



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

EPA Reg. Number:

62719-  
254

Date of Issuance:

JAN 05 1994

NOTICE OF PESTICIDE:

☒ Registration  
☐ Reregistration

(under FIFRA, as amended)

Term of Issuance: Until  
Reregistration

Name of Pesticide Product: Dursban  
4E-N

Name and Address of Registrant (include ZIP Code):

DowElanco  
9330 Zionsville Road  
Indianapolis, Indiana 46268

Note: 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/reregistration 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. 62719-254."

3. 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.

Signature of Approving Official:

DENNIS H. EDWARDS

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

Date:

JAN 05 1994



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JAN 05 1994

**Dursban\* 4E-N**

EPA Reg. No. 62719-XXX

\*Trademark of DowElanco

**Modifications made to proposed label compared to current label for Dursban 4E:**

1. Moved specific directions below rate tables as footnotes. Reduces massive size of tables and improves readability.
2. Addition of Deer tick, lone star tick, dearness scale, coffee root mealy bug, European pine sawfly, fruit fly, melon aphid, peach twig borer, pecan phylloxera, white pine aphid, Zimmerman pine moth, balsam gall midge, balsam twig aphid, northern pine weevil, Texas mealy bug, green June beetle.
3. Specific directions for control of black turfgrass ataenius through adult management.
4. Restructured Ornamentals use sections. Pests organized by general feeding type (sucking insects and mites; defoliators and leafminers; borers, bark beetles and weevils; ants, termites and miscellaneous pests) rather than by use rate alone.
5. Ornamental use rates expressed on a per acre basis as well as dilution per 100 gallons. Most nurseries and sod farms calibrate on a per acre basis.
6. Recommended use of pheromone traps for detection and spray timing of clear wing moths borers.
7. Deleted requirement in both turf and ornamental sections that sprays be applied with low pressure and coarse droplets. This does not reflect equipment used in nurseries and sod farms.
8. Added use pattern for Pre-Plant Incorporation for field grown nursery stock.
9. Restructured Residential Citrus section to expanded Fruit, Nut and Citrus not grown for commercial consumption. Fruit trees are often grown by commercial ornamental nurseries.
10. Deleted use pattern for Tree and Forest Pests. Forestry use is not being supported in re-registration (not conducting forest ecosystem studies). Duplication of Ornamentals use pattern existed for use sites other than forestry. Pests listed in Forestry but not in ornamentals were transferred to ornamentals section.
11. Deleted Mosquitoes use pattern (including aerial applications). Mosquitoes retained on turf and other outdoor use sites. Clark Outdoor Spraying handles chlorpyrifos based formulation for mosquito control.
12. Perimeter use pattern excluded from these two Worker Protection compliant labels. This use pattern not consistent with use sites.

ACCEPTED  
with COMMENTS  
in EPA Letter Dated

JAN - 5 1994

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act  
as amended, for the pesticide  
registered under EPA Reg. No.  
62719-254

(Container Label)

(Logo) DowElanco

**Dursban\* 4E-N**

To be applied only by or under the direct supervision of trained applicators responsible for insect control programs.

**Active Ingredient:**

chlorpyrifos: O,O-diethyl O-(3,5,6-trichloro-2-pyridinyl) phosphorothioate..... 44.9%

Inert Ingredients..... 55.1%

Contains 4 pounds of chlorpyrifos per gallon.

Contains xylene range aromatic solvents.

**Precautionary Statements****Hazards to Humans and Domestic Animals**

**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.)

**May Be Fatal If Swallowed • Absorption Through Skin May Be Fatal • Causes Substantial But Temporary Eye Injury • Causes Skin Irritation**

**Do not get in eyes, on skin or clothing. Avoid breathing vapors and spray mist. Handle concentrate in a ventilated area. Keep away from food, feedstuffs and water supplies.**

**Personal Protective Equipment (PPE)**

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category G on an EPA chemical resistance category selections chart.

**Applicators and other handlers must wear:**

- Coveralls over short-sleeved shirt and short pants
- Chemical-resistant gloves such as Barrier Laminate or Viton
- Chemical-resistant footwear plus socks
- Protective eyewear
- Chemical-resistant headgear for overhead exposure
- Chemical-resistant apron when cleaning equipment, mixing, or loading

**BEST AVAILABLE COPY**

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

**User Safety Recommendations****Users 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.

**First Aid**

**An organophosphate insecticide/miticide.**

**If 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.

**Environmental Hazards**

This pesticide is toxic to birds and wildlife, and extremely toxic to fish and aquatic organisms. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. 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**

**Combustible** - Do not use or store near heat or open flame. Do not cut or weld container.

Refer to label booklet for additional precautionary information and Directions for Use including Agricultural Use Requirements and Storage and Disposal.

**Notice:** Read the entire label. Use only according to label directions. Before buying or using this product, read "Warranty Disclaimer" and "Limitation of Remedies" inside label booklet.

In case of emergency endangering health or the environment involving this product, call collect 517-636-4400.

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

EPA Reg. No. 62719-XXX

EPA Est. 464-MI-1

\*Trademark of DowElanco

DowElanco • Indianapolis, IN 46268, U.S.A.

**Specialty Insecticide**

**Net Contents \_\_\_\_ gal**

(Label Booklet)

(Logo) DowElanco

**Dursban\* 4E-N**

To be applied only by or under the direct supervision of trained applicators responsible for insect control programs.

## Active Ingredient:

chlorpyrifos: O,O-diethyl O-(3,5,6-trichloro-2-pyridinyl) phosphorothioate..... 44.9%

Inert Ingredients..... 55.1%

Contains 4 pounds of chlorpyrifos per gallon.

Contains xylene range aromatic solvents.

**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.)

Refer to inside of label booklet for additional precautionary information including Personal Protective Equipment (PPE), and Directions for Use including Agricultural Use Requirements and Storage and Disposal.

Notice: Read the entire label. Use only according to label directions. Before buying or using this product, read "Warranty Disclaimer" and "Limitation of Remedies" inside label booklet.

In case of emergency endangering health or the environment involving this product, call collect 517-636-4400.

EPA Reg. No. 62719-XXX

EPA Est. 464-MI-1

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**Specialty Insecticide**

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**Precautionary Statements****Hazards to Humans and Domestic Animals****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.

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**May Be Fatal If Swallowed • Absorption Through Skin May Be Fatal • Causes Substantial But Temporary Eye Injury • Causes Skin Irritation****Do not get in eyes, on skin or clothing. Avoid breathing vapors and spray mist. Handle concentrate in a ventilated area. Keep away from food, feedstuffs and water supplies.****Personal Protective Equipment (PPE)**

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category G on an EPA chemical resistance category selections chart.

**Applicators and other handlers must wear:**

- Coveralls over short-sleeved shirt and short pants
- Chemical-resistant gloves such as Barrier Laminate or Viton
- Chemical-resistant footwear plus socks
- Protective eyewear
- Chemical-resistant headgear for overhead exposure
- Chemical-resistant apron when cleaning equipment, mixing, or loading

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

**User Safety Recommendations****Users 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.

**First Aid****An organophosphate insecticide/miticide.****If 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.**Environmental Hazards**

This pesticide is toxic to birds and wildlife, and extremely toxic to fish and aquatic organisms. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. 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****Combustible** - Do not use or store near heat or open flame. Do not cut or weld container.**BEST AVAILABLE COPY**



**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 other end-use products.**

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 exemptions 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.

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 over short-sleeved shirt and short pants
- Chemical-resistant gloves such as Barrier Laminate or Viton
- Chemical-resistant footwear plus socks
- Protective eyewear
- Chemical-resistant headgear for overhead exposure

**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.

**Metal Container 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.

**Reusable Portable Container Disposal:** Do not rinse or put any other material into container. When returning reusable portable container, seal all openings and return to DowElanco.

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## General Information

Dursban 4E-N insecticide is an emulsifiable concentrate designed for use as a spray to control various pests injurious to nursery trees and ornamentals, sod farms and turfgrass grown for seed. The pests controlled are listed in the accompanying tables. Dursban 4E-N 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:** 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.

## Approved Uses

### **Turf and Other Outdoor Uses**

Use Dursban 4E-N insecticide to control the pests listed in the following table by application at the recommended dosages.

Pest	Amount of Dursban 4E-N per	
	1000 sq. ft.	Acre
ants armyworm (such as: beet, fall, yellowstriped) chiggers (1) chinch bugs crickets cutworms deer ticks (2) earwigs European crane fly larvae fiery skipper fire ants (foraging workers) fire ants (mounds) (3) fleas grasshoppers greenbugs green june beetle grubs leafhoppers lucerne moth millipedes mites (such as: clover, bermudagrass stunt, winter grain) mosquitoes (4) pillbugs sod webworms (lawn moths)(5) sowbugs springtails ticks	3/4 fl oz	1 qt
billbugs (such as: bluegrass, Denver, hunting) (6)	3/4 - 1 1/2 fl oz	1 - 2 qt
black, turfgrass ataenius (7) annual bluegrass weevil ( <i>Hyperodes</i> )(8) mole crickets (9)	1 1/2 fl oz	2 qt
white grubs (such as: black turfgrass ataenius, European chafer, southern masked chafer and Japanese beetle larvae) (10)	1 1/2 - 3 fl oz	2 - 4 qt

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### **General Use Directions**

Dilute Dursban 4E-N insecticide in water and apply using suitable application equipment. For best results, turf should be moist at time of treatment. **Note:** Numbers in parenthesis following a listed pest refers to Pest-Specific Directions

### **Pest-Specific Directions**

1. Use Dursban 4E-N insecticide for area control of ticks and chiggers infesting non-cropland areas such as roadsides, footpaths and trails, picnic and camping site, 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 Dursban 4E-N insecticide in water at the rate of 1/2 pint per acre (1/2 fl oz per 2700 sq. ft.) using a hydraulic sprayer, mist applicator, backpack sprayer, or other suitable hand or power operated spray equipment.
2. For control of deer ticks apply Dursban 4E-N insecticide in water at the rate of 1 quart per acre or 3/4 oz. per 1000 square feet. Treat low underbrush, turf, grassy areas, weeds, ground surface and debris, using enough spray volume to obtain thorough coverage.
3. For individual fire ant mounds apply Dursban 4E-N insecticide as a drench. Dilute 1 fl oz (30 ml) per 4 gallons of water. Gently sprinkle 1 to 2 gallons of the diluted insecticide over the surface of each mound and surrounding areas to a 2 foot diameter. 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.

4. Mosquitoes coming to rest on areas treated for control of turf pests will be controlled for varying periods of time after treatment depending on exposure of treated areas to weathering conditions.
5. For sod webworms, delay watering or mowing of the treated area for 12 to 24 hours after treatment.
6. For billbugs, spray early in the season just prior to, or coinciding with first appearance of adults as recommended by your local Agricultural Extension Service Specialist.
7. For black turfgrass stanilus adults, spray early in the season as recommended by your local Agricultural Extension Service Specialist. A repeat application may be needed 1 to 2 weeks later.
8. To control annual bluegrass weevil, spray suspected problem areas in mid-April and again in Mid-May, or as recommended by your local Agricultural Extension Service specialist.
9. To control mole crickets in turfgrass, apply Dursban 4E-N insecticide through high pressure injection application equipment such the Cross Equipment Injectaspray™. Apply in a minimum of 50 gallons of water per acre. For best results, spray when young nymphs are active.
10. 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. For best results, soil should be moist prior to treatment. For best results, immediately after spraying, irrigate the treated area with 1/2 to 1 inch of water to wash the insecticide into the underlying soil.

## Ornamentals Growing Outdoors or In Nurseries

Use Dursban 4E-N insecticide to treat flowers, shrubs, evergreens, vines, shade and flowering trees, and non-bearing fruit trees found to be infested with the types of pests listed in the following tables including: (1) Sucking Insects and Mites; (2) Defoliators and Leafminers; (3) Borers, Bark Beetles and Weevils; and (4) Ants, Termites, and Miscellaneous Pests.

### General Use Directions

Dilute Dursban 4E-N insecticide with water apply at the application rate given in the table. Use suitable hand or power-operated spray equipment that will provide complete and uniform coverage. Attempt to penetrate dense foliage, but avoid over spraying to the point of excessive runoff. When using spray equipment delivering less than 200 gallons of finished spray per acre, use the rate recommended in the per acre column. Uniform coverage is critical for effective insect control.

**Note:** Numbers in parenthesis following a listed pest refers to Pest-Specific Directions following each table.

Consult your State Agricultural Experiment Station or Extension Service specialist for application timing other than specific use information

**Note: Phytotoxicity:** Environmental factors and varietal differences have significant effects on phytotoxic expression.

Dursban 4E-N insecticide has been tested on numerous ornamental plants without causing serious phytotoxicity at recommended use rates. Some varieties of azaleas, camellias, poinsettias, roses and variegated ivy have shown varying degrees of phytotoxicity following treatment with Dursban 4E-N insecticide. Before treating large numbers of any of the above plants, it is recommended that a small block of plants be sprayed and observed for 7 to 10 days to determine phytotoxic potential.

### (1) Sucking Insects and Mites (Ornamentals Growing Outdoors or In Nurseries)

Pest	Amount of Dursban 4E-N per		
	1 gallon	100 gallons	Acre
adelgids (such as: cooley and eastern spruce galls, pine bark)	1/12 - 1/6 fl oz	8 fl oz - 1 pt	1 pt - 1 qt
aphids (such as: apple, balsam twig, black pecan, chrysanthemum, cottonwood, crape myrtle, elm leaf, melon, peach, rose, spirea, white pine, woolly apple, yellow pecan)			
box elder bugs			
lace bugs (such as: hawthorn)			
leafhoppers			
periodical cicada			
plant bugs			
psyllids			
spittlebugs			
thornbug			
whiteflies			
leafhoppers	1/6 fl oz	1 pt	1 qt
mealybugs (such as: citrus, taxus)			
mites (such as: clover, red spider, southern red)(1)			
thrips (exposed)			
scale insects (2) (such as: cottony maple, dearness, euonymous, fletcher, florida wax, golden oak, hemispherical, lecanium, magnolia, oak kermes, oystershell, pine needle, San Jose, tea, white birch)	1/3 fl oz	1 qt	1 - 2 qt

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1. For effective control of spider mites when large numbers of eggs are present, apply a second spray 3 to 5 days in the South or 7 to 10 days in the North after initial treatment to control newly hatched nymphs.
2. Time applications for control of scale insects when crawlers or first two stages of settled scales are present.

Pest		Amount of Duraban 4E-N per		
		1 gallon	100 gallons	Acre
armyworms (such as: fall, yellowstriped) bagworms (1) cankerworms catalpa sphinx elm spanworms fall webworms grasshoppers greenstriped mapleworms green fruitworms hornworms jackpine budworms juniper webworms katydids leafrollers (2) maple leafcutters(3) oak skeletonizers oleander caterpillars	orange tortrix poplar tentmaker puss caterpillars rose chafers sawflies, exposed (such as: European pine, pine, pin oak, redheaded) spring elm caterpillars springtails spruce budworms tent caterpillars (such as: eastern, forest, western) walnut caterpillars western spruce budworms yellownecked caterpillars	1/12 - 1/6 fl oz	8 fl oz - 1 pt	1 pt - 1 qt
balsam gall midge beet armyworms beetles (fuller rose, native elm bark) (1) cutworms cypress tip moth douglss fir tussock moth European pine shoot moth gypsy moth 4) holly bud moth mahogany webworms	mimosa webworms nantucket pine tip moth oakworms (such as: California, orangestriped, redhumped) pandora moth pitch pine moth redhumped caterpillars subtropical pine tip moth tussock moth	1/6 fl.oz	1 pt	1 qt
beetles (such as: cottonwood leaf elm leaf, willow leaf)		1/6 to 1/3 fl oz	1 pt to 1 qt	1 qt
leafminers needleminers (such as: jeffrey pine, lodgepole pine, spruce) pine needle midge		1/3 fl oz	1 qt	1 - 2 qt

1. For bagworms, treat when larvae are small and actively feeding.
2. For effective control of leafrollers, spray should be applied before leaves are tightly rolled.
3. For maple leafcutter on maple trees, apply spray to larvae as cases are being formed. Do not treat sugar maple trees intended for maple syrup production.
4. To control migrating and invading gypsy moth larvae, treat trunks and foliage.

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**(3) Borers, Bark Beetles and Weevils (Ornamentals Growing Outdoors or In Nurseries)**

Pest	Amount of Dursban 4E-N per		
	1 gallon	100 gallons	Acre
weevils (such as: blackvine (1), cranberry girdler (2), yellow poplar, pine reproduction)	1/6 fl oz	1 pt	1 - 2 qt.
borers(3): clearwing moths (such as: ash, dogwood, lesser peachtree, lilac, oak, peachtree, rhododendron), metallic wood (such as: bronze birch, flatheaded appletree, twolined chestnut, longhorned beetles (such as: cottonwood, locust, red oak) pales weevil adults zimmerman pine moth	1/3 fl oz	1 qt	-
pales weevil (4) northern pine weevil (4)	1 fl oz	3 qt	-
beetles (such as: ambrosia, anobiidae, black turpentine, blister, cottonwood leaf, elm leaf, European elm bark, fuller rose, japanese, June, mountain pine, native elm bark, southern pine, spruce, western pine willow leaf)(5)	2 2/3 fl oz	2 gal.	-
weevils (such as: northern pine, pitch eating, twig)(6)	5 1/3 fl oz	4 gal.	-

**Pest-Specific Directions**

1. Blackvine weevils are night feeders. Late afternoon spraying will give control in some areas.
2. For cranberry girdler larvae infesting Douglass fir seedlings, direct spray at lower crown and stems following egg laying during summer. Apply a minimum of 50 gallons of dilute spray per acre and irrigate immediately after application to move the insecticide into the top 1 to inches of soil.
3. For borers, spray trunks and lower limbs of trees and shrubs when adults begin to emerge. For peachtree borers, spray flowering trees and shrubs of the genus *Prunus* as a trunk spray before newly-hatched larvae enter the trees and thoroughly wet all bark areas from ground level to scaffold limbs. Pheromone traps made aid in detection of adult clearwing moths. Consult your State Agricultural Experiment Station or Extension Service specialist for proper time to treat.
4. For control of pales and northern pine weevil larvae, apply as a cut stump spray or drench
5. For preventive treatment of native elm bark beetles, spray the main trunk of trees in the early spring or when threat of attack exists from nearby infested trees. For remedial treatment, spray the main trunk of infested trees or logs when damage occurs but before adult beetles begin to emerge.
6. For pine seedlings, treat immediately after transplanting. Treat each seedling with enough spray to thoroughly wet the foliage and stems to the point of runoff. Do not use more than 6 gallons of spray dilution per acre.

**(4) Ants, Termites, and Miscellaneous Pests (Ornamentals Growing Outdoors or In Nurseries)**

Pest	Amount of Dursban 4E-N per		
	1 gallon	100 gallons	Acre
ants cockroaches (such as: american, brownbanded, german, oriental, smokey brown) fire ants (foraging workers) fire ants (mounds) (2) sowbugs springtails	1/6 fl oz	1 pt	1 qt
carpenter ants (1) termites	2 2/3 fl oz	2 gal.	-

**Pest-Specific Directions**

1. For preventive treatment, spray the main trunk of trees in the early spring or when threat of attack exists from nearby infested trees. For remedial treatment, spray the main trunk of infested trees or logs when damage occurs but before adult beetles begin to emerge.
2. For individual fire ant mounds apply Dursban 4E-N insecticide as a drench. Dilute 1 fl oz (30 ml) per 4 gallons of water. Gently sprinkle 1 to 2 gallons of the diluted insecticide over the surface of each mound and surrounding areas to a 2 foot diameter. 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.

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## Ornamentals (Dormant Spray of Tree Pests)

Use Dursban 4E-N insecticide as a dormant or delayed dormant spray at the rates indicated to control the listed insects.

Pest	Amount of Dursban 4E-N per <sup>1</sup>	
	1 gallon	100 gallons
aphids (such as: mealy plum, rosy apple, woolly apple) borers (such as: peach twig) cutworms (such as: climbing) leafrollers (such as: oblique banded, pandemis) pear psylla adults scale insects (such as san jose)	1/12 to 1/6 fl oz	1/2 to 1 pt (Use a minimum of 1.5 pints/acre)

1. Based on 200 to 600 gallons per acre as a dilute sprays

### General Use Directions

While Dursban 4E-N insecticide may be used without oil, oil is recommended to control additional pests such as European red mite.

For high volume(dilute) sprays, tank mix the specified dosage with 1 to 2 gallons of a petroleum spray oil recommended for dormant use in 100 gallons of water. Spray the entire tree to runoff using suitable ground spray equipment.

For low volume (concentrate) sprays ( less than 200 gallons of spray mixture per acre), use the same amount of Dursban 4E-N insecticide as for a dilute spray and apply in a manner that will ensure thorough coverage of the trees. Use oil as recommended by your State Agricultural Experiment Station or Extension Service Specialist.

Precautions: Because cold dry conditions may cause Dursban 4E-N insecticide plus oil to infuse trees resulting in bud damage or drop, do not apply until winter rains or irrigation has replenished soil moisture such that bark and twigs are not desiccated. Do not use more than 4 pints of Dursban 4E-N insecticide per acre.

Restrictions: Make only one application during the dormant season. Do not allow meat or dairy animals to graze in treated areas.

## Ornamentals (Soil Treatment of Containerized or Balled and Burlapped Nursery Stock)

Use Dursban 4E-N insecticide to treat containerized (potted) or balled and burlapped nursery stock to control soil insects.

Pest	Amount of Dursban 4E-N per <sup>1</sup>	
	1 gallon	100 gallons
fire ants(1)	1/4 fl oz	4 fl oz
black vine weevils (2) coffee root mealybug (2) white grubs(2) white fringed beetles(2)	2/3 fl oz	2 qt

### General Use Directions

Completely submerge the container or ball of soil in a tank containing diluted Dursban 4E-N insecticide. Do not remove burlap wrap or containers with drain holes prior to submerging. Keep soil submerged until complete saturation has occurred, normally about 30 seconds.

### Pest-Specific Directions

1. An alternative treatment to submerging containerized or balled and burlaped plants is to drench the soil ball or container with the diluted insecticide solution to to the point of runoff on a twice-daily schedule for three consecutive days. Do not remove burlap wrap or container from plants prior to treatment.
2. An alternative treatment to submerging containerized plants is to drench the container with the diluted insecticide solution applying approximately 10 to 12 oz per gallon container size.

## Ornamentals (Pre-Plant Incorporation Treatment of Field Grown Nursery Stock)

Apply Dursban 4E-N insecticide to soil and incorporate before transplanting or planting to control white grubs and larvae of the black vine weevil during transplant or seedling establishment. Apply to the soil surface as a broadcast spray at a rate of 4 quarts per acre using sufficient water to obtain adequate coverage. Do not aerially apply. On the same day of the treatment, incorporate the insecticide into the top 2 to 4 inches of the soil using a tandem disc, field cultivator or equivalent incorporation equipment capable of thorough soil mixing.

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## Fruit, Nut and Citrus Trees

Use Dursban 4E-N insecticide to treat apple, almond, cherry, filberts, grapefruit, lemon, nectarine, pecan, peach, plum, and prune and walnut trees or tree fruit not grown for commercial consumption which are infested with pests listed in the following table.

Pest	Amount of Dursban 4E-N per		
	1 gallon 3/4 fl oz	100 gallons 1 qt	Acre 1 - 2 qts
aphids (such as: apple, black cherry, black pecan, filbert, rosey apple, wooley apple, yellow pecan) apple maggot borers (such as: American plum, dogwood, lesser peachtree, pacific flathead, peach twig, peachtree, shothole) cherry fruit fly climbing cutworm codling moth European apple sawfly eyespotted bud moth European corn borer fall webworm filbert worm grasshoppers (1) green fruitworm hickory shuckworm Katyids leaf rollers and tiers (such as: avacado leafroller/filbert leafroller, fruit tree leafroller, oblique banded leafroller, omnivorous leaftier, orange tortrix, pandemis leafroller, redbanded leafroller, variegated leafroller) scale insects (3) (such as: black scale brown soft scale, California red scale, Florida red scale, snow scale, chaff scale, purple scale, long scale, black scale) mealybugs thrips	lesser appleworm mineola moth mites (2) (such as: European red, pecan leaf scorch, two spotted spider) navel orangeworm oriental fruit moth pecan nut casebearer periodical cicada <i>phylloxera</i> spp. plum curculio potato leafhopper rose chafer scale insects (such as: San Jose, walnut, European fruit lecanium) spittlebug spotted tentiform leafminer stinkbug tarnished plant bug tufted apple budmoth walnut husk fly western tussock moth white apple leafhopper winter moth		
	2/3 - 1 1/3 fl oz	2 qt	2 - 4 qt

### General Use Directions

A petroleum spray oil recommended for use on citrus trees may be added to spray mixtures only at rates of up to 1.8 gallons per 100 gallons of water to improve control of aphids, mealybugs, scale insects, and thrips. Treat when insects become a problem or in accordance with the local spray schedule recommended by your State Extension Service Specialist. Note: Numbers in parenthesis following a listed pest refers to Pest-Specific Directions.

### Precautions:

Do not apply as a foliar spray to sweet cherries. Contact of spray solution with leaves may result in premature leaf drop. Observe local use directions for tank mix combinations especially in regard to applications of Dursban 4E-N plus spray oil. Do not apply Dursban 4E-N insecticide in combination with oil to walnuts. Dry or cold conditions may cause Dursban 4E-N insecticide plus oil to injure trees resulting in bud damage or drop, do not apply until winter rains or irrigation has replenished soil moisture such that bark and twigs are not desiccated. Do not apply when trees are stressed by drought or if temperature exceeds 95° F.

### Restrictions:

**Apples:** Make no more than 8 applications per season. Do not apply last treatment within 28 days before harvest or apply last two treatments closer than 21 days apart.

**Almonds, Walnuts, Filberts:** Make only one dormant/delayed dormant spray application and no more than three foliar spray application on almonds per season; one dormant/delayed dormant spray application and no more than two foliar spray applications on walnuts per season, and no more than three foliar spray applications on filberts per season. Do not apply with 14 days of harvest.

**Citrus:** Do not apply to flowering trees. Do not make a second application within 30 days of the first application. Do not pick fruit for consumption until 21 days after application. Do not apply during the months of December, January or February in California or Arizona.

**Pecans:** Make no more than 5 applications per season. Do not apply within 28 days of harvest.

**Sour cherries:** Make no more than 8 applications per season. Do not apply within 14 days of harvest.

**Sweet cherries (trunk sprays only):** Make only three applications per year. Do apply within 6 days of harvest.

**Peaches, Nectarines:** Make only one application (per season). Do not apply within 14 days of harvest.

#### **Pest-Specific Directions**

1. Lubber grasshoppers must be controlled when they are small (less than 1 inch in length) by direct contact with spray.
2. For effective control of spider mites when large numbers of eggs are present, apply a second spray 3 to 5 days in the South or 7 to 10 days in the North after initial treatment to control newly hatched nymphs.
3. For control of Black scale, Brown soft scale, California red scale, and Chaff scale in Arizona, California and Texas, apply 4 qt of Dursban 4E-N per acre (4 qt/100 gal).

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DowElanco 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.

**DOWELANCO MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.**

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#### **Inherent Risks of Use**

It is impossible to eliminate all risks associated with use of this product. Plant 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 DowElanco or the seller. All such risks shall be assumed by Buyer.

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

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