



U.S. ENVIRONMENTAL PROTECTION AGENCY
 Office of Pesticide Programs
 Registration Division (7505C)
 401 "M" St., S.W.
 Washington, D.C. 20460

EPA Reg. Number:
 33658-2

Date of Issuance:
FEB 27 1997

NOTICE OF PESTICIDE:
 Registration
 Reregistration

Term of Issuance: **Until Reregistration**

Name of Pesticide Product:
Gharda Chlorpyrifos 4E-NA

(under FIFRA, as amended)

Name and Address of Registrant (include ZIP Code):

**Gharda Chemicals Limited
 48, Hill Road
 Bandra (West)
 Bombay 400 050
 India**

Notes: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA sec. 3(c) (7) (A) provided that you:

1. Submit and/or cite all data required for registration of your product under FIFRA sec. 3(c) (5) when the Agency requires all registrants of similar products to submit such data; and submit acceptable responses required for reregistration of your product under FIFRA section 4.
2. Change the label by revising the EPA Registration Number to read, "EPA Reg. No. 33658-2."
3. Generate storage stability data as required by 40 CFR Part 158. The data must be maintained for submission to the Agency upon request.

Signature of Approving Official:

/s/

**Dennis H. Edwards, Jr.
 Product Manager (19)
 Insecticide-Rodenticide Branch
 Registration Division (7505C)**

Date:

FEB 27 1997

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4. Submit two copies of the revised final printed label for the record.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

A stamped copy of the label is enclosed for your records.

Sincerely yours,

/s/

Dennis H. Edwards, Jr.
Product Manager (19)
Insecticide-Rodenticide Branch
Registration Division (7505C)

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ACCEPTED
with COMMENTS
in EPA Letter Dated

FEB 27 1997

GHARDA CHLORPYRIFOS 4E-NA

Specialty Insecticide

Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg. No.

33658-2

To be applied only by or under the direct supervision of commercial applicators responsible for insect control programs. Sale to or use by persons owning or occupying a dwelling is strictly prohibited.

Active Ingredient:
chlorpyrifos: O,O-diethyl O-(3,5,6-trichloro-2-pyridinyl)phosphorothioate 42.0%
Inert Ingredients: 58.0%
Total 100.0%
Contains 4 pounds of chlorpyrifos per gallon.

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

WARNING

AVISO

May Be Fatal If Swallowed • Harmful If Absorbed Through The Skin • Causes Moderate Eye and Skin Irritation • Prolonged Or Frequently Repeated Skin Contact May Cause Allergic Reactions In Some Individuals

Do not get in eyes, on skin or clothing. Avoid breathing vapors and spray mist. Handle concentrate in a ventilated area. When handling concentrate wear eye protection and protective clothing such as long-sleeved shirt, long-legged pants, rubber gloves and footwear, i.e. neoprene or nitrile butadiene rubber, resistant to aromatic solvents. Wash thoroughly with soap and water after handling and before eating or smoking. Remove contaminated clothing and wash before reuse. Keep away from food, feedstuffs and water supplies.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to birds and wildlife, and extremely toxic to fish and aquatic organisms. Do not apply directly to water. Drift and runoff from treated areas may be hazardous to aquatic organisms in adjacent aquatic sites. Cover or incorporate spills. 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.

PHYSICAL OR CHEMICAL HAZARDS

Do not use or store near heat or open flame.

KEEP OUT OF REACH OF CHILDREN

WARNING

AVISO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

STATEMENT OF PRACTICAL TREATMENT

Organophosphate

Swallowed: Call a physician or Poison Control Center immediately. Do not induce vomiting. Contains an aromatic petroleum solvent. Do not give anything by mouth to an unconscious person.

If on skin: Immediately wash with plenty of soap and water. Get medical attention.

If in eyes: Flush with plenty of water for 15 minutes. Get medical attention.

If inhaled: Remove to fresh air if symptoms of cholinesterase inhibition appear and get medical attention immediately.

Note to physician: Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). Atropine, only by injection, is the preferable antidote. Oximes, such as 2-PAM/protopam, may be therapeutic if used early; however, use only in conjunction with atropine. In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration.

DIRECTIONS FOR USE

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

Read all Directions for Use carefully before applying.

Chemigation: Do not apply this product through any type of irrigation system.

Do not formulate this product into any other end-use products.

Not for use on plants being grown for sale or other commercial use, or for commercial seed production, or for research purposes. For use on plants intended for aesthetic purposes or climatic modification and being grown in interior landscapes, ornamental gardens or parks, or on golf courses or lawns and grounds.

MFG. BY:
EPA Establishment No.:
EPA Registration No.:
Net Contents:

Gharda Chemicals Limited
33658-IND-001
33658-(To Be Assigned)

BEST AVAILABLE COPY

General Information

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal. Storage: Store in original container in secured dry storage area. Prevent cross-contamination with other pesticides and fertilizers. Do not store above 100°F for extended periods of time. Storage below 20°F may result in formation of crystals. If product crystallizes, store at 50 to 70°F and agitate to redissolve crystals. If container is damaged or spill occurs, use product immediately or dispose of product and damaged container as indicated below.

Pesticide Disposal: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your state pesticide or environmental control agency, or the hazardous waste representative at the nearest EPA regional office for guidance.

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

Gharda 4E-NA insecticide is an emulsifiable concentrate designed for use as a spray to control various pests injurious to trees, turf and ornamental plants. The pests controlled are listed in the accompanying tables. Gharda 4E-NA is compatible with insecticides, miticides and fungicides commonly recommended except for alkaline materials such as Bordeaux mixture and lime. A small amount of spray mixture should be prepared to check for compatibility before a large volume of spray is mixed.

Attention: Do not allow adults, children or pets on treated areas until spray has dried. Keep out of fishpools and other bodies of water. Do not treat vegetable gardens. Do not allow livestock to graze in treated areas. Do not feed treated grass cuttings (hay) or seed screenings to livestock nor use hay for livestock bedding. Do not use in poultry houses.

Turf and Other Outdoor Uses

Use Gharda 4E-NA to control the pests listed in the following table by applying at the recommended dosages and in accordance with the directions given below. Dilute Gharda 4E-NA in water and apply as a coarse, low pressure spray using suitable application equipment. Thoroughly water immediately after treatment to wash the insecticide into the turf, except as noted. For best results, the lawn should be moist at the time of treatment. Spray when pests first appear; retreat when needed.

Pest*	Amount of Gharda 4E-NA In Water to Make		Specific Directions
	1 gal	100 gal	
Ticks ¹ (American dog) (Cattle fever) (Gulf coast) (Lone star)	1/4 fl oz	1 1/2 pt	1. For control of ticks infesting corrals, stockyards, holding pens and other outdoor livestock areas. Treat soil in corrals and pens, especially in corners, under and around fences, grassy areas, protected areas under feeders and shelters and other areas likely to serve as harborage sites for ticks that have removed themselves from their host. Spray surfaces to be treated until wet, but do not create excessive runoff. Note: This application is intended as a premise spray only. Do not use as a direct spray on livestock. Take care to avoid creating mist or drift which may come into contact with feed, water or livestock. Livestock must not be allowed in treated areas until spray deposits have dried.
Pest*	Amount of Gharda 4E-NA per		Specific Directions
	1000 Sq Ft	Acre	
Ants (including foraging fire ants) Amyworms (Beet) (Fall) (Yellowstriped) Centipedes Chiggers ¹ Chinch Bugs Clover mites Cutworms Crickets Earwigs Fiery Skipper Fire ants (mounds) ² Fleas Gnats Grasshoppers Greenbugs June beetles	3/4 fl oz	1 qt	1. Use Gharda 4E-NA for area control of ticks and chiggers infesting non-cropland areas such as roadsides, footpaths and trails, picnic and camping sites, parks and other recreational areas where these pests are present and create a nuisance or a possible public health problem. Do not allow public use of treated areas during application or until spray has dried. Apply Gharda 4E-NA in water at the rate of 1/2 pint/acre (equivalent to 1/2 fl oz/2,700 sq ft) using a hydraulic sprayer, mist applicator, knapsack sprayer, or other suitable hand- or power-operated spray equipment. Treat low underbush, grassy areas, weeds, and ground surface and debris using enough spray volume to obtain thorough coverage, usually 40 - 100 gal/acre. 2. For individual fire ant mounds, apply Gharda 4E-NA as a drench, diluted at the rate of 1 fl oz (30 ml) per 4 gal of water. Gently sprinkle a total of 1 gal of the diluted emulsion over the surface of each mound using a gentle spray (such as a sprinkler can). Thoroughly wet mound and surrounding areas to a 4 ft diameter (12 sq ft). For best results, apply in cool weather, 65-80°F, or in early morning or late evening hours. Treat new mounds as they appear. Pressurized sprays may disturb the ants and cause migration, reducing product effectiveness.

*Superscripts refer to Specific Directions

Pest*	Amount of Gharda 4E-NA per		Specific Directions
	1000 Sq Ft	Acre	
Leafhoppers Lucerne moths Millipedes Mites (Clover) (Formula grass) (Winter grain) Mosquitos ² Sod webworms ⁴ (Lawn moths) Sowbugs Springtails Ticks ¹	3/4 fl oz	1 qt	3. Mosquitoes coming to rest on areas treated for control of turf pests will be killed for varying periods of time after treatment, depending on exposure of treated areas to weathering conditions. 4. For sod webworm, delay watering and mowing the treated area for 12-24 hours after treatment.
European crane fly	1 fl oz	1 1/2 qt	
Turfgrass weevil (Hyperodes) ¹	1 1/2 fl oz	2 qt	1. Spray suspected problem areas in mid-April and again in mid-May or as recommended by your local agricultural extension service specialist.
White grubs ¹ (Black turfgrass ataenius) (European chafer) (Japanese beetle larvae) (Southern masked chafer)	1 1/2-3 fl oz	2 qt-1 gal	1. For white grubs, spray when grubs are young and actively feeding near the soil surface, usually during late July and August or as recommended by your local agricultural extension service specialist. Immediately after spraying irrigate the treated area with 1/2 to 1 inch of water to wash the insecticide into the underlying soil.
Bluegrass billbugs ¹	3/4-3 fl oz	1 qt-1 gal	1. For bluegrass billbugs, spray early in the season when adults first appear. Re-treat as needed.

*Superscripts refer to Specific Directions

Residential Citrus

Use Gharda 4E-NA to treat grapefruit, lemon, orange and other citrus trees or tree fruit in residential areas. Use lower rates for light infestations, higher rates for heavy infestations. Treat when insects become a problem or in accordance with the local spray schedule recommended by your state extension service specialist. Do not apply to citrus if temperature exceeds 95°F. Gharda 4E-NA is highly toxic to bees exposed to direct treatment. Do not apply to drought, heat stressed, or flowering trees.

Restrictions: Do not make more than two applications per year. Do not make a second application within 30 days of the first application. Do not pick fruit for consumption until 21 days after application.

Pest	Amount of Gharda 4E-NA in Water to Make			Specific Directions
	1 gallon	3 gallons	100 gallons	
Aphids Katydid Lepidopterous larvae	1/10-1/5 fl oz	1/4-1/2 fl oz	1/2-1 pt	Use directions apply in all states.
Citrus thrips Mealybugs Scale insects (Black) (Brown soft) (California red) (Chaff) (Snow)	1/10-1/5 fl oz	1/4-1/2 fl oz	1/2-1 pt	Use directions apply in Florida only. California, apply as outside foliar coverage for citrus thrips and mealybugs through coverage of entire tree for scale insects.
Citrus rust mite	1/10-1/5 fl oz	1/4-1/2 fl oz	1/2-1 pt	Use directions apply in Florida only.

Pest Control on Outside Surface and Around Buildings

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Apply Gharda 4E-NA as a residual spray to outside surfaces of buildings including porches, window frames, eaves, patios, garages, refuse dumps and other areas where pests congregate or have been seen. Repeat treatment as needed to maintain effectiveness.

Pest*	Amount of Gharda 4E-NA in Water to Make			Specific Directions
	1 gallon	10 gallons	50 gallons	
Ants	For Band Treatment ¹			1. To help prevent infestation of buildings, treat a band of soil 6-10 ft wide around and adjacent to buildings, also the building foundation to a height of 2-3 ft where pests are active and may find entrance. Use 4 fl oz of Gharda 4E-NA per 50 gal of water and apply as a coarse spray at the rate of about 10 gal spray mixture per 1,000 sq ft to thoroughly and uniformly wet the band area. 2. For scorpions, treat or remove accumulations of lumber, firewood, and other materials which serve as insect harborage sites.
Bees				
Carpenter ants				
Clover mites	1/12 fl oz	3/4 fl oz	4 fl oz	
Cockroaches**				
Crickets				
Earwigs				
Fleas				
Flies				
Hornets	For Outside Surfaces			
Millipedes				
Mosquitos				
Scorpions ²	1 1/3 fl oz	13 1/3 fl oz	2 qt	
Silverfish				
Sowbugs				
Spiders				
Ticks				
Wasps				
Yellowjackets				

*Superscripts refer to Specific Directions.

**Controls American and smokey brown cockroaches.

Ornamentals

Use Gharda 4E-NA to treat flowers, shrubs, evergreens, vines, shade and flowering trees found to be infested with pests listed in the following table. Dilute Gharda 4E-NA with water according to directions given in the table and apply using suitable hand- or power-operated spray equipment in a manner to provide complete and uniform coverage. For best results, apply a coarse spray to thoroughly wet both upper and lower leaf surfaces and infested limb and trunk areas. Attempt to penetrate dense foliage, but avoid overspraying to the point of excessive runoff. Treat when pests appear and repeat at 7 to 10 day intervals, if needed.

Consult your state agricultural experiment station or extension service specialist for application timing and other specific use information.

Note: Environmental factors have significant effects on phytotoxic expression. Gharda 4E-NA has been tested on numerous ornamental plants without causing serious phytotoxicity. However, do not use on azaleas, camellias, poinsettias, rose bushes, or variegated ivy because of possible injury to these plants.

Pest*	Amount of Gharda 4E-NA in Water to Make			Specific Directions
	1 gallon	3 gallons	100 gallons	
Adelgids (Cooley) (Eastern spruce galls) (Pine bark) Ants (including foraging fire ants) Aphids (Apple) (Chrysanthemum) (Cottonwood) (Elm leaf) (Peach) (Rose) (Spirea) (Woolly) Armyworms (Fall) (Yellowstriped) Bagworms ¹ Boxelder bugs Cankerworms Catalpa sphinx Chiggers Citrus mealy bugs Cockroaches (American) (Brownbanded) (German) (Oriental) (Smokey brown) Elm spanworms Fall webworms Grasshoppers Green fruitworms Hornworms Jackpine budworms Juniper webworms Katydid Lace bugs Leafhoppers Leafrollers ² Maple leafcutters ³ Mites ⁴ (Clover) (Red spider) (Southern res) Oleander caterpillars Orange tortrix Periodical cicada Plant bugs Poplar tentmaker Psyllids Puss caterpillars Rose chaffers Sawflies, exposed (pin oak) (Pine) (Redheaded) Sowbugs Spittlebugs	1/12 fl oz	1/4 fl oz	8 fl oz	1. For bagworms, treat when insects are in the crawler stage. 2. For effective control of leafrollers, spray should be applied before leaves are tightly rolled. 3. For effective control of maple leafcutters on maple trees, apply spray to larvae as cases are being formed. Do not treat sugar maple trees intended for maple syrup production. 4. For effective control of spider mites when large numbers of eggs are present, apply a second spray 3-5 days in the south or 7-10 days in the north after initial treatment to control newly-hatched nymphs.

*Superscripts refer to Specific Directions.

Pest*	Amount of Gharda 4E-NA in Water to Make			Specific Directions
	1 gallon	3 gallons	100 gallons	
Spring elm caterpillars Springtails Spruce budworms Tent caterpillars (Eastern) (Forest) (Western) Thornbug Walnut caterpillars Western spruce budworms Whiteflies Yellownecked caterpillars	1/12 fl oz	1/4 fl oz	8 fl oz	
Armyworms (Beet) Beetles (Fuller rose) (Native elm bark) ¹ Cutworms Leafhoppers Mahogany webworms Mealybugs Mimosa webworms Moths (Browntail) (Cypress tip) (Douglas fir tussock) (European pine shoot) (Gypsy) ² (Holly bud) (Nantucket pine tip) (Pandora) (Pitch pine tip) (Subtropical pine tip) (Tussock) Oakworms (California) (Orangestriped) (Redhumped) Redhumped caterpillars Thrips (exposed) Weevils (Blackvine) ³ (Pine reproduction) (Yellow poplar)	1/6 fl oz	1/2 fl oz	1 pt	<ol style="list-style-type: none"> 1. To reduce twig and branch feeding by bark beetles, applications should be made in the early spring or early summer. 2. To kill migrating and invading gypsy moth larvae, treat trunks and foliage. 3. Blackvine weevils are night feeders. Late afternoon spraying will give control in some areas.
Beetles (Cottonwood leaf) ¹ (Elm leaf) (Flea) (Willow leaf)	1/5-1/3 fl oz	1/2-1 fl oz	1 pt to 1 qt	<ol style="list-style-type: none"> 1. For cottonwood leaf beetles, use Gharda 4E-NA in water to control larvae and adults infesting cottonwoods. Make the treatments when field counts indicate damaging beetle populations are developing or present.

*Superscripts refer to Specific Directions

Pest*	Amount of Gharda 4E-NA in Water to Make			Specific Directions
	1 gallon	3 gallons	100 gallons	
Borers [†] Clearwing moths (Ash) (Dogwood) (Lesser peachtree) (Lilac) (Oak) (Rhododendron) Metallic wood (Bronze birch) (Flatheaded apple tree) (Twolined chestnut) Longhorned beetles (Locust) (Red oak) Leafminers Needleminers (Jeffrey pine) (Lodgepole pine) (Spruce) Scale crawlers (Cottoncushion) (Cottony maple) (Euonymus) (Fletcher) (Florida wax) (Golden oak) (Hemispherical) (Lecanium) (Magnolia) (Oak kermes) (Oystershell) (Pine needle) (San Jose) (Tea) (White birch)	1/3 fl oz	1 fl oz	1 qt	1. For borers, apply Gharda 4E-NA to the trunks and lower limbs of trees and shrubs when the adults begin to emerge. Consult your state agricultural experiment station or extension service specialist for proper time to treat. Apply uniformly as a coarse low-pressure spray.
Borers (Cottonwood) (Peachtree) [†]	1 fl oz	3 fl oz	3 qt	1. For peachtree borers, apply Gharda 4E-NA in water to flowering trees and shrubs of the genus <i>Prunus</i> as a trunk spray before newly-hatched larvae enter the trees. Apply as a coarse, low-pressure spray. Thoroughly wet all bark areas from ground level to scaffold limbs.
Beetles [†] (Ambrosia) (Anobiidae) (Black turpentine) (Cottonwood leaf) (Elm Leaf) (European elm bark) (Flea) (Fuller rose) (Japanese) (June) (Native elm bark) (Southern pine) (Willow leaf)	2 2/3 fl oz	8 fl oz	2 gal	1. For preventative treatment, apply the spray to the main trunk of trees in the early spring or when threat of attack exists from nearby infested trees. For remedial treatment, apply the spray to the main trunk of infested trees when damage occurs but before adult beetles begin to emerge.

*Superscripts refer to Specific Directions

Tree Pests

Use Gharda 4E-NA to treat shade and flowering trees, and evergreens found to be infested with pests listed in the following table. Dilute Gharda 4E-NA with water according to directions given in the table and apply using suitable hand- or power-operated spray equipment in a manner to provide complete and uniform coverage. For best results, apply a coarse spray to thoroughly wet both upper and lower leaf surfaces and to infested limb and trunk areas. Attempt to

penetrate dense foliage, but avoid overspraying to the point of excessive runoff. Do not treat bearing fruit and nut trees with Gharda 4E-NA except as indicated in the Dormant Spray section. Treat when pests appear and repeat at 7 to 10 day intervals, if needed.

Consult your state agricultural experiment station or extension service specialist for application timing and other specific use information.

Pest*	Amount of Gharda 4E-NA in Water to Make			Specific Directions
	1 gallon	3 gallons	100 gallons	
Adelgids (Cooley) (Eastern spruce gall) (Pine bark) Aphids (Apple) (Chrysanthemum) (Cottonwood) (Elm leaf) (Peach) (Rose) (Spirea) (Woolly) Bagworms ¹ Boxelder bugs Cankerworms Catalpa sphinx Citrus mealybugs Elm spanworms Fall webworms Greenstriped mapleworms Jackpine budworms Juniper webworms Katydid Lace bugs Leafhoppers Leafrollers ² Maple leafcutters ³ Mites ⁴ (Clover) (Red spider) (Southern red) Oak skeletonizers Poplar tentmakers Puss caterpillars Sawflies exposed (Pin oak) (Pine) Spring elm caterpillars Spruce budworms Tent caterpillars (Eastern) (Forest) (Western) Walnut caterpillars Western spruce budworms Yellownecked caterpillars	1/12 fl oz	1/4 fl oz	8 fl oz	1. For bagworms, treat when insects are in the crawler stage. 2. For effective control of leafrollers, spray should be applied before leaves are tightly rolled. 3. For maple leafcutters on maple trees, apply spray to larvae as cases are being formed. Do not treat sugar maple trees intended for maple syrup production. 4. For effective control of spider mites, when large numbers of eggs are present, apply a second spray after 3-5 days in the south or 7-10 days in the north after initial treatment to control newly-hatched nymphs.

*Superscripts refer to Specific Directions.

Pest*	Amount of Gharda 4E-NA in Water to Make			Specific Directions
	1 gallon	3 gallons	100 gallons	
Beetles (Fuller rose) (Native elm bark) ¹ Leafhoppers Mahogany webworms Mealybugs Mimosa webworms Moths (Browntail) (Cypress tip) (Douglas fir tussock) (European pine shoot) (Gypsy) ² (Holly bud) (Nantucket pine tip) (Pandora) (Pitch pine tip) (Subtropical pine tip) (Tussock) Oakworms (California) (Orangestriped) (Redhumped) Redhumped caterpillars Thrips (exposed) Weevils (Blackvine) ³ (Pine reproduction) (Yellow poplar)	1/6 fl oz	1/2 fl oz	1 pt	1. To reduce twig and branch feeding by bark beetles, applications should be made in the spring or early summer. 2. To kill migrating and invading gypsy moth larvae, treat trunk and foliage. 3. Blackvine weevils are night feeders. Late afternoon spraying will give control in some areas.
Beetles (Cottonwood leaf) ¹ (Elm leaf) (Flea) (Willow leaf)	1/6-1/3 fl oz	1/2-1 fl oz	1 pt-1 qt	1. For cottonwood leaf beetles, use Gharda 4E-NA in water to control larvae and adults infesting cottonwoods. Make the treatment when field counts indicate damaging beetle populations are developing or present. For seedlings, use 8-20 gal of spray volume per acre.
Borers ¹ Clearwing moths (Ash) (Dogwood) (Lesser peachtree) (Lilac) (Oak) (Rhododendron) Metallic wood (Bronze birch) (Flatheaded apple tree) (Twolined chestnut)	1/3 fl oz	1 fl oz	1 qt	1. For borers, apply Gharda 4E-NA to the trunks and lower limbs of trees and shrubs when the adults begin to emerge. Consult your local state agricultural experiment station or extension service specialist for proper time to treat. Apply uniformly as a coarse low-pressure spray. 2. For cranberry girdler larvae infesting Douglas fir seedlings, apply 1 quart of Gharda 4E-NA per acre. Direct spray at the lower crown and stems using 50 gal of water per acre. Irrigate immediately after application for soil penetration of 1-2 inches. Treat after egg laying during the summer.

*Superscripts refer to Specific Directions.

Pest*	Amount of Gharda 4E-NA in Water to Make			Specific Directions
	1 gallon	3 gallons	100 gallons	
Longhorned beetles (Locust) (Red oak) Cranberry girdler larvae ² Leafminers Needleminers (Jeffrey pine) (Lodgepole pine) (Spruce) Scale crawlers (Cottoncushion) (Cottony maple) (Euonymous) (Fletcher) (Florida wax) (Golden oak) (Hemispherical) (Lecanium) (Magnolia) (Oak kermes) (Oystershell) (Pine needle) (San Jose) (Tea) (White birch)	1/3 fl oz	1 fl oz	1 qt	
Borers (Cottonwood) (Peachtree) ¹	1 fl oz	3 fl oz	3 qt	1. For peachtree borers, apply Gharda 4E-NA in water to flowering trees and shrubs of the genus <i>Prunus</i> as a trunk spray before newly-hatched larvae enter the trees. Apply as a coarse low-pressure spray. Thoroughly wet all bark areas from ground level to scaffold limbs.
Beetles ¹ (Cottonwood leaf) (Elm leaf) (Flea) (Fuller rose) (Native elm bark) ² (Willow leaf)	1 1/3 fl oz	4 fl oz	1 gal	1. For preventative treatment, apply the spray to the main trunk of trees in the early spring or when the threat of attack exists from nearby infested trees. For remedial treatment, apply the spray to the main trunk of infested trees or logs when damage occurs but before adult beetles begin to emerge. 2. To prevent native elm bark beetles from overwintering in infested trees, apply Gharda 4E-NA in water to the bottom 9 feet of the trunk. Wet the trunk thoroughly but do not spray to runoff. Care should be taken to apply the spray right to the base of the root flare. Application can be made with either a backpack mistblower or a hydraulic pressure sprayer from spring through to early fall. To reduce the twig and branch feeding on uninfested trees deemed to be of high value, apply a water spray to the tree crown. Application should be made in the spring or early summer using a sprayer that will give thorough coverage to the tree crown.
Beetles ¹ (Ambrosia) (Anobiidae) (Black turpentine) (Blister) (European elm bark) (Japanese) (June) (Southern pine) (Spruce) Carpenter ants Termites	2 2/3 fl oz	8 fl oz	2 gal	1. For preventative treatment, apply the spray to the main trunk of trees in the early spring or when the threat of attack exists from nearby infested trees. For remedial treatment, apply the spray to the main trunk of infested trees or logs when damage occurs or before adult beetles begin to emerge.

*Superscripts refer to Specific Directions

Dormant Spray

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Use Gharda 4E-NA as a dormant or delayed dormant spray at the rates indicated to control the listed insects. Spray the entire tree to runoff using suitable ground spray equipment. Use the higher dosage of Gharda 4E-NA for severe infestations. Use oil as recommended by your state agricultural experiment station or extension service specialist.

Restrictions: Make only one application during the dormant season.

Pest	Amount of Gharda 4E-NA in Water to Make			Specific Directions
	1 gallon	3 gallons	100 gallons	
Aphids (Mealy plum) (Rosy apple) (Woolly apple) Borers (Peach twig) Cutworms (Climbing) Leafrollers (Pandemis) Pear psylla adults Plant bugs Scales (San Jose)	1/12-1/6 fl oz	1/4-1/2 fl oz	1/2-1 pt	Tank mix with 1-2 gallons of a petroleum spray oil recommended for dormant use in 100 gallons of water.

Notice of Warranty and Disclaimer

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