

NOV 13 1995

Dr. D. B. Carlson
FMC Corporation
Agricultural Chemical Group
1735 Market Street
Philadelphia, PA 19103

Dear Dr. Carlson:

Subject: Addition of Label Language Including Spray Drift,
Endangered Species and Baiting Statement
Furadan 4 Flowable
EPA Reg. No. 279-2876
Your Submission Dated

The labeling for the product referred to above submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act, as amended, is acceptable subject to the comments listed below. A stamped copy of the label is enclosed for your records.

1. The statement "Use of this product for baiting..." must be removed from the endangered species paragraph and placed directly after the paragraph "This product is toxic to fish, birds,..." as a separate stand alone statement.

2. Replace your endangered species paragraph in your Environmental Hazards section with the following:

NOTICE: It is a federal offense to use any pesticide in a manner that results in the death of a member of an endangered or threatened species. The use of Furadan 4F may pose a hazard to federally designated threatened and endangered species. Suggested measures to protect endangered species county in your may exist in an EPA "Interim Measures" pamphlet. You may call EPA's Endangered Species Hotline, 1-800-447-3813 to find out if an "Interim Measures" pamphlet exists for your county and have one sent to you. You also can consult your local county extension office or pesticide state lead agency to determine whether they have imposed any requirements in your area to protect endangered and threatened species.

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3. It is our understanding that the endangered species will be placed on the 4F federal label as well as 24(c) labeling for the 1996 growing season. Note that the current endangered species labeling for the sorghum granular labels must not be changed.

Sincerely,

DHE

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

Enclosure

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Code 279

RESTRICTED USE PESTICIDE

Due to acute oral and inhalation toxicity. For retail sale to and application only by certified applicators or personnel under their direct supervision.

3 4 7
Net Contents



**4 F Insecticide—
Nematicide**

EPA Reg. No. 279-2876 ZC

EPA Est. 279-

Active Ingredient:

*Carbofuran44.0%

Inert Ingredients:56.0%

100.0%

*2,3-Dihydro-2,2-dimethyl-7-benzofuranylmethylcarbamate

This product contains 4 lbs. of carbofuran per gallon.

KEEP OUT OF REACH OF CHILDREN

DANGER-POISON

PELIGRO

See Other Panels for Additional Precautionary Information.

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.)

FMC.

FMC Corporation
Agricultural Chemical Group
Philadelphia PA 19103

10/95-Draft

ACCEPTED
with COMMENTS
in EPA Letter Dated

NOV 13 1995

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

279-2876

STATEMENT OF PRACTICAL TREATMENT

If swallowed: Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person. Get medical attention.

If inhaled: Remove to fresh air. Call a physician immediately.

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

If on skin: Wash skin immediately with soap and water.

Antidote

Note to Physician: Carbofuran is an N-methyl carbamate and a reversible cholinesterase inhibitor. Do not use oximes such as 2-PAM. Start by giving 2 mg. atropine intramuscularly. According to clinical response, continue until signs of atropinization occur (dry mouth or dilated pupils). If in eye, instill one drop of homatropine.

For Emergency Assistance Call (800) 331-3148.

PRECAUTIONARY STATEMENTS

Hazards to Humans (and Domestic Animals)

Danger

Poisonous if swallowed or inhaled. May be fatal or harmful as a result of skin or eye contact or by breathing spray mist. Causes cholinesterase inhibition. Warning symptoms of poisoning include weakness, headache, sweating, nausea, vomiting diarrhea, tightness in chest, blurred vision, pinpoint eye pupils, abnormal flow of saliva, abdominal cramps, and unconsciousness. Atropine sulfate is antidotal.

Personal Protective Equipment:

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

Applicators and other handlers must wear: Long-sleeved shirt and long pants; Chemical-resistant gloves; such as Barrier Laminate or Butyl Rubber, or Nitrile Rubber or Neoprene Rubber or Polyvinyl Chloride or Viton; Shoes plus socks; Protective eyewear when mixing or loading; For exposure in enclosed areas: A respirator with either an organic vapor-removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C), or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G); For exposures outdoors: Dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C).

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.

When handlers use closed systems, enclosed cabs, or aircraft 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.

GENERAL INSTRUCTIONS

Rotational Crops

Do not plant with any crop other than alfalfa, artichokes, bananas, barley, coffee, corn (field, pop or sweet), cotton, cranberries, cucurbits (cucumbers, melons, pumpkins, squash), flax, grapes, non-bearing fruit, oats, ornamentals, peanuts, peppers, potatoes, rice, seed crops (Bermudagrass, spinach), sorghum, strawberries, soybeans, sugar beets, sugarcane, sunflowers, tobacco, or wheat for at least 10 months following use of this product.

Do not rotate with any crop on soil treated at greater than 3.0 pounds active ingredient per acre for at least 10 months.

Spray Drift Management

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

AVOIDING SPRAY DRIFT IS THE RESPONSIBILITY OF THE APPLICATOR.

Importance of Droplet Size

The most effective way to reduce drift potential is to apply large droplets (>150-200 microns). The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Environmental conditions and pest pressure may affect how an applicator balances drift control and coverage. **APPLYING LARGER DROPLETS REDUCES DRIFT POTENTIAL, BUT WILL NOT PREVENT DRIFT APPLICATIONS ARE MADE IMPROPERLY OR UNDER UNFAVORABLE ENVIRONMENTAL CONDITIONS! See Wind, Temperature and Humidity, and Temperature Inversions sections of this label.**

Controlling Droplet Size - General Techniques

- **Volume** - Use high flow rate nozzles to apply the highest spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size. **WHEN HIGHER FLOW RATES ARE NEEDED, USE A HIGHER CAPACITY NOZZLE INSTEAD OF INCREASING PRESSURE.**
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. Consider using low-drift nozzles.

Controlling Droplet Size - Aircraft

- **Number of Nozzles** - Use the minimum number of nozzles with the highest flow rate that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is emitted backwards, parallel to the airstream will produce larger droplets than other orientations.
- **Nozzle Type** - Solid stream nozzles (such as disc and core swirl plate removed) oriented straight back produce larger droplets than other orientations.
- **Boom Length** - The boom length should not exceed 3/4 of the wing or rotor length - longer booms increase drift potential.
- **Application Height** - Application more than 10 feet above the canopy increases the potential for spray drift.

Boom Height

Setting the boom at the lowest labeled height (if specified) which provides uniform coverage reduces the exposure of droplets to evaporation and wind. During ground application, the boom should remain level with crop and have minimal bounce.

Wind

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 and equipment type determine drift potential at any given wind speed. **AVOID GUSTY AND WINDLESS CONDITIONS.**

Note: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they effect spray drift.

Temperature and Humidity

When making applications in hot and dry conditions, set up equipment to produce larger droplets to reduce effects of evaporation.

Temperature Inversions

Drift potential is high during a temperature inversion. 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 indicated by the movement of smoke from a source or an aircraft smoke generator. Smoke that layers and stays in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas

Risk of exposure to adjacent areas that are known habitat for threatened or endangered species can be reduced by avoiding applications when wind direction is toward the sensitive area.

Crop Use Recommendations

Alfalfa: Alfalfa Weevil Larvae, Egyptian Alfalfa Weevil, Pea Aphid and in N.Y. State for Snout Beetle control—Apply the amount of Furadan® 4F insecticide-nematicide, indicated in the chart, when feeding is noticed or when insects appear. Alfalfa Weevil Adult—Apply 1 to 2 pints per acre when insects appear. Alfalfa Blotch Leafminer and Potato Leafhopper. Apply 1 to 2 pints per acre when insects appear. Lygus Bugs—Apply 2 pints per acre prior to bloom. Grasshoppers—Apply 1/4 to 1/2 pint per acre when grasshopper feeding is noticed. For control of Blue Alfalfa Aphid (nymphs and wingless adults)—Apply Furadan 4 F at 1/2 to 1 pint per acre when insect feeding is noticed or when insects appear. Do not apply more than twice per season. Do not apply more than once per cutting. Do not use more than 1 pint per acre in the second application. Apply only to fields planted to pure stands of alfalfa. Do not move bees to alfalfa fields within 7 days of application. Observe the indicated number of days after application before cutting or grazing.

Pints of Furadan 4 F Per Acre	Do not cut or graze within
1/2	7 days
1	14 days
2	28 days

Minimum, gallonage requirements. Ten gallons of finished spray per acre with ground equipment, two gallons per acre with aircraft, except Blue Alfalfa Aphid use 30 gallons of finished spray per acre with ground equipment, 5 gallons per acre with aircraft.

For waterfowl protection do not apply on fields in proximity of waterfowl nesting areas and/or fields where waterfowl are known to repeatedly feed.

Cotton: Thrips—Use Furadan 4 F at 2.5 fluid ounces per 1,000 linear feet of row (1 quart per acre with 40 inch row spacing). Apply in the seed furrow at planting. Furadan 4 F may be mixed with water or liquid fertilizer. When Furadan 4 F is used with liquid fertilizers, premix one part of Furadan 4 F with two parts of water. Check physical compatibility before mixing large quantities. Add this premix to the tank of fertilizer along with the rinsings from the premixing container. Maintain agitation in the tank after mixing and during application. Do not mix until ready to use. Do not feed cotton forage.

Field Corn, Popcorn, Sweet Corn—At Planting: Corn Rootworms, Flea Beetles and to aid in the control of first generation European Corn Borer—Use 2.5 fluid ounces of Furadan 4 F per 1,000 linear feet of row (1 quart per acre with 40 inch row spacing). Apply at planting, as a 7 inch band over the row or inject on each side of the row by mixing with water or liquid fertilizers.

Corn Rootworms, Flea Beetles, Seedcorn Maggot, Wireworms, and to aid in the control of first generation European Corn Borer and Armyworm for approximately 4 to 6 weeks after planting—Use 2.5 fluid ounces of Furadan® 4 F insecticide-nematicide per 1,000 linear feet of row (1 quart per acre with 40 inch row spacing). Apply at planting directly into the seed furrow.

Furadan 4 F may be mixed with water or liquid fertilizers. If Furadan 4 F is used with liquid fertilizers, premix one part of Furadan 4 F with two parts of water. Check physical compatibility before mixing large quantities. Add this premix to the tank of fertilizer along with the rinsings from the premixing container. Maintain agitation in the tank after mixing and during application. Do not mix until ready to use. Do not feed forage within 30 days of last application.

Field Corn, Popcorn—Post Plant: Corn rootworms (northern, southern and western)—use 2.5 fluid ounces of Furadan 4F per 1,000 linear feet of row (1 quart per acre with 40 inch row spacing). Apply as a post emergent spray by banding over the row, or by side dressing or basal spraying both sides of the row after corn emerges. Control will generally be improved if the treatment is cultivated into the soil. Do not feed forage within 30 days of last application.

Field Corn—Foliar Application

European Corn Borer—Use 1½ to 2 pints of Furadan® 4 F per acre as a foliar spray when corn borer eggs begin to hatch. Use the higher rate for heavier pest infestations. For treatment with aerial equipment apply as a broadcast spray using a minimum of 1 gallon of finished spray per acre. For treatment with ground equipment, direct the spray into the corn whorl for first brood and into the ear zone for second brood, using a minimum of 10 gallons of finished spray per acre. Repeat if necessary. Observe all precautions listed below.

Southwestern Corn Borer—Use Furadan 4 F at 1 to 2 pints per acre as a broadcast foliar spray when eggs begin to hatch. Rate used will depend on desired residual activity. If infestation continues, retreat in 7 days after a 1 pint application and within 14 days after a 2 pint application. Apply in sufficient water for thorough coverage using a minimum of 1 gallon of finished spray per acre with air equipment or 10 gallons of finished spray per acre with ground equipment. Observe all precautions listed below.

Banks Grass Mites (suppression)—Furadan 4 F when applied at 2 pints per acre for the control of European or Southwestern Corn Borers will also suppress Banks Grass Mites.

Grasshoppers—Use Furadan 4 F as a foliar spray at ¼ to ½ pint per acre when insects appear or feeding is noticed.

—Use the ¼ pint rate under light to moderate population levels (0 to 14 grasshoppers per sq. yd.).

—Use the ½ pint rate under more severe population levels (15 or more grasshopper per sq. yd.).

Apply in sufficient water for thorough coverage using a minimum of 2 gallons of finished spray per acre with air equipment or 10 gallons of finished spray per acre with ground equipment. Observe all precautions listed below.

Do not make more than two applications per season at the 1½ to 2 pint use rate. Do not make more than four applications per season at the 1 pint use rate. Do not forage cut or harvest within 30 days of last application. Do not apply on seed corn less than 14 days prior to detasseling or roguing.

Sweet Corn—Foliar Application (Machine Harvested Only):

European Corn Borer—For control of second generation borers apply 1 pint of Furadan 4 F per acre. Make first application just prior to first silking and repeat at weekly intervals. Do not make more than four (4) applications per season. Do not apply within seven (7) days of harvest. If prolonged, intimate contact will result do not reenter treated field within 14 days of application without wearing proper protective clothing. Do not graze or harvest stalks within 21 days of last application.

Do not make a foliar application if more than 12 ozs. of Furadan 10 G per 1,000 linear feet of row (10 lbs. per acre with 40" row spacing) or 8 ozs. of Furadan 15 G per 1,000 linear feet of row (6.7 lbs. per acre with 40" row spacing) or 2.5 fluid ounces of Furadan 4 F per 1,000 linear feet of row (1 quart per acre with 40 inch row spacing) were used in an at-planting application.

Minimum gallonage requirements: 10 gallons of finished spray per acre with ground equipment, 2 gallons per acre with aircraft.

Grapes (For use in California): Nematodes (Root Knot and Dagger) and Grape Phylloxera—Apply Furadan® 4 F insecticide-nematicide at 2½ gallons per acre as a broadcast treatment only to the soil surface between the vine rows and immediately incorporate by mechanical means. Do not apply within 200 days of harvest. Remove dense weed growth prior to treatment. Do not use on soils of pH 8.0 or greater. Do not make more than one application per crop year.

Ornamentals—Container Grown

Root Weevil Larvae—Prepare a stock solution by thoroughly mixing 1 to 2 fluid ounces of Furadan 4 F per 100 gallons of water. Apply as a soil drench in sufficient volume to saturate the entire soil profile within each container. The following guidelines give approximate amounts to use on various sized containers. Make a single application when larvae are present (usually from July to mid-October in outdoor growing areas). Later application may be less effective due to lower temperatures and/or the presence of more mature larvae.

Container Size	Amount of Stock Solution Per Container
6 inches diameter	1 pint
8 inches diameter	1 to 2 pints
10 inches diameter	2 to 4 pints
12 inches diameter	3 to 6 pints
16 inches diameter	4 to 8 pints

Early marginal necrosis or leaf drop may occur on Hydrangea or Birch. Not all species or varieties of ornamentals have been tested. Before treating large numbers of plants of a particular variety, treat a few plants and observe prior to full scale application.

Application of Furadan 4 F through overhead sprinkler equipment is prohibited.

Pine Seedlings: rates Weevil and Pitch-Eating Weevil in pine plantations—Apply a 1% (W/W) active Furadan clay slurry (see following for preparation) to the roots of pine seedlings prior to transplanting. Treat seedlings by dipping roots or use any other suitable means which allows thorough coating. Keep roots moist until transplanted. Prepare the slurry as follows: Add 1.6 ounces (2½ tablespoons) of Furadan 4 F to ½ gallon of water. Mix thoroughly. Add 2 pounds of pulverized kaolin clay (pH 4.5) to this suspension. Mix thoroughly. This is sufficient to treat the roots of 150 to 200 seedlings. Adequate ventilation is required for indoor treatment.

Potatoes: Potato Tuberworm (Virginia only); Colorado Potato Beetle, European Corn Borer, Potato Flea Beetle, Potato Leafhopper—Use 1 to 2 pints of Furadan 4 F in sufficient water to treat one acre. Apply when insects first appear and repeat as necessary to maintain control. Do not make more than 8 foliar applications per season. Do not apply more than 6 pints to the foliage if either Furadan 10 G or Furadan 15 G was used at planting. Do not apply more than 2 pints per application. Do not apply within 14 days of harvest. Minimum gallonage requirements: 10 gallons of finished spray per acre with ground equipment and 3 gallons per acre with aircraft.

Do not use this product on Long Island, New York.

For waterfowl protection do not apply:

- immediately before or during furrow irrigation
- on fields in proximity of waterfowl nesting areas
- on fields where waterfowl are known to repeatedly feed

Small Grains (Wheat, Oats, Barley): Grasshoppers—Use Furadan 4 F at ¼ to ½ pint per acre when insects appear. **Cereal Leaf Beetle**—Use ½ pint per acre when insects appear. Apply before heads emerge from boot. Do not make more than two applications per season. Do not feed treated forage to livestock.

Minimum gallonage requirements: Ten gallons of finished spray per-acre with ground equipment two gallons per acre with aircraft.

For waterfowl protection do not apply on fields in proximity of waterfowl nesting areas and/or on fields where waterfowl are known to repeatedly feed.

Soybeans—At Planting Application: Nematodes (Root Knot Cyst, Stunt, Ring Sting Spiral Lesion, Lance Dagger, Stubby Root)—Use 3.75 to 5 fluid ounces per 1,000 linear feet of row (3 to 4 pints per acre with 40-inch row spacing). Apply at planting as a 12-inch surface band. Soybeans may be grazed or cut for forage 30 days or later following an at planting application.

Soybeans—Foliar Application: Mexican Bean Beetle—Use Furadan 4F at ¼ to 1 pint per acre when insects appear. Grasshoppers—Use Furadan 4F at ¼ to ½ pint per acre when insects appear. Do not use Furadan 4F as a foliar application if Furadan 10G, Furadan 15G, Furadan 4F was applied to soybeans at planting time. Do not make more than 2 foliar applications per season. Do not apply within 21 days of harvest. Do not graze or feed foliar-treated forage to livestock or cut for silage or hay. Minimum gallonage requirements: 20 gallons of finished spray per acre with ground equipment, 1½ gallons per acre with aircraft.

Strawberry: (For use in Washington & Oregon) Root Weevils—Use Furadan 4 F at 2 to 4 pints per acre (2.6 to 5.1 fluid ounces per 1,000 linear feet of row for 42 inch row spacing). Apply as a 10 to 12 inch band over the row after last harvest but before October 1st. Do not make more than one application per season. Do not apply if berries are present.

Sugarcane: Sugarcane Borer—Apply 1 to 1½ pints Furadan 4 F per acre using ground or aerial equipment. Check sugarcane fields weekly, beginning in early June and continuing through August. Make first application only after visible joints form and 5% or more of the plants are infested with young larvae feeding in or under the leaf sheath and which have not bored into the stalks. Repeat whenever field checks indicate the infestation exceeds 5 percent. Do not apply within 17 days of harvest. Do not use in Hawaii.

Sunflowers (Confectionary and Oil)—At Planting

Sunflower Stem Weevil, Sunflower Beetle, Grasshoppers—Use 2.5 to 5.0 fluid ounces of Furadan 4 F per 1000 linear feet of row (1.4 to 2.8 quarts per acre with 30 inch row spacing). Apply directly into the seed furrow—OR—Apply in a 7 inch band. Furadan 4 F may be mixed with water or liquid fertilizer. When Furadan 4 F is used with liquid fertilizers, premix one part of Furadan 4 F with two parts of water. Check physical compatibility before mixing large quantities. Add this premix to the tank of fertilizer along with the rinsings from the premixing container. Maintain agitation in the tank after mixing and during application. Do not mix until ready to use.

Use the higher rate when heavier insect infestations are anticipated.

Sunflowers (Confectionary and Oil)—Foliar Application

Sunflower Moth, Banded Sunflower Moth, Stem Weevils, Seed Weevils—Use Furadan 4 F at 1 pint per acre. Grasshoppers—Use Furadan 4 F at ¼ to 1 pint per acre. Sunflower Beetle—Use Furadan 4 F at ¼ to ½ pint per acre. Apply as a foliar spray when insects appear. When a rate range is indicated, use higher rate for heavier insect infestations. Repeat applications as necessary but not more than four times per season. Apply a minimum of two gallons of finished spray per acre with aircraft and 10 gallons by ground equipment. Do not harvest crop within 28 days of last application.

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Tobacco—Burley: Flea Beetles—Use 1 gallon of Furadan 4 F per acre. Apply as a broadcast spray over the soil surface prior to transplanting and incorporate into the top 3 inches of soil with a suitable device.

Tobacco—Flue-Cured: Flea Beetles, Wireworms, and to aid in the control of Budworms and Root Knot Nematodes—Use 1½ gallons of Furadan 4 F per acre—OR—Use 1 gallon of Furadan 4 F per acre for control of Flea Beetles only. Apply as a broadcast spray over the soil surface prior to forming beds. Incorporate into the top 3 inches of soil. Form beds and plant as usual. This product may induce flecking of the bottom or lower leaves.

Dealers Should Sell in Original Packages Only.

Terms of Sale or Use: On purchase of this product buyer and user agree to the following conditions:

Warranty: FMC makes no warranty, expressed or implied, concerning the use of this product other than indicated on the label. Except as so warranted, the product is sold as is. Buyer and user assume all risk of use and/or handling and/or storage of this material when such use and/or handling and/or storage is contrary to label instructions.

Directions and Recommendations: Follow directions carefully. Timing and method of application, weather and crop conditions, mixture with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the seller and are assumed by the buyer at his own risk.

Use of Product: FMC's recommendations for the use of this product are based upon tests believed to be reliable. The use of this product being beyond the control of the manufacturer, no guarantee, expressed or implied, is made as to the effects of such or the results to be obtained if not used in accordance with directions or established safe practice.

Damages: Buyer's or user's exclusive remedy for damages for breach of warranty or negligence shall be limited to direct damages not exceeding the purchase price paid and shall not include incidental or consequential damages