRANSPORTATION Emergencies** Call ChemTrec at 1-800-424-9300

EPA REG. NO. 264-758-67760

NET CONTENTS 1 GAL. (3.785 L)

4311721 060519A 011/06

FORMULATED FOR

 **CHEMINOVA**

1700 Route 23, Suite 300
Wayne, NJ 07470

Product of Germany

FIRST AID

IF SWALLOWED:	<ul style="list-style-type: none">• Call a poison control center or doctor immediately for treatment advice.• Have person sip a glass of water if able to swallow.• Do not induce vomiting unless told to do so by a poison control center or doctor.• Do not give anything by mouth to an unconscious person.
IF IN EYES:	<ul style="list-style-type: none">• Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.• Call a poison control center or doctor for treatment advice.
IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none">• Take off contaminated clothing.• Rinse skin immediately with plenty of water for 15 to 20 minutes.• Call a poison control center or doctor for treatment advice.

In case of emergency call toll free 1-866-303-6950. Have a product container or label with you when calling a poison control center or doctor, or going for treatment.

Note To Physician: No specific antidote is available. Treat the patient symptomatically.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Harmful if swallowed or absorbed through skin. Avoid contact with skin, eyes, or clothing.

Applicators and Other Handlers Must Wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves made of any waterproof material such as, barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinylchloride (PVC) or viton.
- Shoes plus socks

Follow manufacturer's instructions for cleaning/ maintaining personal protective equipment, PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

ENGINEERING CONTROLS STATEMENTS

- When handlers use closed systems or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

User should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

Do not apply directly to water, areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area. This product is toxic to wildlife and highly toxic to aquatic invertebrates.

This chemical demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

OBSERVE THE FOLLOWING PRECAUTIONS WHEN MIXING AND APPLYING IN THE VICINITY OF AQUATIC AREAS SUCH AS LAKES; RESERVOIRS; RIVERS; PERMANENT STREAMS, MARSHES OR NATURAL PONDS; ESTUARIES AND COMMERCIAL FISH FARM PONDS.

Spray Drift Management

The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator is responsible for considering all of these factors when making application decisions. Avoiding spray drift is the responsibility of the applicator.

Importance of Droplet Size:

An important factor influencing drift is droplet size. Small droplets (<150 - 200 microns) drift to a greater extent than large droplets. Within typical equipment specifications, applications should be made to deliver the largest droplet spectrum that provides sufficient control and coverage. Formation of very small droplets may be minimized by appropriate nozzle selection.

Wind Speed Restrictions:

Drift potential increases at wind speeds of less than 3 mph (due to inversion potential) or more than 10 mph. However, many factors, including droplet size, canopy and equipment specifications determine drift potential at any given wind speed. Do not apply when winds are greater than 15 mph and avoid gusty and windless conditions. Risk of exposure to sensitive aquatic areas can be reduced by avoiding applications when wind direction is toward the aquatic area.

Restrictions During Temperature Inversions:

Do not make ground applications during temperature inversions. Drift potential is high during temperature inversions. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain close to the ground and move laterally in a concentrated cloud. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however if fog is not present, inversions can also be identified by the movement of smoke from a ground source. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical mixing.

Mixing and Loading Requirements

To avoid potential contamination of groundwater, the use of a properly designed and maintained containment pad for mixing and loading of any pesticide into application equipment is recommended. If containment pad is not used, maintain a minimum distance of 25 feet between mixing and loading area and potential surface to groundwater conduits such as field sumps, uncased well heads, sink-holes, or field drains.

No-Spray Zone Requirements for Soil Applications

Do not apply within 25 feet, of lakes; reservoirs; rivers; permanent streams, marshes or natural ponds; estuaries and commercial fish farm ponds.

Runoff Management

Do not cultivate within 10 feet of the aquatic areas to allow growth of a vegetative filter strip. When using Couraze™ 2F on erodible soils, Best Management Practices for minimizing runoff should be employed. Consult your local Natural Resources Conservation Service for recommendations in your use area.

Endangered Species Notice

Under the Endangered Species Act, it is a Federal Offense to use any pesticide in a manner that results in the death of a member of an endangered species. Consult your local county bulletin, County Extension Agent, or Pesticide State Lead Agency for information concerning endangered species in your area.

Resistance Management

Some insects are known to develop resistance to insecticides after repeated use. As with any insecticide, the use of this product should conform to resistance management strategies established for the use area. Couraze™ 2F Insecticide contains a Group 4A insecticide. Insect biotypes with acquired or inherent resistance to Group 4A may eventually dominate the insect population if Group 4A insecticides are used repeatedly as the predominant method of control for targeted species.

The active ingredient in Couraze™ 2F belongs to the neonicotinoid chemical class. Insect pests resistant to other chemical classes have not shown cross-resistance to Couraze™ 2F. In order to maintain susceptibility to this class of chemistry in insect species with high resistance development potential, it is recommended that for each crop season: 1) only a single, soil application of Couraze™ 2F be made; 2) foliar applications of products from this same class not be made following a long residual, soil application of Couraze™ 2F, or other neonicotinoid products.

Other Group 4A, neonicotinoid products used as foliar treatments include: Actara, Assail, Calypso, Centric, Clutch, Couraze, Intruder, Leverage, Pasada, Provado, Trimax Pro and Venom.

Other Group 4A, neonicotinoid products used as soil treatments include: Admire Pro, Alias, Couraze, Platinum and Venom.

Contact your local extension specialist, certified crop advisor and/or product manufacturer for additional insect resistance management recommendations. Also, for more information on Insect Resistance Management (IRM), visit the Insecticide Resistance Action Committee (IRAC) on the web at <http://www.irc-online.org>.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

Exception: If the product is soil-injected or soil-incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Chemical-resistant gloves made of any waterproof material such as, barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinylchloride (PVC) or viton
- Shoes plus socks

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Storage: Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

Handle and open container in a manner as to prevent spillage. If the container is leaking, invert to prevent leakage. If container is leaking or material spilled for any reason or cause, carefully dam up spilled material to prevent runoff. Refer to Precautionary Statements on label for hazards associated with the handling of this material. Do not walk through spilled material. Absorb spilled material with absorbing type compounds and dispose of as directed for pesticides below. In spill or leak incidents, keep unauthorized people away. You may contact ChemTrec for decontamination procedures or any other assistance that may be necessary. The ChemTrec telephone number is 1-800-424-9300.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Application Recommendations

Applications of Couraze™ 2F Insecticide should direct product into the seed or root-zone of crop. Failure to place Couraze™ 2F into root-zone may result in loss of control or delay in onset of activity. Couraze™ 2F may be applied with ground or chemigation application. Do not apply with aerial application equipment. Broadcast, foliar applications are only recommended to seedling flats or trays, or where product is intended to be washed from foliage to soil prior to drying on foliage.

Optimum activity of Couraze™ 2F results from applications to the root-zone of plants to be protected. The earlier Couraze™ 2F is available to a developing plant, the earlier the protection begins. Couraze™ 2F is continuously taken into the roots over a long period of time and the systemic nature of Couraze™ 2F allows movement from roots through the xylem tissue to all vegetative parts of the plant. This results in extended residual activity of Couraze™ 2F, the control of insects and the prevention and/or reduction of virus transmission or symptom expression, and plant health benefits. The rate of Couraze™ 2F applied affects the length of the plant protection period. Higher rates are recommended when infestations occur later in crop development, or where pest pressure is continuous. Couraze™ 2F will generally not control insects infesting flowers, blooms or fruit. Additional crop protection may be required for insects feeding in, or on these plant parts and for insects not listed in the crop-specific, pests controlled sections of this label. Additional, specific Couraze™ 2F application recommendations are also provided in the crop-specific sections of this label.

Suppression, or less than complete control of certain diseases and insect pests including reduced feeding may also result from an Couraze™ 2F applications. Complete control of these pests/diseases may require supplemental control measures.

Couraze™ 2F use on crops grown for production of true seed intended for private or commercial planting is generally not recommended but may be allowed under State specific, supplemental labeling. As with any insecticide, care should be taken to minimize exposure of Couraze™ 2F to honey bees and other pollinators. Additional information on Couraze™ 2F uses for these crops and other questions, may be obtained from the Cooperative Extension Service, PCAs, consultants or local Cheminova representatives.

Couraze™ 2F should be pre-mixed with water or other appropriate diluent prior to application. Keep Couraze™ 2F and water suspension agitated to avoid settling.

Do not apply more than 0.50 lbs active ingredient per acre, per crop season, regardless of formulation or method of application, unless specified within a crop-specific, Recommended Applications section for a given crop.

Additional Product Use information may be obtained by calling 1-800-548-6113 or visiting our web site at www.cheminova.us.com.

Mixing Instructions

To prepare the application mixture, add a portion of the required amount of water to the tank and with agitation add Couraze™ 2F. Complete filling tank with balance of water needed. Maintain sufficient agitation during both mixing and application. Couraze™ 2F may also be used with other pesticides and/or fertilizer solutions.

Please see Compatibility Note on the following page. When tank mixtures of Couraze™ 2F and other pesticides are involved, prepare the tank mixture as recommended above and follow suggested Mixing Order on the following page.

Mixing Order

When pesticide mixtures are needed, add wettable powders first, Couraze™ 2F and other flowable (suspension concentrate) products second, and emulsifiable concentrates last. Ensure good agitation as each component is added. Do not add an additional component until the previous is thoroughly mixed. If a fertilizer solution is added, a fertilizer/pesticide compatibility agent may be needed. Maintain constant agitation during both mixing and application to ensure uniformity of spray mixture.

Compatibility Note

Test compatibility of the intended mixture before adding Couraze™ 2F to the spray or mix tank. Add proportionate amounts of each ingredient in the appropriate order, to a pint or quart jar, cap, shake for 5 minutes, and let set for 5 minutes. Poor mixing or formation of precipitates that do not readily redisperse indicates an incompatible mixture that should not be used. For further information, contact your local Cheminova representative.

CHEMIGATION - DIRECTIONS FOR USE

Types of Irrigation Systems

Chemigation applications of Couraze™ 2F may only be made to crops through chemigation systems as specified in crop-specific Application sections and only through low-pressure systems unless specifically recommended for a given crop. Do not apply Couraze™ 2F through any other type of irrigation system.

Uniform Water Distribution and System Calibration

The irrigation system must provide uniform distribution of treated water. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water. The system must be calibrated to uniformly apply the rates specified. If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.

Chemigation Monitoring

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Drift

Do not apply when wind speed favors drift beyond the area intended for treatment.

Required System Safety Devices

The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Using Water from Public Water Systems

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, back flow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and to top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe. The pesticide injection pipeline must contain a functional automatic quick-closing check valve to prevent the flow of fluid back toward the injection. The pesticide injection pipeline must contain a functional normally closed solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected. Systems must use a metering pump such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

ROTATIONAL CROPS*
Treated areas may be replanted with any crop specified on an imidacloprid label, or any crop for which a tolerance exists for the active ingredient, as soon as practical following the last application. For crops not listed on an imidacloprid label, or for crops for which no tolerances for the active ingredient have been established, a 12-month plant-back interval should be observed.
IMMEDIATE PLANT-BACK: All crops on this label plus the following crops not on this label: barley, canola, corn (field, pop & sweet), rapeseed, sorghum, sugar beet and wheat.
30-DAY PLANT-BACK: Cereals (including buckwheat, millet, oats, rice, rye, and triticale), soybeans and safflower
12-MONTH PLANT-BACK: All Other Crops
* Cover crops for soil building or erosion control may be planted any time, but do not graze or harvest for food or feed.

FIELD CROPS
Recommended Applications – Couraze™ 2F Insecticide

COTTON

Pests Controlled	Rate fluid ounces/1000 row-feet	Rate fluid ounces/Acre
Cotton aphid Thrips Plant bugs Whiteflies	1.3	17.0 – 21.1 (Depending on row-spacing)
<p>Notes and Restrictions Maximum Couraze™ 2F allowed per crop season: 21.1 fluid ounces/Acre (0.33 lb ai/Acre) Regardless of formulation or method of application, apply no more than 0.5 lb active ingredient of Couraze™ 2F, Provado®, Trimax or Leverage per acre per season, including seed treatment as Gaucho, soil and foliar uses. Do not apply more than a total of 6 applications of the active ingredient per season. Do not graze treated fields after any application of Couraze™ 2F. Please see Resistance Management section of this label.</p> <p>Applications Apply specified dosage of Couraze™ 2F Insecticide in one of the following methods:</p> <ol style="list-style-type: none"> 1. In-furrow spray during planting directed on or below seed; 2. In a narrow band directly below the eventual seed row in a bedding operation 7 or fewer days before planting; 3. Chemigation into root-zone through low-pressure drip or trickle irrigation. 		

POTATO

Pests Controlled	Rate fluid ounces/1000 row-feet	Rate fluid ounces/Acre
Aphids Leafhoppers Colorado potato beetle Potato psyllid Flea beetles	0.9 – 1.3	13.0 – 20.0
Pests / Diseases Suppressed		
Symptoms of: Potato leaf roll virus (PLRV) Potato yellows Net necrosis (PLRV) Wireworms (with in-furrow spray at-planting)	0.9 – 1.3	13.0 – 20.0
<p>Notes and Restrictions Maximum Couraze™ 2F allowed per crop season: 20.0 fluid ounces/Acre (0.31 lb AI/Acre)</p> <p>Applications Apply specified dosage of Couraze™ 2F in one of the following methods:</p> <ol style="list-style-type: none"> 1. In-furrow spray during planting directed on seed pieces or seed potatoes; 2. Subsurface side-dress on both sides of the row covered with 3 or more inches of soil; 3. Narrow band spray at ground cracking directly over the row during hilling covered with 3 or more inches of soil; 4. Narrow band directly below the eventual seed row in a bedding operation 7 or fewer days before planting. For effective pest control or suppression, Couraze™ 2F applications must be placed below soil-surface and in contact with seed piece or within root-zone. For potatoes grown on highly permeable soils with shallow water table, at-plant applications of Couraze™ 2F may be made in a 2 to 4 inch band (width of planter shoe opening) and completely covered. 		

POTATO*

(Seed Piece Treatment)

Pests Controlled	Rate fluid ounces/1000 row-feet	Rate fluid ounces/Acre**
Aphids Colorado potato beetle Flea beetles Leafhoppers Potato psyllid Wireworms (seed piece protection)	0.4 – 0.8	8.0 – 16.0
Pests / Diseases Suppressed		
Symptoms of: Potato leaf roll virus (PLRV) Potato yellows Net necrosis (PLRV)	0.8	16.0
Notes and Restrictions		
Maximum Couraze™ 2F allowed per crop season: 20.0 fluid ounces/Acre (0.31 lb AI/Acre) Do not use treated seed-pieces for food, feed, or fodder. Do not apply any subsequent application of Couraze™ 2F (in-furrow), Gaucho®, Leverage® or Provado® following a Couraze™ 2F seed-piece treatment.		
Application		
Apply specified dosage as a diluted spray onto seed-pieces using a shielded spray system. Dilute with 3 parts water, or less, to 1 part Couraze™ 2F. Agitate or stir spray solution as needed. Fungicidal or inert absorbent dusts may be applied after Couraze™ 2F application. Apply only in areas with adequate ventilation or in areas that are equipped to remove spray mist or dust. Plant seed-pieces as soon as possible after treating avoiding prolonged exposure of Couraze™ 2F treated seed-pieces to sunlight and in accordance with the recommendation of your local Extension specialist.		
Consult your local Cheminova representative or crop protection product dealer for information relevant to your area.		
* Use not permitted in CA unless otherwise directed by supplemental labeling.		
** Based on a seeding rate of 2000 lbs/acre.		

TOBACCO

Pests Controlled	Rate fluid ounces/1000 plants (as seedling tray drench)	Rate fluid ounces/1000 plants (in-furrow or transplant-water)
Aphids Flea beetles	1.0	1.4
Mole crickets Whiteflies Wireworms	1.4 – 2.8	1.8 – 2.8
Pests / Diseases Suppressed		
Cutworms Symptoms of: Tomato spotted wilt virus (TSWV)	1.4 – 2.8	1.8 – 2.8
<p>Notes and Restrictions Pre-Harvest Interval (PHI): 14 days Maximum Couraze™ 2F allowed per crop season: 32.0 fluid ounces/Acre (0.50 lb AI/Acre)</p> <p>Applications Apply specified dosage of Couraze™ 2F in one of the following methods:</p> <ol style="list-style-type: none"> 1. Uniform, broadcast foliar spray to seedlings in trays (tray drench) not more than 7 days prior to transplanting followed immediately by overhead irrigation to wash Couraze™ 2F from foliage into potting media. Failure to wash Couraze™ 2F from foliage may result in a reduction in pest control. Transplants should be handled carefully during setting to avoid dislodging treated potting media from roots. 2. In-furrow spray or transplant-water drench during setting. 3. Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment. <p>Important Note: Proper tray drench applications of Couraze™ 2F have been shown to be the most efficacious method of application. However, the specified rate of Couraze™ 2F may be applied as combination of the tray drench in the planthouse and/or transplant-water drench in field. Adverse growing conditions may cause a delay in uptake of Couraze™ 2F into the plant and a delay in control.</p>		

VEGETABLE and SMALL FRUIT CROPS
Recommended Applications – Couraze™ 2F Insecticide

CUCURBIT VEGETABLES^{1/}

Including: Chayote (fruit), Chinese waxgourd (Chinese preserving melon), Citron melon, Cuban pumpkin, Cucumber, Gherkin, Gourd (edible, includes hyotan, cucuzza, hechima, Chinese okra), *Momordica* spp. (includes balsam apple, balsam pear, bitter melon, Chinese cucumber), Muskmelon (hybrids and/or cultivars of *Cucumis melo* including true cantaloupe, cantaloupe, casaba, Crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, snake melon and Winter melon), Pumpkin, Squash (includes summer squash types such as: butternut squash, calabaza, crookneck squash, Hubbard squash, scallop squash, straightneck squash, vegetable marrow and zucchini, and winter squash types such as acorn squash and spaghetti squash), Watermelon (includes hybrids and/or varieties of *Citrullus lanatus*)

Field application recommendations. See details on next page for additional planthouse recommendations.	
Pests Controlled	Rate fluid ounces/Acre
Aphids Cucumber beetles Leafhoppers Thrips (foliage-feeding thrips only) Whiteflies	16.0 – 24.0
Pests / Diseases Suppressed	
Bacterial wilt (as vectored by various cucumber beetles) Leaf silvering resulting from whitefly feeding	16.0 – 24.0
Notes and Restrictions	
Pre-Harvest Interval (PHI): 21 days	
Maximum Couraze™ 2F allowed per application: 24.0 fluid ounces/Acre (0.38 lb AI/Acre)	
Applications	
Apply specified dosage of Couraze™ 2F in one of the following methods:	
1. Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment;	
2. In-furrow spray directed on or below seed;	
3. Narrow (2" or less) surface band spray over seed-line during planting incorporated to a depth of 1 to 1 1/2" with sufficient irrigation within 24 hours of application;	
4. Narrow band spray directly below eventual seed row in bedding operation 14 or fewer days before planting;	
5. Post-seeding drench, transplant-water drench, or hill drench;	
6. Subsurface side-dress on both sides of each row. Couraze™ 2F must be incorporated into root-zone.	
^{1/} Not for use on crops grown for seed unless allowed by state-specific supplemental labeling.	

(continued)

CUCURBIT VEGETABLES^{1/} (CONTINUED)

Including: Chayote (fruit), Chinese waxgourd (Chinese preserving melon), Citron melon, Cuban pumpkin, Cucumber, Gherkin, Gourd (edible, includes hyotan, cucuzza, hechima, Chinese okra), *Momordica* spp. (includes balsam apple, balsam pear, bitter melon, Chinese cucumber), Muskmelon (hybrids and/or cultivars of *Cucumis melo* including true cantaloupe, cantaloupe, casaba, Crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, snake melon and Winter melon), Pumpkin, Squash (includes summer squash types such as: butternut squash, calabaza, crookneck squash, Hubbard squash, scallop squash, straightneck squash, vegetable marrow and zucchini, and winter squash types such as acorn squash and spaghetti squash), Watermelon (includes hybrids and/or varieties of *Citrullus lanatus*)

Planthouse Application Recommendations*	
Pests Controlled	Rate fluid ounces/1000 Plants
Aphids Whiteflies	0.1
Notes and Restrictions Maximum amount Couraze™ 2F applied in the planthouse: 0.1 fluid ounces (0.00156 lb AI)/1000 plants. Maximum number Couraze™ 2F applications in planthouse: 1	
Applications Apply specified dosage to seedlings in trays in the planthouse, targeting soil media (tray drench), not more than 7 days prior to transplanting, in one of the following manners: <ol style="list-style-type: none">1. Uniform, broadcast high-volume foliar spray, followed immediately by sufficient overhead irrigation to wash Couraze™ 2F from foliage into potting media without loss of gravitational liquid from the bottom of the tray. Failure to wash Couraze™ 2F from foliage may result in reduced pest control;2. Injection into overhead irrigation system, using adequate volume to thoroughly saturate soil media without loss of gravitational solution from the bottom of the tray. <p>The application made in the planthouse will only provide short-term protection and is not intended as a substitution for a field application. An additional field application must be made within 2 weeks following transplanting to provide continuous protection. Applications of higher rates or increased number of applications in planthouse may result in significant plant injury. Transplants should be handled carefully during setting to avoid dislodging treated potting media from roots.</p>	
Important Note: Not all varieties of cucurbit vegetables have been tested for tolerance to Couraze™ 2F applied to seedling flats. It is therefore recommended to treat a small number of plants and confirm tolerance for 7 days prior to treating entire planthouse. ^{1/} Not for use on crops grown for seed unless allowed by state-specific supplemental labeling. *Use not permitted in CA unless otherwise directed by supplemental labeling.	

GREENHOUSE VEGETABLES^{1/}

(Mature plants in production greenhouses)

Cucumber, Tomato, only

Pests Controlled	Rate fluid ounces/1000 Plants
Aphids Whiteflies	1.4
<p>Notes and Restrictions</p> <p>Pre-Harvest Interval (PHI): 0 days</p> <p>Maximum number Couraze™ 2F applications per crop season: 1.</p> <p>Apply specified dosage in a minimum of 16 gallons of water for tomatoes and 21 gallons of water for cucumbers using soil drenches, micro-irrigation, drip irrigation, or hand-held or motorized calibrated irrigation equipment. Do not apply to immature plants since phytotoxicity may occur.</p> <p>Applications should be made when infestation pressure surpasses threshold and beneficials are not able to maintain pest populations below damage thresholds. Repellency of bumble bee pollinators and negative effects on some beneficials (<i>Orius</i> sp.) can occur when Couraze™ 2F is applied.</p> <p>Many varieties of vegetables have been tested for tolerance to Couraze™ 2F and show good safety. However, certain varieties may show more sensitivity to Couraze™ 2F. Therefore, treatment of a few plants is recommended before treating the whole greenhouse.</p> <p>^{1/} Not for use on crops grown for seed unless allowed by state-specific supplemental labeling.</p>	

FRUITING VEGETABLES^{1/}

Including: Eggplant, Ground cherry, Okra, Pepper (including bell, chili, cooking, pimento and sweet) Tomato, Pepinos, Tomatillo

Field application recommendations. See details on next page for additional planthouse recommendations.	
Pests Controlled	Rate fluid ounces/Acre
Aphids Colorado potato beetle Flea beetles Leafhoppers Thrips (foliage-feeding thrips only) Whiteflies	Okra and Pepper 16.0 – 32.0 Other Crops 16.0 – 24.0
Pests / Diseases Suppressed	
Symptoms of: Tomato mottle virus Tomato spotted wilt virus Tomato yellow leaf curl virus	Okra and Pepper 16.0 – 32.0 Other Crops 16.0 – 24.0
Notes and Restrictions Pre-Harvest Interval (PHI): 21 days Maximum Couraze™ 2F allowed on pepper and okra crops per application: 32.0 fluid ounces/Acre (0.5 lb AI/Acre) Maximum Couraze™ 2F allowed on other fruiting vegetable crops per application: 24.0 fluid ounces/Acre (0.38 lb AI/Acre)	
Applications Apply specified dosage of Couraze™ 2F in one of the following methods: 1. Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment; 2. In-furrow spray directed on or below seed; 3. Narrow (2" or less) surface band spray over seed-line during planting incorporated to a depth of 1 to 1 1/2" with sufficient irrigation within 24 hours of application; 4. Narrow band spray directly below eventual seed row in bedding operation 14 or fewer days before planting; 5. Post-seeding drench, transplant-water drench, or hill drench; 6. Subsurface side-dress on both sides of each row. Couraze™ 2F must be incorporated into root-zone.	
^{1/} Not for use on crops grown for seed unless allowed by state-specific supplemental labeling.	

(continued)

FRUITING VEGETABLES^{1/} (CONTINUED)

Including: Eggplant, Ground cherry, Okra, Pepper (including bell, chili, cooking, pimento and sweet) Tomato, Pepinos, Tomatillo

Planthouse Application Recommendations*	
Pests Controlled	Rate fluid ounces/1000 Plants
Aphids Whiteflies	0.1
Notes and Restrictions Maximum amount Couraze™ 2F applied in the planthouse: 0.1 fluid ounces (0.00156 lb AI)/1000 plants. Maximum number Couraze™ 2F applications in planthouse: 1	
Applications Apply specified dosage to seedlings in trays in the planthouse, targeting soil media (tray drench), not more than 7 days prior to transplanting, in one of the following manners: <ol style="list-style-type: none">1. Uniform, broadcast high-volume foliar spray, followed immediately by sufficient overhead irrigation to wash Couraze™ 2F from foliage into potting media without loss of gravitational liquid from the bottom of the tray. Failure to wash Couraze™ 2F from foliage may result in reduced pest control;2. Injection into overhead irrigation system, using adequate volume to thoroughly saturate soil media without loss of gravitational solution from the bottom of the tray. <p>The application made in the planthouse will only provide short-term protection and is not intended as a substitution for a field application. An additional field application must be made within 2 weeks following transplanting to provide continuous protection. Applications of higher rates or increased number of applications in planthouse may result in significant plant injury. Transplants should be handled carefully during setting to avoid dislodging treated potting media from roots.</p>	
Important Note: Not all varieties of fruiting vegetables have been tested for tolerance to Couraze™ 2F applied to seedling flats. It is therefore recommended to treat a small number of plants and confirm tolerance for 7 days prior to treating entire planthouse.	
^{1/} Not for use on crops grown for seed unless allowed by state-specific supplemental labeling.	
* Use not permitted in CA unless otherwise directed by supplemental labeling.	

HEAD and STEM BRASSICA VEGETABLES^{1/}

Including: Broccoli, Broccoli raab (*rapini*), Brussels sprouts, Cabbage, Cauliflower, Cavalo broccoli, Chinese (*gai lon*) broccoli, Chinese (*bok choy*) cabbage, Chinese (*napa*) cabbage, Chinese mustard (*gai choy*) cabbage, Collards, Kale, Kohlrabi, Mizuna, Mustard greens, Mustard spinach, Rape greens, Turnip tops (leaves)

LEAFY VEGETABLES^{1/}

Including: Amaranth (leafy amaranth, Chinese spinach, tampala), Arugula (Roquette), Chervil, Chrysanthemum (edible leaved and garland), Cilantro, Corn salad, Cress (garden), Cress (upland, yellow rocket, winter cress), Dandelion, Dock (sorrel), Endive (escarole), Lettuce (head and leaf), Orach, Parsley, Purslane (garden and winter), Raddicchio (red chicory), Spinach (including New Zealand and vine (Malabar spinach, Indian spinach)), Watercress (commercial production only, applications must not be made to native cress growing in streams or other bodies of water), Watercress (upland)

Pests Controlled	Rate fluid ounces/Acre (on 36 inch rows)
Aphids Whiteflies	10.0 – 24.0
Notes and Restrictions Pre-Harvest Interval (PHI): 21 days Maximum Couraze™ 2F allowed per application: 24.0 fluid ounces/Acre (0.38 lb AI/Acre) Applications Apply specified dosage of Couraze™ 2F in one of the following methods: <ol style="list-style-type: none">1. Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment;2. In-furrow spray directed on or below seed;3. Narrow (2" or less) surface band spray over seed-line during planting incorporated to a depth of 1 to 1 1/2" with sufficient irrigation within 24 hours of application;4. Narrow band spray directly below eventual seed row in bedding operation 14 or fewer days before planting;5. Post-seeding drench, transplant-water drench, or hill drench;6. Subsurface side-dress on both sides of each row. Couraze™ 2F must be incorporated into root-zone. ^{1/} Not for use on crops grown for seed unless allowed by state-specific supplemental labeling.	

LEAFY PETIOLE VEGETABLES^{1/}

Including: Cardoon, Celery, Celtuce, Chinese celery (fresh leaves and stalk only), Florence fennel (including sweet anise, sweet fennel, Finocchio), Rhubarb, Swiss chard

Pests Controlled	Rate fluid ounces/Acre
Aphids Leafhoppers Whiteflies	10.0 – 24.0
Notes and Restrictions Pre-Harvest Interval (PHI): 45 days Maximum Couraze™ 2F allowed per application: 24.0 fluid ounces/Acre (0.38 lb AI/Acre) Applications Apply specified dosage of Couraze™ 2F in one of the following methods: <ol style="list-style-type: none">1. Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment;2. In-furrow spray directed on or below seed;3. Narrow (2" or less) surface band spray over seed-line during planting incorporated to a depth of 1 to 1 1/2" with sufficient irrigation within 24 hours of application;4. Narrow band spray directly below eventual seed row in bedding operation 14 or fewer days before planting;5. Post-seeding drench, transplant-water drench, or hill drench;6. Subsurface side-dress on both sides of each row. Couraze™ 2F must be incorporated into root-zone. ^{1/} Not for use on crops grown for seed unless allowed by state-specific supplemental labeling.	

LEGUME VEGETABLES ^{1/} except soybean, dry

Edible Podded and Succulent Shelled Pea and Bean and Dried Shelled Pea and Bean

Bean (*Lupinus* spp., includes grain lupin, sweet lupin, white lupin, and white sweet lupin)Bean (*Phaseolus* spp., includes field bean, kidney bean, lima bean, navy bean, pinto bean, runner bean, snap bean, tepary bean, wax bean)Bean (*Vigna* spp., includes adzuki bean, asparagus bean, blackeyed pea, catjang, Chinese longbean, cowpea, Crowder pea, moth bean, mung bean, rice bean, Southern pea, urd bean, yardlong bean)Pea (*Pisum* spp., includes dwarf pea, edible-pod pea, English pea, field pea, garden pea, green pea, snow pea, sugar snap pea)

Other Beans and Peas [Broad bean (fava), Chickpea (garbanzo bean), Guar, Jackbean, Lablab bean (hyacinth bean), Lentil, Pigeon pea, Soybean (immature seed), Sword bean]

Pests Controlled	Rate fluid ounces/Acre
Aphids Leafhoppers Thrips (foliage-feeding thrips only) Whiteflies	16.0 – 24.0
Pests / Diseases Suppressed	
Symptoms of: Bean common mosaic virus (BCMV) Bean golden mosaic virus (BGMV) Beet curly top hybrigeminivirus (BCTV)	16.0 – 24.0
<p>Notes and Restrictions Pre-Harvest Interval (PHI): 21 days Maximum Couraze™ 2F allowed per crop season: 24.0 fluid ounces/Acre (0.38 lb AI/Acre)</p> <p>Applications Apply specified dosage of Couraze™ 2F in one of the following methods:</p> <ol style="list-style-type: none"> 1. Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment; 2. In-furrow spray at planting directed on or below seed; 3. In a narrow (2" or less) surface band over seed-line during planting incorporated to a depth of 1 to 1 1/2" with sufficient irrigation within 24 hours following application; 4. In a narrow band directly below the eventual seed row in a bedding operation 7 or fewer days before planting; 5. As a post-seeding drench, transplant drench, or hill drench. <p>^{1/} Not for use on crops grown for seed unless allowed by state-specific supplemental labeling.</p>	

ROOT VEGETABLES ^{1/}

Including: Beet (garden)^{2/}, Burdock (edible)^{2/}, Carrot^{2/}, Celeriac^{2/}, Chervil (turnip-rooted)^{2/}, Chicory^{2/}, Ginseng, Horseradish, Parsley (turnip-rooted), Parsnip^{2/}, Radish^{2/}, Oriental radish (diakon)^{2/}, Rutabaga^{2/}, Salsify (oyster plant), Salsify (black)^{2/}, Salsify (Spanish), Skirret and Turnip^{2/}.

Pests Controlled	Rate fluid ounces/1000 row-feet	Rate fluid ounces/Acre
Aphids Flea beetles Leafhoppers Whiteflies	0.7 – 1.7	10.0 – 24.0

Notes and Restrictions

Pre-Harvest Interval (PHI): **21 days**

Maximum Couraze™ 2F allowed per crop season: **24.0 fluid ounces/Acre** (0.38 lb AI/Acre)

Maximum Couraze™ 2F applications per crop season: **1**

Applications

Apply specified dosage of Couraze™ 2F in one of the following methods:

1. Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment;
2. In-furrow spray (rate specified per 1000 row-feet) or, shanked-in 1 to 2 inches below seed depth during planting;
3. In a narrow (2 inches or less) band directly (1 to 2 inches) below the eventual seed row in a bedding operation 14 or fewer days before planting.

Important Note: The rate applied affects the length of control. Use higher rates where infestations occur later in crop development, or where pest pressure is continuous. Couraze™ 2F rates less than 0.7 fluid ounces/1000 row-feet will not provide adequate residual pest control. Couraze™ 2F treated crops grown on very high organic matter soils (muck) may also require additional pest management control.

^{1/} Not for use on crops grown for seed unless allowed by state-specific supplemental labeling.

^{2/} Tops or greens from these crops may be utilized for food or feed.

TUBEROUS and CORM VEGETABLES ^{1/}

Including: Arracacha, Arrowroot, Artichoke (Chinese and Jerusalem), Canna (edible, Queensland arrowroot), Cassava (bitter & sweet)^{2/}, Chayote (root), Chufa, Dasheen (taro)^{2/}, Ginger, Leren, Sweetpotato, Tanier (cocoyam)^{2/}, Turmeric, Yam bean (jicama, manioc pea), Yam (true)^{2/} (For recommended applications on potato see Field Crops section)

Pests Controlled	Rate fluid ounces/1000 row-feet	Rate fluid ounces/Acre
Aphids Flea beetles Leafhoppers Whiteflies	0.7 – 1.7	10.0 – 24.0
<p>Notes and Restrictions Pre-Harvest Interval (PHI) from planting application: 3 days (leaves); 125 days (corms) Maximum Couraze™ 2F allowed per crop season: 24.0 fluid ounces/Acre (0.38 lb AI/Acre) Maximum Couraze™ 2F applications per crop season: 1</p> <p>Applications Apply specified dosage of Couraze™ 2F in one of the following methods:</p> <ol style="list-style-type: none">1. In-furrow spray (rate specified per 1000 row-feet) over planting material (hulis) or shanked-in 1 to 2 inches below hulis depth at planting;2. Side-dress not more than 0.6 fluid ounces/1000 row-feet no later than 45 days after-planting. Observe same PHI as above. <p>Important Note: The rate applied affects the length of control. Use higher rates where infestations occur later in crop development, or where pest pressure is continuous. Couraze™ 2F rates less than 0.7 fluid ounces/1000 row-feet may not provide adequate residual pest control. Couraze™ 2F treated crops grown on very high organic matter soils (muck) may also require additional pest management control.</p> <p>^{1/} Not for use on crops grown for seed unless allowed by state-specific supplemental labeling. ^{2/} Tops or greens from these crops <u>may</u> be utilized for food or feed.</p>		

STRAWBERRY ^{1/2}

Annual And Perennial Crops	
Pests Controlled	Rate fluid ounces/Acre
Aphids Whiteflies	24.0 – 32.0
Notes and Restrictions: Pre-Harvest Interval (PHI): 14 days Maximum Couraze™ 2F allowed per crop season: 32.0 fluid ounces/Acre (0.50 lb AI/Acre)	
Applications: Apply specified dosage of Couraze™ 2F in one of the following methods: <ol style="list-style-type: none">1. Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment after plants are established or on perennial crops in early spring prior to bud opening;2. As a plant material or plant hole treatment just prior to, or during transplanting. The rate applied affects the length of control. Use higher rates where infestations may occur later in crop development or where pest pressure is continuous.	
Post-harvest Use on Perennial Crops	
Pests Controlled	Rate fluid ounces/Acre
White grub complex (grubs of Asiatic garden beetle, European and Masked chafer, Japanese beetle, Oriental beetle)	16.0 – 24.0
Notes and Restrictions Pre-Harvest Interval (PHI): 14 days Maximum Couraze™ 2F allowed per crop season: 24.0 fluid ounces/Acre (0.38 lb AI/Acre)	
Applications Apply a single application post harvest to coincide with renovation of strawberry fields and during active egg-laying period of beetles. Apply specified dosage of Couraze™ 2F in one of the following methods: <ol style="list-style-type: none">1. As a ground spray via boom or backpack sprayer in a minimum of 20 gallons of water per acre;2. As a row-band spray using an adjusted amount of product based on the treated row band area in proportion to the amount required per full acre. The bandwidth should be equivalent to the width of the anticipated fruiting bed;3. As a chemigation application with 600 to 1000 gallons of water followed by 0.10 to 0.25 inches irrigation. Important Note: All soil-surface applications must be followed by 0.25 inches of rainfall or overhead irrigation water per acre within 2 hours of application. Failure to adequately incorporate Couraze™ 2F into egg-deposition zone may result in decreased activity of beetle grubs.	
^{1/2} Not for use on crops grown for seed unless allowed by state-specific supplemental labeling.	
^{2/} Do not use both application methods on the same crop in the same season.	

SUGARBEET^{1/}

(for use only in CA)

Pests Controlled	Rate fluid ounces/Acre
Aphids Leafhoppers Whiteflies Flea beetles	6.0 – 12.0
Pests / Diseases Suppressed	
Symptoms of: Western yellows / Beet curly top hybrigeminivirus (BCTV)	6.0 – 12.0
Notes and Restrictions Maximum Couraze™ 2F allowed per crop season: 12.0 fluid ounces/Acre (0.18 lb AI/Acre) Maximum imidacloprid allowed per season: 0.18 lb AI/Acre (from any formulation) on any row spacing Applications Apply specified dosage of Couraze™ 2F in the following method: 1. Apply specified dosage in sufficient carrier volume to insure uniform application. Apply directly below each seed furrow either during the bedding operation immediately prior to planting or at the time of planting. The low rate may be applied to aid establishment of stands in whitefly areas, or for early season control of the other pests listed. ^{1/} Not for use on crops grown for seed unless allowed by state-specific supplemental labeling.	

Couraze™ 2F INSECTICIDE CONVERSION CHART FOR LINEAR APPLICATION

RATE fluid ounces/Acre	RATE fluid ounces/1000 row-feet Based on <u>average</u> row spacing (in inches):							
	10	15	20	25	30	35	40	45
10	0.19	0.29	0.38	0.48	0.57	0.67	0.76	0.86
12	0.23	0.34	0.46	0.57	0.69	0.80	0.92	1.03
14	0.27	0.40	0.54	0.67	0.80	0.94	1.07	1.21
16	0.31	0.46	0.61	0.77	0.92	1.07	1.22	1.38
18	0.34	0.52	0.69	0.86	1.03	1.21	1.38	1.55
20	0.38	0.57	0.76	0.96	1.15	1.34	1.53	1.72
22	0.42	0.63	0.84	1.05	1.26	1.47	1.68	1.89
24	0.46	0.69	0.92	1.15	1.38	1.61	1.84	2.07
26	0.50	0.75	0.99	1.24	1.49	1.74	1.99	2.24
28	0.54	0.80	1.07	1.34	1.61	1.87	2.14	2.41
30	0.57	0.86	1.15	1.43	1.72	2.01	2.29	2.58
32	0.61	0.92	1.22	1.52	1.84	2.14	2.45	2.75

Important Note: The Couraze™ 2F rate applied affects the length of control and to a considerable extent, the degree of control or effect. Row-spacing X Couraze™ 2F rate combinations in shaded blocks may not provide adequate residual pest control and are not recommended for long-term, residual control. Use higher labelled rates where infestations may occur later in crop development or where pest pressure is continuous. Cheminova offers no warranty for use of Couraze™ 2F at rates below 0.7 fluid ounces/1000 row-feet.

TREE, BUSH and VINE CROPS
Recommended Applications – Couraze™ 2F Insecticide

BUSHBERRY

Including: Blueberry, Currant, Elderberry, Gooseberry, Huckleberry, Juneberry, Ligonberry, Salal

Pests Controlled	Rate fluid ounces/Acre
Japanese beetle (adults, feeding on foliage)	16.0 – 32.0
White grub complex (grubs of Asiatic garden beetle, European and Masked chafer, Japanese beetle and Oriental beetle)	

Notes and Restrictions

Pre-Harvest Interval (PHI): **7 days**

Maximum Couraze™ 2F allowed per season: **32.0 fluid ounces/Acre** (0.50 lb AI/Acre)

Applications

Apply specified dosage of Couraze™ 2F in one of the following methods:

1. Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment;
2. 18-inch band on each side of the row followed with 0.25 inches of irrigation immediately after application.

For optimal grub control, apply Couraze™ 2F to control 1st or 2nd instar larvae. Application may be made post-bloom up to 7 days prior to harvest, or post-harvest until October 1st. For optimum control of Japanese beetle larvae, make applications from June 1 to July 15. Do not apply during bloom.

Application to grass covered rows, row middles, drive lanes, headlands, and other grassy areas in and around the berry field will control resident grub populations. Applications directed to the root-zone will help protect berry plant roots from grub feeding.

Apply Couraze™ to moist soil. If necessary, apply one hour of irrigation water immediately before application of Couraze™ 2F. To ensure maximum efficacy, 1/2 to 1 inch of irrigation water or rainfall should be applied or received within 24 hours of application of Couraze™ to facilitate movement into the soil and into the root-zone.

CITRUS (Containerized)

Including: Calamondin, Citrus citron, Citrus hybrids (includes chironja, tangelo, and tangor), Grapefruit, Kumquat, Lemon, Lime, Mandarin (tangerine), Pummelo, Orange (sweet and sour), Tangelo, Satsuma mandarin, White sapote (*Casimiroa* spp), and other cultivars and/or hybrids of these.

Pests Controlled	Rate mL/ft³ container media
Aphids Asian citrus psyllid Black fly Citrus leafminer Leafhoppers/sharpshooters Mealybugs Scales Whiteflies	0.75
Citrus root weevil (larval complex)	1.25 – 2.50
Pests / Diseases Suppressed	
Citrus thrips	2.50
Application Determine volume of container and calculate dosage necessary to treat container. Apply calculated dosage of Couraze™ 2F per container as a soil drench or through low-pressure drip or trickle irrigation water. Use sufficient carrier volume to ensure thorough uniform distribution throughout the media without loss of gravitational water from the container. For optimal results, treatment should be made at planting prior to insect infestation. Retreat if necessary. For control of larvae of the citrus root weevil complex, application should be made prior to neonate larvae entering potting media. Utilize higher dosage for heavy infestations.	

CITRUS (Field)

Including: Calamondin, Citrus citron, Citrus hybrids (includes chironja, tangelo, and tangor), Grapefruit, Kumquat, Lemon, Lime, Mandarin (tangerine), Pummelo, Orange (sweet and sour), Tangelo, Satsuma mandarin, White sapote (*Casimiroa* spp), and other cultivars and/or hybrids of these.

Pests Controlled	Rate fluid ounces/Acre
Aphids Asian citrus psyllid Black fly Citrus leafminer Leafhoppers/sharshooters Mealybugs Scales Termites (FL only) Whiteflies	16.0 – 32.0
Pests / Diseases Suppressed	
Symptoms of: Citrus tristeza virus (CTV) through vector control Citrus yellows Thrips (foliage feeding thrips only)	32.0
Notes and Restrictions	
Pre-Harvest Interval (PHI): 0 day	
Maximum Couraze™ 2F allowed per season: 32.0 fluid ounces/Acre (0.50 lb AI/Acre)	
Applications	
Apply specified dosage of Couraze™ 2F in one of the following methods:	
<ol style="list-style-type: none">1. Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment. For optimum results, apply to newly planted trees or those previously trained to drip, trickle or micro-sprinkler irrigation. Soil should be lightly pre-wetted to break soil surface tension prior to applications of Couraze™ 2F. Chemigation application can be made separate to normal irrigation but followed by 10 to 20 minutes of additional watering to move Couraze™ 2F into root-zone. Allow 24 hours before initiating subsequent irrigations;2. Soil surface band spray on both sides of the tree. Bands should overlap at the tree base to create a continuous band within the drip-line area of the tree, to be followed immediately with light sprinkler irrigation sufficient to move the product into the upper portion of the root-zone. This method is suitable for very coarse soils with 0.75% organic matter or less;3. Drench to base of tree not exceeding one-quart total solution per tree immediately around trunk of tree and extending outward covering the entire fibrous root system of the tree. Only recommended for trees up to 8 feet tall;4. For control of existing termite infestations, apply specified dosage in 1 to 4 quarts of total solution volume, depending on size of tree, as a drench application to the basal portion of the tree trunk and surrounding soil in the immediate vicinity of the tree trunk.	

CRANBERRY

Pests Controlled	Rate fluid ounces/Acre
Rootgrubs (Scarabaeidae) Rootworms (Chrysomelidae)	16.0 – 32.0
<p>Notes and Restrictions Pre-Harvest Interval (PHI): 30 days Maximum Couraze™ 2F allowed per season: 32.0 fluid ounces/Acre (0.50 lb AI/Acre) Do not apply during bloom.</p> <p>Applications Apply Couraze™ 2F to moist soil. Apply specified dosage of Couraze™ 2F in one of the following methods:</p> <ol style="list-style-type: none">1. As a soil spray (ground application) directed to the root and crown area using a minimum of 20 gal of water per acre;2. As a chemigation application with 600 to 1000 gal water. <p>Immediately upon application, Couraze™ 2F must be incorporated into root-zone by 0.1 - 0.3 inches water/Acre, either with the chemigation application or through irrigation/rainfall if not applied through chemigation. Inadequate incorporation within 24 hours of application may result in reduced control.</p> <p>Rootgrubs and Rootworms Best control may be achieved when application is made post-bloom immediately after bees are removed. Applications should target early instar larvae. Couraze™ 2F has not been tested for crop response in tank mixes with other registered fungicides or insecticides. If tank mixing is desired, premix a sample of the Couraze™ 2F and the desired fungicide or insecticide partner at labeled rates and apply to a small area. Evaluate crop response within 48 hours and for at least two weeks prior to utilizing the tank mix on larger acreage. If crop injury results from the premix test, do not apply the tank mix to larger acreage.</p>	

GRAPE

Including: American bunch grape, Muscadine grape and Vinifera grape

Pests Controlled	Rate fluid ounces/Acre
Mealybugs Leafhoppers/sharshooters <i>Phylloxera</i> ^a spp	16.0 – 32.0
Pests / Diseases Suppressed	
Pierce's disease	24.0 – 32.0
Notes and Restrictions	
Pre-Harvest Interval (PHI): 30 days	
Maximum Couraze™ 2F allowed per season: 32.0 fluid ounces/Acre (0.50 lb AI/Acre)	
Applications	
Apply specified dosage of Couraze™ 2F in one of the following methods:	
1. Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment;	
2. Subsurface side-dress shanked into the root-zone on both sides of the plants followed by irrigation;	
3. Hill drench in sufficient water to insure incorporation into the root-zone followed by irrigation.	
For optimum results, make application(s) between bud-break and the pea-berry stage.	
^a Repeated and regular use of Couraze™ 2F over several, consecutive growing seasons controls existing <i>Phylloxera</i> infestations over time or prevents <i>Phylloxera</i> from becoming established.	

HOP^{1/2}

Pests Controlled	Rate fluid ounces/Acre
Aphids	19.2
Notes and Restrictions	
Pre-Harvest Interval (PHI): 60 days	
Maximum Couraze™ 2F allowed per season: 19.2 fluid ounces/Acre (0.3 lb AI/Acre)	
Applications	
Apply specified dosage of Couraze™ 2F in one of the following methods:	
1. Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment;	
2. Subsurface side-dress shanked into the root-zone on both sides of the plants followed by irrigation;	
3. Hill drench in sufficient water to insure incorporation into the root-zone followed by irrigation.	
^{1/2} Use not permitted in California unless otherwise directed by supplemental labeling.	

PECAN

Pests Controlled	Rate fluid ounces/Acre
Aphids Twolined spittlebug	16.0 – 32.0
Pests / Diseases Suppressed	
Pecan scab (from reduction in honeydew deposition)	16.0 – 32.0
Notes and Restrictions Maximum Couraze™ 2F allowed per season: 32.0 fluid ounces/Acre (0.50 lb AI/Acre) Applications can be made from May 15 up to July 15. Applications made later in the season may result in reduced efficacy. Apply product to slightly moist soil and allow soil to dry prior to additional irrigation.	
Applications Apply specified dosage of Couraze™ 2F in one of the following methods: 1. Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment; 2. Emitter or spot application in a minimum of 4 fluid ounces of mixture per emitter site; 3. Subsurface side-dress shanked into the root-zone near emitter line. Treat distance, wetted by the emitter set of each tree;	

POME FRUIT^{1/}

Including: Apple, Crabapple, Loquat, Mayhaw, Pear (including Oriental pear), Quince

Pests Controlled	Rate fluid ounces/Acre
Aphids (including wooly apple aphid) Leafhoppers	16.0 – 24.0
Notes and Restrictions Pre-Harvest Interval (PHI): 21 days Maximum Couraze™ 2F allowed per season: 24.0 fluid ounces/Acre (0.38 lb AI/Acre) Do not apply pre-bloom or during bloom or when bees are actively foraging.	
Applications Apply specified dosage of Couraze™ 2F in the following method: 1. Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment. ^{1/} Use not permitted in California unless otherwise directed by supplemental labeling.	

STONE FRUIT^v

Including: Apricot, Cherry (including sweet and tart), Nectarine, Peach, Plum (including Chickasaw, Damson and Japanese), Plumcot, Prune (fresh and dried)

In-field, Soil Application	
Pests Controlled	Rate fluid ounces/Acre
Aphids (including wooly apple aphid) Leafhoppers	16.0 – 24.0
Notes and Restrictions: Pre-Harvest Interval (PHI): 21 days Maximum Couraze™ 2F allowed per season: 24.0 fluid ounces/Acre (0.38 lb AI/Acre) Do not apply pre-bloom or during bloom or when bees are actively foraging.	
Applications Apply specified dosage of Couraze™ 2F in the following method: 1. Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment. ^v Use not permitted in California unless otherwise directed by supplemental labeling.	
Pre-plant, Root Dip Application	
Pests Controlled	Rate fluid ounces/10 gallons root-dip solution
Black peach aphid (infesting roots)	2.0
Mix Couraze™ 2F at 2.0 fluid ounces per 10 gallons of water. Thoroughly wet bare-root transplant to slightly above the graft union by soaking roots in the Couraze™ 2F solution for up to 5 minutes. Allow solution to dry on roots and transplant trees as soon as possible following treatment.	

TROPICAL FRUIT^{1/}

Including: Acerola, Avocado, Black sapote, Canistel, Feijoa, Jaboticaba, Guava, Longan, Lychee, Mamey sapote, Mango, Papaya, Passionfruit, Persimmon, Pulasan, Rambutan, Sapodilla, Spanish lime, Star apple, Starfruit, Wax jambu

Pests Controlled	Rate fluid ounces/Acre
Aphids Leafhoppers Whiteflies	24.0 – 32.0
Pests/Diseases Suppressed	
Scales	32.0
Notes and Restrictions Pre-Harvest Interval (PHI): 6 days Maximum Couraze™ 2F allowed per application: 32.0 fluid ounces/Acre (0.50 lb AI/Acre) Do not apply pre-bloom or during bloom or when bees are actively foraging.	
Applications Apply specified dosage of Couraze™ 2F in the following method: 1. Chemigation through low-pressure drip, trickle, micro-sprinkler or equivalent equipment.	
^{1/} Use not permitted in California unless otherwise directed by supplemental labeling.	

POPLAR / COTTONWOOD^{1/}

(includes members of the genus *Populus* grown for pulp or timber)

Pests Controlled	Rate fluid ounces/Acre
Aphids Cottonwood leaf beetle	16.0 – 32.0
Pests/Diseases Suppressed	
<i>Phylloxera popularia</i>	16.0 – 32.0
Notes and Restrictions Maximum Couraze™ 2F allowed at-plant per crop season: 32.0 fluid ounces/Acre (0.50 lb AI/Acre) Do not apply pre-bloom or during bloom or when bees are actively foraging.	
Applications Apply specified dosage of Couraze™ 2F in the following method: 1. Chemigation through low-pressure drip irrigation. For Cottonwood leaf beetle, protection against damage will occur when application is made early, when the beetles first begin feeding. Larger trees may require earlier treatment as a result of slower uptake. For <i>Phylloxera</i> , apply early in the year, from break of dormancy through May.	
^{1/} Use not permitted in California unless otherwise directed by supplemental labeling.	

WARRANTY DISCLAIMER

Cheminova warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. CHEMINOVA MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

INHERENT RISKS OF USE

It is impossible to eliminate all risks associated with use of this product. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of Cheminova or the seller. All such risks shall be assumed by Buyer.

LIMITATION OF REMEDIES

The exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at Cheminova's election, one of the following:

- (1) Refund of purchase price paid by buyer or user for product bought, or
- (2) Replacement of amount of product used.

Cheminova shall not be liable for losses or damages resulting from handling or use of this product unless Cheminova is promptly notified of such loss or damage in writing. In no case shall Cheminova be liable for consequential or incidental damages or losses.

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Couraze™ 2F Insecticide

For uses in pest management and suppression of insect vectored diseases and maintenance of plant health.

ACTIVE INGREDIENT:

Imidacloprid, 1-[(6-Chloro-3-pyridinyl)methyl]-N-nitro-2-imidazolidinimine **21.4%**

OTHER INGREDIENTS: **78.6%**

Contains 2 pounds of imidacloprid per gallon. **100.0%**

SHAKE WELL BEFORE USING

EPA Reg. No. 264-758-67760

STOP - Read the label before use

KEEP OUT OF REACH OF CHILDREN CAUTION

For **PRODUCT USE** Information Call **1-800-548-6113**

For **MEDICAL Emergencies ONLY** Call **24 Hours**

A Day 1-866-303-6950

For **TRANSPORTATION Emergencies** Call

ChemTrec at 1-800-424-9300

FIRST AID

IF SWALLOWED:	<ul style="list-style-type: none">• Call a poison control center or doctor immediately for treatment advice.• Have person sip a glass of water if able to swallow.• Do not induce vomiting unless told to do so by a poison control center or doctor.• Do not give anything by mouth to an unconscious person.
IF IN EYES:	<ul style="list-style-type: none">• Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.• Call a poison control center or doctor for treatment advice.
IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none">• Take off contaminated clothing.• Rinse skin immediately with plenty of water for 15 to 20 minutes.• Call a poison control center or doctor for treatment advice.

In case of emergency call toll free 1-866-303-6950.

Have a product container or label with you when calling a poison control center or doctor, or going for treatment.

Note To Physician: No specific antidote is available. Treat the patient symptomatically.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Harmful if swallowed or absorbed through skin. Avoid contact with skin, eyes, or clothing.

FOR ADDITIONAL PRECAUTIONARY STATEMENTS:

See attached label booklet:

Personal Protective Equipment (PPE).

User Safety Recommendations, and Environmental Hazards

DIRECTIONS FOR USE: See attached booklet.

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

Pesticide Storage: Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

Handle and open container in a manner as to prevent spillage. If the container is leaking, invert to prevent leakage. If container is leaking or material spilled for any reason or cause, carefully dam up spilled material to prevent runoff. Refer to Precautionary Statements on label for hazards associated with the handling of this material. Do not walk through spilled material. Absorb spilled material with absorbing type compounds and dispose of as directed for pesticides below. In spill or leak incidents, keep unauthorized people away. You may contact ChemTrec for decontamination procedures or any other assistance that may be necessary. The ChemTrec telephone number is 1-800-424-9300.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

FORMULATED FOR

CHEMINOVA

1700 Route 23, Suite 300

Wayne, NJ 07470

NET CONTENTS:

1 GAL. (3.785 L)

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