MAR 13 1995

Mr. John W. Kennedy
c/o John W. Kennedy Consultants, Inc.
Ritzloff Delta Company
9101 Cherry Lane, Suite 113
Laurel, MD 20708-1133

Dear Mr. Kennedy:

Subject: Trifluralin 4EC
EPA Registration No. 46193-10
Your Letter Dated October 18, 1994, Submission of Draft Labeling Reflecting an Ingredient Statement Having 42.8% Active Ingredient, the Statement "Contains Petroleum Distillates" and the EPA Worker Protection Standard Requirements for The Subject Product

The proposed amendments to the labeling of the subject pesticide product registration has been reviewed and are **acceptable under the Federal Insecticide, Fungicide and** Rodenticide Act as amended provided that you:

1. Revise the spelling of the word "detalle" in the Spanish advisory statement on the front panel of the proposed labeling.
2. On page 2, add under the precautionary statements the statement: "Avoid breathing vapors or spray mist and contact with skin, eyes or clothing".
3. On page 2, enclose in a box the contents of the "User Safety Recommendations", and add the statement: "Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soom possible wash thoroughtly and change into clean clothning", to the contents in the box.
4. On page 3, enclose the information and heading for Agricultural Use Requirements inside a box as directed by PR Notices 93-7 and 93-11 in complying with the worker Protection Standard.
5. Submit one (1) printed copy of your final printed labeling before you release the product for shipment.

In future requests such as this you must comply with the EPA "General Information on Applying for Registration of Pesticides in the United States, Second Edition,

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EPA/737/b-92-001, August, 1992. We also request tnat you make a statement to the effect that only highlited words and phrases have been revised or added to the text of the labeling. The statement should read: "I certify that only those areas highlited on the submitted labeling have been revised or added, no other changes have been made. The Agency may only act upon the highlited changes." Future submissions should comply with all applicable EPA PR Notices. If you have trouble understanding them, please discuss prior to submitting a response.

Sincerely yours,

Joanne I. Miller
Product Manager (23)
Fungicide-Herbicide Branch
Registration Division

Enclosure

E.Wilson:Diskette ABC14:03-13-95

Trifluralin 4EC
HERBICIDE

A Selective Herbicide for the Pre-Emergence Control of Annual Grasses and Broadleaf Weeds

ACTIVE INGREDIENTS:
Trifluralin(a,a,a-trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine).....42.8%

INERT INGREDIENTS.....57.2%

TOTAL.....100.0%

Contains Petroleum Distillates

ACCEPTED
with COMMENTS
In EPA Letter Dated
MAR 13 1995
Under the Federal ... Fungicide, and ... as amended, ... registered ...
46193-10

Trifluralin 4EC contains 4 pounds trifluralin per gallon

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 detaile. (If you do not understand this label, find someone to explain it to you in detail).

STATEMENT OF PRACTICAL TREATMENT

IF SWALLOWED: Drink 1 to 2 glasses of water. Induce vomiting by placing finger in back of throat. Call a physician. Do not induce vomiting or give anything by mouth to an unconscious person.

IF INHALED: Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

IF ON SKIN: Wash immediately with soap and water.

IF IN EYES: Flush with plenty of water for at least 15 minutes. Get medical attention.

Retzloff Corporation
Houston, TX

EPA Reg. No. 46193-10
EPA Est. No. 1812-GA-3

Net Contents 2½ Gallons

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PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS (AND DOMESTIC ANIMALS)
WARNING

Precautionary Statements: Causes substantial, but temporary eye injury. Do not get in eyes or on clothing. Harmful if swallowed, inhaled or absorbed through the skin. Avoid contact with skin or clothing. Do not contaminate foodstuffs or feeds.

PERSONAL PROTECTIVE EQUIPMENT

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 G 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 viton $\geq$ 14 mils
-shoes plus socks
-protective eyewear

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do no reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If not 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.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Drift or runoff from treatment areas may be hazardous to aquatic organisms in neighboring aquatic sites. Do not contaminate water when disposing of equipment washwaters.

PHYSICAL AND CHEMICAL HAZARDS

Flammable. Keep away from heat and open flame.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation. Trifluralin 4EC is a preemergence herbicide which is incorporated into the soil to provide control of grasses and broadleaf weeds. Trifluralin 4EC controls weeds as they germinate. Trifluralin 4EC will not control established weeds.

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

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

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

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:
-coveralls
-chemical-resistant gloves, such as barrier laminate, or viton $\geq$ 14 mils
-shoes plus socks
-protective eyewear

STORAGE AND DISPOSAL

Avoid freezing. Store above 40°F. If frozen, poor weed control may result. Do not store near heat or flame. Do not contaminate water, food or feed by storage or disposal.

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

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

GRASSES AND BROADLEAF WEEDS CONTROLLED BY Trifluralin 4EC

Grasses

Annual Bluegrass - Poa annua
Barnyardgrass (Watergrass) - Echinochloa sp.
Brachiaria (Signalgrass) - Brachiaria sp.
Bromegrass - Bromus tectorum
(Cheatgrass)
(Downy Brome)
Cheat (chess) - Bromus secalinus
Crabgrass - Digitaria spp.
(Large Crabgrass)
(Smooth Crabgrass)
Foxtail - Setaria spp.
(Bottlegrass)
(Bristlegrass)
(Giant Foxtail)
(Green Foxtail)
(Foxtail Millet)
(Pigeongrass)
(Robust Foxtail)
(Yellow Foxtail)
Johnsongrass (from seed) - Sorghum halenpense
(Rhizome - see special instructions for control in cotton and soybeans)
Junglerice - Echinochloa colonum
Panicum
Fall Panicum - Panicum dichotomiflorum
(Spreading Panicgrass - see special instructions in cotton and soybeans)
Guineagrass - Panicum dichotomiflorum
(See sugarcane for special instructions)
Texas Panicum - Panicum texanum
(Buffalograss)
(Coloradograss)

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Itchgrass (Raoulgrass) - Rottboellia exaltata
(See sugarcane for special instructions)
Red Rice - Oryza sativa
(See suppression or partial control directions under soybeans)
Sandbur (Burgrass) - Cenchrus incertus
Sprangletop - Leptochloa filiformis
Stinkgrass (Lovegrass) - Eragrostis cilianensis
Wild Cane (Shattercane) - Sorghum bicolor
(See Soybean - Trifluralin 4EC Along for special instructions)
Woolly Cupgrass - Eriochloa villosa

Broadleaf Weeds

Carpetweed - Mollugo verticillata
Chickweed - Stellaria media
Field Bindweed - Convolvulus arvensis
(See Fruit and Nut Crops and Vineyards for special instructions)
Florida Pusley - Richardia scabra
(Florida Purslane)
(Mexican Clover)
(Pusley)
Goosefoot - Chenopodium hybridum
Henbit (fall application only) - Lamium amplexicaule
Knotweed - Polygonum aviculare
Kochia - Kochia scoparia
(Fireweed)
(Mexican Fireweed)
Lambsquarters - Chenopodium album
Pigweed - Amaranthus spp.
(Carelessweed)
(Prostrate Pigweed)
(Redroot)
(Rough Pigweed)
(Spiny Pigweed)
Punctureveine (western U.S. only) - Tribulus terrestris
(Caltrop)
(Goathead)
Purslane - Portulaca oleracea
Russian Thistle (Tumbleweed) - Salsola kali
Stinging Nettle (Nettle) - Urtica dioica

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Long term and continued use of trifluralin has resulted in the selection of tolerant population in certain species of weeds. This situation is limited to a few weeds and is generally geographically specific. Weed species know to have some trifluralin tolerant population are goosegrass, green foxtail (piegongrass) and Palmer amaranthus (Palmer pigweed). Trifluralin 4EC is not recommednded for the control of groosegrass tolerant green foxtail or Palmer amaranthus. Consult State Agricultural Extension Service or Experiment Station weed specialist for specific recommendations for local weed problems.

SOIL PREPARATION

Soil surface should be smooth enough to enable the efficient use of sprayer and incorporation equipment to insure a uniform application and incorporation of Trifluralin 4EC. Interference can be caused by ground cover such as crop residue or existing weeds. Soil should be tilled prior to the application of Trifluralin 4EC to allow uniform incorporation into the top 2 to 3 inches of soil. Soil moisture should be such that any large clods will be broken up during incorporation process.

Crop Residues or Existing Weeds

Ground cover such as crop residues of existing weeds can interfere with the incorporation of Trifluralin 4EC into the soil. A manageable level of such ground cover will allow the Trifluralin 4EC to be uniformly incorporated into the top 2 to 3 inches of soil. If the level of the ground cover is such that this cannot be done you must till the soil prior to the application of Trifluralin 4EC.

Roughness

The soil surface should be smooth enough so that you can operate a sprayer and incorporation equipment efficiently and at speeds which insure a uniform application and incorporation of Trifluralin 4EC.

General Soil Conditions

To assure incorporation of Trifluralin 4EC soil moisture conditions should be such that any large clods can be broken up during the incorporation process.

SOIL TEXTURE GUIDE

The amount of chemical applied will vary with the soil texture and organic matter. A fine textured soil will require more Trifluralin 4EC per acre than a coarse soil. Where rates are based on coarse, medium or fine textured soils, it is understood that soil textural classes are generally categorized as follows:

Coarse Medium Fine

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Sand	Loam	Sandy Clay
Loamy Sand	Silt	Clay Loam
Sandy Loam	Silt Loan	Silty Clay, Clay
	Silty Clay Loam*	
	Sandy Clay Loam*	

*Silty clay loom and sandy clay loam soils are transitional soils and may be classified as either medium or fine textured soils. If silty clay loam or sandy clay loam soils are mostly sand or silt, they are usually classified as medium textured soils. If they are mostly clay, they are usually classified as fine textured soils.

Do not exceed recommended rates.

INCORPORATION DIRECTIONS

General Directions

Erratic weed control and/or crop injury may result if Trifluralin 4EC is not incorporated into the top 2 to 3 inches of the final seedbed.

Before Planting

Initial incorporation of Trifluralin 4EC must take place within 24 hours after application. A second incorporation prior to planting should be done by running the equipment in a different direction from the first. Incorporate Trifluralin 4EC uniformly into the top 2 to 3 inches of the final seedbed.

After Planting

For directions concerning incorporation after planting check label crop or crops of interest for specific instruction.

Bedded Culture

Trifluralin 4EC needs to be incorporated into the top 2 to 3 inches of the final seedbed for effective weed control.

Application Prior To Bedding

Apply Trifluralin 4EC prior to bedding and incorporate with recommended equipment. The bedding operation serves as the second incorporation. Avoid removal of untreated soil from the seedbed before or during the planting operation. This would expose untreated soil allowing

weeds to germinate in the drill row.

Application After Bedding

Knock off beds to planting height before application and incorporate Trifluralin 4EC with recommended equipment that will conform to the bed shape. Do not leave untreated soil exposed.

Recommended Equipment

Two incorporation passes are necessary unless specifically stated otherwise on this label. The second incorporation should not be deeper than the first.

Disc: Set disc to cut 4 to 6 inches deep and operate at 4 to 6 mph. A 4 to 6 inch cut should result in Trifluralin 4EC being incorporated into the top 2 to 3 inches of the soil.

Field Cultivator: Field cultivators are defined as implements with sweeps of 3 to 4 rows spaced al intervals of 7 inches or less staggered so that no soil is left unturned. Set to cut 3 to 4 inches deep operate at 5 mph or more. Do not use chisel points.

Combination Seedbed Conditioners: Set to cut 3 to 4 inches deep and operate at a speed of at least 5 mph. These are defined as three or more tillage devices combined and used as a single tool. For example, 2 to 3 rows of field cultivator C- or S- shaped shanks with an effective sweep spacing of 6 to 9 inches (staggered so that no soil is left unturned) followed by a spike tooth or flextine harrow followed by a ground driven reel or basket.

Rolling Cultivator: Set to cut 2 to 4 inches deep and operate at a speed of 6 to 8 mph. Rolling cultivators are effective for use on coarse and medium textured soils. The rolling cultivator may be used on fine textured soils when used in sugarcane.

Bed Conditioner (Do-All): Set to cut 2 to 4 inches deep and operate at a speed of 4 to 6 mph. The Do-all is effective when used on coarse or medium textured soils only. Only one incorporation pass is necessary in bedded culture. Two passes with the do-all are necessary in flat planted culture.

Mulch Treader (other similar disc-type implements): Set Mulch Treader to cut 3 to 4 inches deep and operate at 5 to 8 mph.

P.T.O. Driven Equipment (tillers, cultivators, hoes): Only one incorporation is required. Adjust to incorporate Trifluralin 4EC into the top 2 to 3 inches of the seedbed using rotors spaced to give a clean sweep of the soil. P.T.O. equipment should not be operated at a speed greater than 4 mph.

Other equipment, including the flexible tine-tooth harrow (Flextine, Melroe), is also recommended but only for the special usages for which it is specified in this label. Use other equipment only as specified herein.

CULTIVATION AFTER PLANTING

Soil may be shallow cultivated without reducing the weed control activity of Trifluralin 4EC. Poor weed control may result if cultivation is deeper than the treated soil since this may bring untreated soil to the surface.

CROP RECOMMENDATIONS

All recommendations are given as the broadcast rates of Trifluralin 4EC per acre. For band applications, decrease the amount of Trifluralin 4EC in proportion to the amount of surface treated per acre. Apply Trifluralin 4EC any time after January 1 when the soil can be worked and is suitable for good incorporation. For fall application see specific crop recommendations or "FALL APPLICATION" heading where specific crop recommendations are not given. Use the lower rate for coarser soils or soils with lower organic matter. For soils containing 10% or more organic matter do not use Trifluralin 4EC.

MIXING AND APPLICATION DIRECTIONS

Trifluralin 4EC In Water

Thoroughly clean sprayer prior to use. Fill the sprayer 1/3 to 1/2 full with clean water and start agitation. Add proper amount of Trifluralin 4EC providing sufficient agitation and finish filling the tank.

Trifluralin 4EC Tank Mixes in Water

For all tank mixes, continuous agitation is required. (Sparger pipe agitators generally provide the best agitation in spray tanks). To prevent foaming avoid stirring or splashing air into the mixture during filling by placing the end of the fill pipe below the surface of the water in the spray tank. Do not allow the mixture to siphon back into the water source.

Mixing Order

Fill the tank 1/3 to 1/2 full with clean water and start agitation. Add wettable powders and dry flowables and agitate until completely dispersed. Then add aqueous suspensions (flowables); then add Trifluralin 4EC. Lastly, add soluble ingredients and finish filling the tank. Provide continuous agitation during filling and through application. If spraying and agitation must be

stopped before the tank is empty the materials may settle to the bottom. If this happens, before continuing the spray application, resuspend all of the material in the bottom of the tank. A sparge agitator is particularly useful for this purpose. It may be more difficult to resuspend the settled material than it is to suspend it originally.

Read and carefully follow all label instructions for each material added to the tank. To help assure good dispersion in the tank water, make a slurry mixture by premixing dry and flowable formulations with water and pour the slurry through a 20 or 35 mesh wet screen in the top of the tank. No finer than 50 mesh line screens in the tank should be used.

If material builds up on the walls of the spray tank, wash the tank with soapy water between fillings. Rinse and continue the spraying operation. After completion of spraying, thoroughly clean the tank lines and screens. The importance of accurate calibration and uniform application increases as the spray volume decreases. Check sprayer daily to insure proper calibration and uniform application. To insure uniform application do not apply Trifluralin 4EC when the wind can cause drifting of spray particles. Poor weed control may result if Trifluralin 4EC is applied to soils which are wet or are subject to prolonged periods of flooding.

Ground Application

Using a low pressure herbicide sprayer which will apply the spray uniformly, apply Trifluralin 4EC in 5 to 40 gallons of water or liquid fertilizer per acre (broadcast spray).

Aerial Application

For aerial spraying apply Trifluralin 4EC in 5 to 10 gallons of water or liquid fertilizer per acre. Pump pressure, nozzle arrangements speed and height should be adjusted to provide a uniform application to the soil surface. To assure proper application spray widths use swath markers or flagmen.

Fall Application (Areas receiving more than 20" average annual rainfall)

See specific crop for recommendations. Use the rates listed for spring applications for all crops for which there are no specific fall application instructions and for which Trifluralin 4EC is recommended as a preemergence application. Trifluralin 4EC should not be applied in the fall for sugarbeets, potatoes and direct seeded tomatoes. Apply and incorporate Trifluralin 4EC any time between October 15 and December 31. Leave ground flat or bedded over winter. On bedded ground beds should be knocked down to desired height prior to planting moving some treated soil from beds into furrows. Where soil is left over winter care should be taken not to turn up untreated soil during spring bedding operations. During seedbed preparation destroy established weeds. Destroy weeds which have become established in furrows due to uncovering of untreated soil during bedding. Trifluralin 4EC should not be applied in the fall to soils which are wet are subject to prolonged periods of flooding or where rice was grown the previous year.

Plantback Restrictions

In Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming after a spring application of Trifluralin 4EC sugarbeets, red beets or spinach should not be planted for 12 months or for 14 months after fall application. Soil should be plowed to a depth of 12 inches prior to planting sugar beets to prevent the possibility of crop injury. After a spring application sorghum (milo), proso millet, corn or oats should not be planted for 14 months after application or for 16 months after a fall application of Trifluralin 4EC to avoid crop injury. If land has not been irrigated do not plant any of these crops for 18 months after a spring application or 20 months after a fall application of Trifluralin 4EC.

In those areas of Kansas, Nebraska, North Dakota, Oklahoma, South Dakota and Texas where at least 20 inches of rain/or irrigation (total) was used to produce the crop sorghum or oats should not be planted for 12 months after an application of Trifluralin 4EC.

Do not plant sorghum, proso millet or oats for 18 months after an application of Trifluralin 4EC if less than 20 inches of total water was used to produce the crop. Cool wet weather conditions during the early stage of growth may increase the possibility of injury to sorghum.

In all other areas receiving greater than 20" rainfall per year, before planting sugar beets where a spring application of Trifluralin 4EC was made the previous season moldboard plow. Also note planting restrictions listed in the section on control of rhizome johnsongrass and other high rate programs.

For vegetables other than those listed on this label, crops should not be planted within 5 months following the application of Trifluralin 4EC.

PRECAUTIONS

Observe all precautions and limitations on the labels of each product used in tank mixes and overlays. Under normal growing conditions and if applied according to directions, Trifluralin 4EC will not harm the treated crop. Crop injury or soil residue may result from over application. Erratic weed control or crop injury may result from uneven application or improper soil incorporation of Trifluralin 4EC. Seedling disease, cold weather, deep planting, excessive moisture, high salt concentration or drought may weaken crop seedlings and increase the possibility of damage from Trifluralin 4EC. Under these conditions delayed crop development or reduced yields may result.

CHEMIGATION

General Instructions

Apply Trifluralin 4EC only through one or more of the following types of systems: sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or

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hand move irrigation systems. Do not apply Trifluralin 4EC through any other type of irrigation system.

Crop injury, lack of effectiveness or illegal pesticide residues in the crop may result from non-uniform distribution of treated water.

If you have questions about calibration, you should contact State Extension Service Specialists, equipment manufacturers, or other experts.

Do not connect an irrigation system used for pesticide application to a public water system unless the pesticide label prescribed safety device for public water systems is in place.

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

Specific Instructions for Public Water Systems

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Chemigation systems connected to public water systems must contain a functional, reduced - pressure zone, backflow preventer, (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

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

Specific Instructions for Sprinkler Irrigation Systems

The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of liquid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

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

Good agitation is required in the injection tank.

In moving systems, apply specified dosage of Trifluralin 4EC as a continuous injection. In non-moving systems inject Trifluralin 4EC for 15 to 20 minutes at end of cycle. Use the least amount of water possible for uniform coverage.

Mix the amount of Trifluralin 4EC needed for acreage to be treated into the quantity of water determined during prior calibration (refer to Mixing and Application Directions). For moving systems inject into the system continuously for one complete revolution of the field. For non-moving systems inject into system for the time established during calibration.

Stop injection equipment after treatment is completed and continue to operate irrigation equipment until all Trifluralin 4EC is flushed from system.

ALFALFA
Established

Use a broadcast rate of 1.5 pints per acre on coarse soils and 2 pints on medium and fine soils in areas receiving less than 20 inches average annual rainfall. Damage to the established alfalfa may be cased if the proper incorporation equipment is not used for thorough soil mixing. Recommended soil preparation application and incorporation instructions should be followed.

Application Timing and Rates

Trifluralin 4EC may be applied to established alfalfa prior to weed emergence while the crop is dormant, semidormant or during the season if applied immediately after a cutting. Alfalfa should not be cut or grazed within 21 days of application. Trifluralin 4EC should be applied only once per growing season. Trifluralin 4EC does not control established weeds and as such treatment must be made prior to germination. For cool season fall germinating weeds such as bromegrass and cheat Trifluralin 4EC should be applied from August 1 to October 1. For other weeds on the label apply prior to their season of germination generally late winter to early spring.

PRECAUTION
Do not apply when winds are greater than 10 to 15 mph to avoid drift or wind skips. Do not apply thorough any system with leaking connections.

ASPARAGUS
Established

Follow recommended soil preparation, application and incorporation procedures for Trifluralin 4EC. Trifluralin 4EC can be applied to established asparagus as a single or as a split application. In the winter or early spring, apply to asparagus after ferns are removed but before spear emergence or apply after harvest in the late spring or early summer before turning begins. Trifluralin 4EC will suppress volunteer seeding asparagus and field bindweed if you use the following recommended rates and application schedules.

Broadcast Rates Per Acre

Trifluralin 4EC (pints)	Coarse	Medium	Fine
Split Application	1	1.5	2
OR			
Single Application	2	3	4

In any single calendar year, the maximum Trifluralin 4EC to apply is 2 pints per acre on coarse

soils, 3 pints on medium soils and 4 pints on fine soils.

BEAN
Dry

Apply Trifluralin 4EC before planting using the following rates:

Broadcast Rates Per Acre

Trifluralin 4EC (pints)	Coarse	Medium	Fine
Areas receiving less than 20" average annual rainfall	1	1.25-1.5	1.5
Areas receiving greater than 20" average annual rainfall	1	1.5	2

For soils with 2-5% organic matter use 1.5 pints per acre on coarse and medium soils and 2 pints on fine soils. For soils with 5-10% organic matter use 2 pints on all soils.

Trifluralin 4EC with EPTAM Tank Mix

A tank mix of Trifluralin 4EC and EPTAM will effectively control all the following weeds in addition to those weeds listed for Trifluralin 4EC.

Henbit (spring applications)	Oat Wild
Nightshade, Black	Ragweed, Common
Nightshade, Hairy	Smartweed, Pennsylvania
Nutsedge	Velvetleaf (Buttonweed)

Follow recommended soil preparation and incorporation procedures for Trifluralin 4EC. Apply this tank mix from 2 days prior to planting up to planting. Incorporate immediately after application.

Broadcast Rates Per Acre

Trifluralin 4EC (pints)	Coarse	Medium	Fine
Areas receiving less than 20" average annual rainfall	1	1.25-1.5	1.5
Areas receiving greater than 20" average annual rainfall PLUS	1	1.5	2

EPTAM 7E* (pints)	2.5-3.5	2.5-3.5	2.5 - 3.5

*To control annual grasses use EPTAM 7E at a rate of 2.5 pints per acre. To control nutsedge and additional broadleaf weeds use 3.5 pints.

On soils with 2-5% organic matter use Trifluralin 4EC at 1.5 pints per acre on coarse and medium soils and 2 pints on fine soils. For soils with 5-10% organic matter use 2 pints of Trifluralin 4EC on all soils.

PRECAUTIONS
Observe all precautions and limitations on the labels of each product used in tank mixes and overlays. Do not use this tank mix on some black-eyed peas (beans), lima beans, soybeans, mung beans and other flatpodded beans except Romano. Do not use foliage from treated plants for feed or forage or for grazing.

Fall application in Idaho, Oregon and Washington

Apply and incorporate Trifluralin 4EC between October 15 and December 31. Use a broadcast rate of 1 pint per acre on coarse soils, 1.25 to 1.5 pints on medium soils and 1.5 pints on fine soils. Destroy established weeds during seedbed preparation.

BEAN
Guar and Mungbean

Apply and incorporate Trifluralin 4EC prior to planting at 1 pint per acre on coarse soils and 1.5 pints on medium and fine soils.

BEAN
Snap and Lima

Apply and incorporate Trifluralin 4EC prior to planting at a broadcast rate of 1 pint per acre or coarse and medium soils and 1.5 pints on fine soils.

CARROT

Broadcast Rates Per Acre

	Coarse	Medium	Fine
Trifluralin 4EC (pints)			

Areas receiving less than 20" average annual rainfall	1	1.25-1.5	1.5
Areas receiving greater than 20" average annual rainfall	1	1.5	2

For soils with 2-5% organic matter use 1.5 pints on coarse and medium and 2 pints on fine soils. On soils with 5-10% organic matter use 2 pints on all soils.

CASTOR BEAN

Broadcast Rates Per Acre	Coarse	Medium	Fine
Trifluralin 4EC (pints)			
Areas receiving less than 20" average annual rainfall	1	1.25-1.5	1.5
Areas receiving greater than 20" average annual rainfall	1	1.5	2

For soils with 2-5% organic matter use 1.5 pints on coarse and medium and 2 pints on fine soils. On soils with 5-10% organic matter use 2 pints on all soils.

CELERY

Direct seeded and transplant in areas receiving less than 20" average annual rainfall.

Broadcast Rates Per Acre	Coarse	Medium	Fine
Trifluralin 4EC (pints)	1	1.25-1.5	1.5

For soils with 2-5% organic matter use 1.5 pints on coarse and medium and 2 pints on fine soils. On soils with 5-10% organic matter use 2 pints on all soils.

COLE CROPS
Broccoli, Brussels Sprout, Cabbage & Cauliflower

<u>Transplant</u>

Apply and incorporate Trifluralin 4EC prior to transplanting only.

Broadcast Rates Per Acre

Trifluralin 4EC (pints)	Coarse	Medium	Fine
Areas receiving less than 20" average annual rainfall	1	1.25-1.5	1.5
Areas receiving greater than 20" average annual rainfall	1	1.5	2

For soils with 2-5% organic matter use 1.5 pints on coarse and medium and 2 pints on fine soils. On soils with 5-10% organic matter use 2 pints on all soils.

Direct Seeded

Use Trifluralin 4EC before planting at a broadcast rate of 1 pint per acre on coarse and medium soils and 1.5 pints on fine soils and soils with 2-5% organic matter. Direct-seeded cole crops have exhibited marginal tolerance to recommended rates of Trifluralin 4EC.

Warning: stunting or reduced stands may occur.

COTTON

Apply Trifluralin 4EC before planting, immediately after planting, or at layby.

Preemergence

Broadcast Rates Per Acre

Trifluralin 4EC (pints)	Coarse	Medium	Fine
Areas receiving less than 20" average annual rainfall	1	1.25-1.5	1.5
Areas receiving greater than 20" average annual rainfall	1	1.5	2

Use 1.5 pints per acre on coarse and medium textured soils, 2 pints on fine soils with 2-5% organic matter and 2 to 2.5 pints on all soils with 5-10% organic matter.

Postplant

Do not disturb the seed when incorporating Trifluralin 4EC postplant.

Layby

Trifluralin 4EC can be applied and incorporated any time up to layby, but not less than 90 days before harvest. Direct layby applications onto the soil between the rows and beneath emerged cotton plants at the same rates as for a preemergence application.

Fall Application

Trifluralin 4EC may be applied and incorporated any time between October 15 and December 31. The ground may be left flat or bedded-up over winter. Where soil is left flat, take care not to turn up untreated soil from beds into furrows. On bedded grounds, knock down beds to desired heights before planting, moving some treated soil into furrow from the beds. Destroy established weeds during preparation of seedbed. Before planting, destroy weeds which may have become established in furrows during the uncovering of untreated soil during bedding. Trifluralin 4EC should not be applied to wet soil or soils which are subject to prolonged periods of flooding.

Broadcast Rates Per Acre - Fall Application Only

In Alabama, Arkansas, northern Florida, Georgia, Louisiana, Mississippi, southeastern Missouri bootheel, North Carolina, New Mexico, Oklahoma, South Carolina, Tennessee, and Texas, apply and incorporate Trifluralin 4EC at a broadcast rate of 2 pints per acre on coarse and medium soils and 2.5 pints on fine soils.

In Arizona and Nevada, a broadcast rate of 1.5 pints per acre should be used on coarse soil, 2 pints on medium soil and 2.5 pints on fine soil.

For other states where cotton may be grown, apply Trifluralin 4EC at a broadcast rate of 1 pint per acre on coarse soils, 1.5 pints on medium soils and 2 pints on fine soils. For coarse soils with 2-5% organic matter use 1.5 pints. For soils with 5-10% organic matter use 2 to 2.5 pints.

SPECIAL USE DIRECTIONS FOR COTTON

Fall Panicum

Apply and incorporate Trifluralin 4EC broadcast at the rate of 2 pints per acre on coarse and medium soils.

Rhizome Johnsongrass

Rhizome Johnsongrass can be controlled in all cotton producing states except Arizona by using a double rate program applied for two consecutive years as follows.

Soil Preparation

For satisfactory results proper soil preparation is essential. To bring rhizomes to the top of the soil use a chisel plow or similar implement. Follow with a disc twice before application to cut rhizomes into small 2 to 3 inch pieces. Any emerged johnsongrass should be destroyed.

Application

Choose one of the following programs which best meets your cultural practices:

For spring application apply Trifluralin 4EC prior to planting in the spring for 2 consecutive years. A broadcast rate of 2 pints per acre should be used on coarse soils, 3 pints on medium soils and 4 pints on fine soils.

OR

For fall application use Trifluralin 4EC between October 15 and December 31 for 2 consecutive years at the same rates as a spring application.

Incorporation

For good rhizome johnsongrass control deep incorporation is necessary. Incorporate Trifluralin 4EC thoroughly with a disc set to cut 4 to 6 inches deep and operate at 4 to 6 mph. Two passes are necessary with the second pass in a different direction from the first.

Cultivation

To remove johnsongrass plants which have escaped control, timely cultivations during the crop season are necessary to obtain effective control. Effective control cannot be obtained with only 1 year of double rate Trifluralin 4EC use.

Crop Rotation

Plant only rice and those crops for which Trifluralin 4EC can be applied as a preplant treatment following a double rate treatment season or injury may result.

<u>Pigweed and Seedling Johnsongrass Control</u>

In Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, southeastern Missouri, North Carolina, South Carolina, Tennessee and southern Virginia, apply Trifluralin 4EC preplant at a broadcast rate of 1 to 1.5 pints per acre on coarse soils, 1.5 to 2 pints on medium soils and

2 pints on fine soils. Exception: Use 3 pints per acre on fine soils in Louisiana.

Additional Weed and Grass Control

In the Texas Gulf Coast counties of Brazoria, Calhoun, Chambers, Fort Bend, Galveston, Harris, Jackson, Jefferson, Liberty, Matagorda, Orange, Victoria, Waller and Wharton, apply Trifluralin 4EC at a broadcast rate of 1.5 pints per acre on coarse soils, 2 pints on medium soils and 3 pints on fine soils two weeks prior to planting.

PRECAUTIONS

When using higher usage rates, plant cotton after early season adverse weather conditions to avoid additional stress to the cotton plants due to cool, wet weather early in the growth cycle, which could cause reduced stands, delayed maturity and reduced yields.

TANK MIXES AND OVERLAYS

Observe all precautions and limitations on the label of each product used in tank mixes and overlays.

Trifluralin 4EC with COTTON PRO - Arizona, New Mexico and West Texas
Trifluralin 4EC with CAPAROL 4L - Arizona, New Mexico and the upper and lower El Paso Valley, Texas

Trifluralin 4EC with COTTON PRO or CAPAROL 4L will control certain grasses and broadleaf weeds listed for Trifluralin 4EC alone plus the following weeds.

Annual Morningglory	Prickly Sida (Teaweed)
Groundcherry (Annual)	Ragweed
Malva	Smartweed
Mustard	Wild Oat

Shallow germinating seedlings of cocklebur and coffeeweed will also be controlled.

Broadcast Rates Per Acre

	Coarse	Medium	Fine
Trifluralin 4EC (pints)	1	1.25 - 1.5	2
PLUS			
COTTON PRO (pints)	3.125	4	4
OR			
CAPAROL 4L (pints)	2.4-3.2*	4	4

Do not use on sands and loamy sands. Use proportionally less for band application. *Use less than 3.2 pints per acre only in Arizona

Mixing Directions

Make a slurry following the instructions on the COTTON PRO or CAPAROL 4L label. Add slurry to a partially filled tank of water. Add Trifluralin 4EC and fill tank. During the filling and spraying operation, agitate continuously. If bypass agitation is used, minimize foaming by hanging the bypass line stop at the bottom of the tank. Avoid leaving the spray mixture in the tank without constant agitation.

Crop Rotations

After a spring application of Trifluralin 4EC plus COTTON PRO or CAPAROL 4L, cabbage, okra, onions and peas may be planted in the fall. Winter barley, winter rye and winter wheat, if plowed down and not used for food or feed, can be planted in the fall also. Refer to the COTTON PRO or CAPAROL 4L label for directions, cautions and precautions.

PRECAUTIONS

Do not use a Trifluralin 4EC with COTTON PRO or CAPAROL 4L tank mix in the cut areas of newly leveled fields, in areas of excess salt, or where flooding over the beds is likely to happen. Do not plant cotton in tractor wheel depressions. These conditions may cause crop injury. On mulch planted cotton, water back only after cotton seedlings are well-established. Do not feed foliage from treated plants to livestock or graze treated areas.

Trifluralin 4EC with METURON 4L, METURON 80DF, COTORAN 4L or COTORAN DF (except in Arizona)

Follow recommended soil preparation and incorporation procedures for Trifluralin 4EC. A tank mix of Trifluralin 4EC with METURON 4L, METURON 80DF, COTORAN 4L or COTORAN DF effectively controls all the annual grasses and broadleaf weeds listed for Trifluralin 4EC alone plus these additional weeds:

Buttonweed	Ragweed
Cocklebur	Ryegrass
Groundcherry, Wright	Sesbania
Jimsonweed	Sicklepod
Morningglory	Smartweed
Prickly Sida (Teaweed)	Tumbleweed

Broadcast Rates Per Acre

	Coarse	Medium	Fine
Trifluralin 4EC (pints)	1	1.5	2
PLUS			

METURON 4L (pints)	2	3.125	4
OR			
METURON 80DF (pounds)	1.25	1.9	2.5
OR			
Cotoran 4L (pints)	2	3.125	4
OR			
Cotoran DF (pounds)	1.2	2	2.4

Mixing Directions

Make a slurry following the instructions on the METURON or COTORAN labels. Add slurry to a partially filled tank of water. Add the Trifluralin 4EC after METURON or COTORAN is thoroughly mixed and continue filling. Agitate continuously throughout the filling and application operations. Do not leave spray mixture in tank without constant agitation. If bypass agitation is used minimize foaming by hanging the bypass line stop at the bottom of the tank. Apply in 15 to 40 gallons of water per acre.

West Texas Only

Do not use tank mix of Trifluralin 4EC plus METURON or COTORAN on sandy, loamy sand or fine sandy loam soils. Do not use on cotton planted in furrows.

Arkansas, Louisiana and Mississippi Only

On sandy loam soils low in organic matter use 1.5 pints METURON 4L or Cotoran 4L or 1 pound METURON 80DF or COTORAN DF in tank mix with Trifluralin 4EC.

New Mexico

Do not plant treated land with crops other than cotton until 1 year after the last application. Do not use on sandy or coarse textured souls of less than 1% organic matter.

PRECAUTIONS

Crop injury may result if treated land is planted to anything but cotton within six months of the application of Trifluralin 4EC plus METURON or COTORAN. Do not feed foliage from treated cotton plants or gin trash to livestock. Do not mix Trifluralin 4EC plus METURON or COTORAN with liquid fertilizer.

Trifluralin 4EC preplant followed by METURON 4L, METURON 80DF, COTORAN 4L or COTORAN DF Overlay

Apply and incorporate Trifluralin 4EC as recommended for the specific soil texture. Apply METURON 4L or Cotoran 4L at 2 to 4 pints per acre or METURON 80DF or COTORAN DF

at 1.2 to 2.4 pounds per acre as a preemergence surface treatment. Use the lower rate on light silt and sandy soil low in organic matter.

PRECAUTION
Observe all precautions and limitations on the labels of each product used in tank mixes and overlays.

Trifluralin 4EC preplant followed by DIREX 4L or KARMEX DF Overlay (East of the Mississippi River plus Arkansas, southeastern Missouri, Louisiana and Eastern Texas)

Incorporate Trifluralin 4EC prior to planting. Follow with a preemergence application of DIREX 4L or KARMEX DF. This will effectively control all the weeds controlled by Trifluralin 4EC alone plus these additional weeds.

Annual Ground, Cherry	Ragweed
Annual Morning Glory	Shepherdspurse
Dogfennel	Velvetgrass
Pennycress	Wild Lettuce
Wild Mustard	

Broadcast Rates Per Acre

	Coarse	Medium	Fine
Trifluralin 4EC (pints)	1	*1.5*	2
PLUS			
DIREX 4L (pints)	0.5	1	1.75
OR			
KARMEX DF (pounds)	0.33	0.67	1

PRECAUTIONS
Observe all precautions and limitations on the label of each product used in tank mixes and overlays. DIREX 4L or KARMEX DF should not be used on soils with less than 1% organic matter as crop injury may result. Do not feed foliage from treated plants to livestock or gaze treated areas.

CUCURBITS
Cantaloupe, Cucumber and Watermelon

Postplant Emerged in Western United States including Texas

Apply Trifluralin 4EC as a directed spray to the soil between the rows and beneath plants which are in the 3 to 4 true leaf stage.

Broadcast Rates Per Acre

Trifluralin 4EC (pints)	Coarse	Medium	Fine
Areas receiving less than 20" average annual rainfall	1	1.25-1.5	1.5
Areas receiving greater than 20" average annual rainfall	1	1.5	2

For soils with 2-5% organic matter use 1.5 pints on coarse and medium and 2 pints on fine soils. On soils with 5-10% organic matter use 2 pints on all soils.

FIELD CORN, GRAIN SORGHUM AND CORN FODDER, FORAGE AND SILAGE

Apply Trifluralin 4EC to field corn or grain sorghum (8 inches or taller) as an over-the-top or directed spray to effectively control weeds listed for Trifluralin 4EC. Trifluralin 4EC applied as an over-the-top spray or as a directed spray in field corn and grain sorghum will control shattercane in addition to those other weeds listed on the label for Trifluralin 4EC.

Soil Preparation

Cultivate before a Trifluralin 4EC application to insure loose, friable soil, to remove established weeds and to cover the base of plants with soil.

Application Directions

Trifluralin 4EC should be applied and incorporated at the recommended rates for the soil texture when the crop is well established (8 inches or taller). Trifluralin 4EC may be applied either as an over-the-top spray or as a directed spray. Drop nozzles should be used if foliage prevents uniform coverage of soil surface. Soil incorporation may be accomplished with only one pass of a sweep-type cultivator or a properly adjusted rolling cultivator. The sweep-type cultivator should have 3 to 5 sweeps per row middle and be operated at 6 to 8 mph. Set the middle sweeps so as to avoid exposing untreated soil. Adjust the incorporation tools to prevent crop injury.

Broadcast Rates Per Acre

	Coarse	Medium	Fine
Trifluralin 4EC (pints)	0.75-1	1-1.5	1.5-2

Corn Only

Apply 1 to 1.5 pints per acre in Alabama, Florida, Georgia, North Carolina, South Carolina and Virginia to control fall panicum and Texas panicum.

Trifluralin 4EC with Atrazine Tank Mix

Trifluralin 4EC can be tank mixed with atrazine for additional weed control in field corn and grain sorghum.

Broadcast Rates Per Acre

	Coarse*	Medium	Fine
Trifluralin 4EC (pints)	0.75-1	1-1.5	1.5-2
PLUS			
AAtrex 4L (pints)	2.4	4.75	6

When using AAtrex 4L use the rates listed above. For other atrazine formulations, use equivalent rates. When using AAtrex NineO 1 pint of 4L = 0.55 pound of NineO. One pint of 4L equals 0.62 pounds of Atrazine 80W.

*Do not use the above tank mix on coarse soils for grain sorghum.

Apply and incorporate the Trifluralin 4EC/Atrazine tank mix as directed on the Trifluralin 4EC label for field corn and grain sorghum.

PRECAUTIONS

Do not apply Trifluralin 4EC to sweet corn or corn grown for seed. Do not apply to corn or sorghum as a preplant or preemergence treatment or crop injury may occur. Observe all precautions and limitations on the labels of each product used in tank mixes and overlays.

FLAX

Fall Application

Trifluralin 4EC may be applied and incorporated in the fall for weed control in spring seeded flax. Ground cover from existing weeds or previous crop should be at a manageable level so that there is no interference with incorporation.

Apply at the broadcast rates per acre of 1 pint on coarse soil, 1.5 pints on medium soil and 2 pints for fine soils.

Incorporation Directions

Incorporate one time within 24 hours after application. The second incorporation should be

performed in the spring prior to seeding flax. The incorporation operations should result in a thorough mixing of Trifluralin 4EC with soil. Otherwise, erratic weed control may result.

Incorporation Equipment

Follow recommended soil incorporation procedures for Trifluralin 4EC. Incorporation operations or any other tillages performed in the spring prior to seeding should be relatively shallow so as to maintain a firm seedbed, and the seedbed should be packaged just prior to seeding. Seeding should be done with a press drill or hoe drill. Seed into a moist seedbed no more than 1.5 inches deep. Do not delay the first incorporation more than 24 hours after application.

FRUIT AND NUT CROPS AND VINEYARDS

For areas receiving more than 20" average annual rainfall

On new plantings of citrus, pecan trees and vineyards apply and incorporate Trifluralin 4EC prior to planting at a broadcast rate of 1 pint per acre on coarse soils, 1.5 pints on medium soils and 2 pints on fine soils. On soils with 2-5% organic matter use 1.5 pints on fine soils and on soils with 5-10% organic matter use 2 pints. Use Trifluralin 4EC at a broadcast rate of 2 to 4 pints per acre for all soil textures for non-bearing established plantings of citrus and pecan trees and bearing plantings of grapefruit, lemon, orange, pecan, tangelo, and tangerine trees.

For areas receiving less than 20" average annual rainfall

On new plantings of almond, apricot, citrus, nectarine, peach, pecan, and walnut trees apply and incorporate Trifluralin 4EC prior to planting at a broadcast rate of 1 pint per acre on coarse soils, 1.25 to 1.5 pints on medium soils, 1.5 pints on fine soils, on soils with 2-5% organic matter use 1.5 to 2 pints and 2 pints on soils with 5-10% organic matter.

New Plantings of Vineyards

Apply and incorporate Trifluralin 4EC prior to planting at a broadcast rate of 1 to 1.5 pints per acre on coarse soils, 1.5 to 3 pints on medium soils and 3 to 4 pints on fine soils or soils with 2-10% organic matter. Do not use more than 2 pints per acre on heat-treated grape rootings.

Postplant Application

For postplant applications on bearing or non-bearing established plantings of vineyards and almond, apricot, grapefruit, lemon, nectarine, orange, peach, plum, prune, tangelo, tangerine and walnut trees. Use Trifluralin 4EC at a broadcast rate of 2 to 4 pints per acre for all soil textures. Do not apply to vineyards within 60 days of harvest. In established plantings, use Trifluralin 4EC as a directed spray to the soil. Use incorporation methods not injurious to the

trees or vines.

Rhizome Johnsongrass control

For areas receiving less than 20" average annual rainfall. Control rhizome johnsongrass with postplant applications in bearing and non-bearing established plantings of vineyards and almond, apricot, grapefruit, lemon, nectarine, orange, peach, pecan, tangelo, tangerine, and walnut trees by applying Trifluralin 4EC for 2 consecutive years.

Soil Preparation

Soil should be worked thoroughly to bring the rhizomes near the surface.

Application

Use Trifluralin 4EC at a broadcast rate of 2 quarts per acre on all soil textures each year for 2 consecutive years. Do not apply to vineyards within 60 days of harvest.

Incorporation

Incorporate Trifluralin 4EC thoroughly with a disc set to cut 4 to 6 inches deep and operate at 4 to 6 mph. Two incorporation passes are necessary using a different direction for the second.

Cultivation

As some johnsongrass plants will escape. Cultivation is necessary to obtain effective control. Effective control cannot be obtained with only 1 year of Trifluralin 4EC use.

PRECAUTIONS

Crop injury may result if the 2 quart rate is used on new plantings. Orchard or vineyards should not be interplanted with other crops. If the treated vineyards and orchards are diverted to other crop uses plant only those crops for which Trifluralin 4EC has been registered as a preplant treatment for the next cropping season.

Bindweed control In California

Use Trifluralin 4EC for the control of field bindweed in vineyards and for almond, apricot, grapefruit, lemon, nectarine, orange, peach, pecan, tangelo, tangerine and walnut trees.

Use Trifluralin 4EC at a broadcast rate of 4 pints per acre on all soil textures. Trifluralin 4EC must be applied in the spring with a specially designed spray blade which applies a thin concentrated layer at a soil depth of 4 to 6 inches. This layer of Trifluralin 4EC prevents bindweed shoots from emerging.

Land Preparation

All weeds and grasses should be destroyed with soil tillage prior to applying Trifluralin 4EC. This tillage is necessary to prevent trash from interfering with the operation of the spray blade.

Equipment

A spray blade capable of running 4 to 6 inches below the surface of the soil should be used. The spray blade should be equipped with nozzles located under the blade and directed so that the Trifluralin 4EC spray will be trapped under the soil which is flowing over the blade as it is pulled through the soil. A sufficient number of nozzles should be used with spacing that will uniformly apply the Trifluralin 4EC underground in a thin horizontal layer.

Application

Use Trifluralin 4EC in 40 to 80 gallons of water per acre. Operate the spray blade at a depth of 4 to 6 inches.

PRECAUTION
After rainfall or irrigation some soils may crack as they dry. Bindweed may emerge if the cracks extend through the Trifluralin 4EC layer. Prevent or eliminate cracks by shallow. discing or other tillage. Avoid deep tillage which disturbs the subsurface layer. Cultivation or tillage also aids the control of germinating seeds.

GREENS
Turnip greens grown for processing, Collards, Kale and Mustard Greens

Apply and incorporate Trifluralin 4EC prior to planting at 1 pint per acre on coarse soils and 1.5 pints on medium and fine soils.

HOPS

Apply and incorporate Trifluralin 4EC while the crop is dormant using a broadcast rate of 1 pint per acre on coarse soils, 1.25 pints on medium soils and 1.5 pints on fine soils. Use incorporation equipment that will insure thorough soil mixing with minimum damage to the crop.

KENAF

Application Directions

Ground Application
Using a low pressure herbicide sprayer which will apply the spray uniformly, apply Trifluralin 4EC in 5 to 40 gallons of water (broadcast spray).

Aerial Application
For aerial spraying apply Trifluralin 4EC in 5 to 10 gallons of water. Pump pressure, nozzle arrangements, speed and height should be adjusted to provide a uniform application to the soil surface. To assure proper application spray widths use swath markers or flagmen.

Broadcast Rates Per Acre

	Coarse	Medium	Fine
Trifluralin 4EC (pints)	0.75-1	1-1.5	1.5-2

Incorporation Directions

General Directions
Erratic weed control and/or crop injury may result if directions are not followed. The soil surface should be free of existing weeds and excessive trash or clods.

Before Planting
Incorporation of Trifluralin 4EC must take place within 24 hours after application and may be accomplished in one pass with a sweep type or a rolling cultivator. Follow recommended soil incorporation procedures for Trifluralin 4EC.

PRECAUTION
Without reducing the weed control activity of Trifluralin 4EC, soil treated with Trifluralin 4EC may be shallow cultivated, rotary hoed, or handhoed. Do not cultivate deeper than (1 to 2 inches) the Trifluralin 4EC treated layer of soil as this may bring untreated soil to the surface and poor weed control may result. Kenaf treated with Trifluralin 4EC must not be used as a food, forage or feed.

MINT
Established Peppermint and Spearmint

Use Trifluralin 4EC at a rate of 1 pint per acre on coarse soils, 1.25 pints on medium soils and 1.5 pints on fine soils. Use incorporation equipment that will insure thorough soil mixing with minimum damage to the crop.

MUSTARD

Grown for seed or processing for food in Minnesota, Montana and North Dakota. Apply and incorporate Trifluralin 4EC prior to planting at 1 pint per acre on coarse soils and 1.5 pints on medium and fine soils.

NUT CROPS

See FRUIT AND NUT CROPS AND VINEYARDS for Instructions.

OKRA

Broadcast Rates Per Acre

	Coarse	Medium	Fine
Trifluralin 4EC (pints)			
Areas receiving less than 20" average annual rainfall	1	1.25-1.5	1.5
Areas receiving greater than 20" average annual rainfall	1	1.5	2

For soils with 2-5% organic matter use 1.5 pints on coarse and medium and 2 pints on fine soils. On soils with 5-10% organic matter use 2 pints on all soils.

ONIONS
Grown for Dry Bulbs Only

Apply Trifluralin 4EC as a directed spray to the soil between the onion rows. Avoid spraying the onion tops or exposed bulbs. Do not apply within 60 days of harvest.

Broadcast Rates Per Acre

	Coarse	Medium
Trifluralin 4EC (pints)	0.75-1	1-1.25

For band applications, use proportionately less Trifluralin 4EC. Use the lower rates where light weed pressure is anticipated.

Soil incorporation may be accomplished by operating sweep-type or rolling cultivators 2 to 4 inches deep at 6 to 8 mph. Incorporation equipment must mix Trifluralin 4EC uniformly in the soil. Incorporate with two passes. The first pass must be within 24 hours of application or

erratic weed control may result. Avoid covering exposed onion bulbs with treated soil during incorporation as injury to the crop may occur. Care should be taken to avoid injury to the roots during incorporation.

PRECAUTION
Applied according to these directions and under normal growing conditions Trifluralin 4EC will not adversely affect onions. Diseases, improper incorporation depth, excessive moisture, high salt concentration or drought may weaken the crop and increase the possibility of damage from Trifluralin 4EC. Under these conditions, delayed crop development or reduced yields may result.

PEA
Dry and English

Apply and incorporate Trifluralin 4EC prior to planting at a rate of 1 pint per acre on coarse and medium soils and 1.5 pints on fine soils.

Trifluralin 4EC with FAR-GO tank mix in Idaho Oregon and Washington

Trifluralin 4EC plus FAR-GO controls wild oat in addition to other annual grasses and broadleaf weeds controlled by Trifluralin 4EC.

Application Rates

Broadcast 0.75 pint of Trifluralin 4EC per acre on coarse and medium soils, 1 pint on fine soils. Use 1.25 quarts of FAR-GO per acre for all soil textures.

Incorporation Directions

Apply and incorporate up to 3 weeks prior to planting. Follow recommended incorporation procedures for Trifluralin 4EC.

PRECAUTION
Do not apply to lentils. Leaf crinkling and delayed maturity of peas may occur particularly on Clay Points in the northwest; but this is usually more than offset by a reduction of wild oat. Do not use foliage from treated plants for feed or grazing. Observe all precautions and limitations on the label of each product used in tank mixes and overlays.

Fall application in Idaho, Oregon and Washington

Apply and incorporate Trifluralin 4EC any time between October 15 and December 31 using a broadcast rate of 1 pint per acre on coarse soils, 1.25 to 1.5 pints on medium soils and 1.5 pints on fine soils. Destroy established weeds during seedbed preparation. Do not apply Trifluralin

4EC in the fall to soils which are wet or are subject to prolonged periods of flooding.

PEANUT
Spanish Peanut in Oklahoma and Texas

Apply and incorporate Trifluralin 4EC prior to planting at planting or immediately after planting using a broadcast rate of 1 pint per acre on coarse soils. When incorporating after planting take care not to disturb the seed.

PEPPER
Transplant

Apply and incorporate Trifluralin 4EC prior to transplanting only.

Broadcast Rates Per Acre

Trifluralin 4EC (pints)	Coarse	Medium	Fine
Areas receiving less than 20" average annual rainfall	1	1.25-1.5	1.5
Areas receiving greater than 20" average annual rainfall	1	1.5	2

For soils with 2-5% organic matter use 1.5 pints on coarse and medium and 2 pints on fine soils. On soils with 5-10% organic matter use 2 pints on all soils.

POTATO
All states except Maine

Apply and incorporate Trifluralin 4EC after planting prior to emergence or immediately following dragoff or after the potato plants have fully emerged.

Broadcast Rates Per Acre

Trifluralin 4EC (pints)	Coarse	Medium	Fine
Areas receiving less than 20" average annual rainfall	1	1.25-1.5	1.5

Areas receiving greater than 20" average annual rainfall	1	1.5	2

For soils with 2-5% organic matter use 1.5 pints on course & medium soils and 2 pints on soils with 5-10% organic matter.

Incorporation equipment should be set to uniformly cover the bed and furrow with a layer of treated soil. If the herbicide is concentrated over the bed, potato emergence may be retarded and stem brittlene..s can occur. Do not completely cover the foliage with treated soil when Trifluralin 4EC is applied and incorporated after potato plants have fully emerged. Do not completely cover foliage at subsequent cultivations. Be careful that incorporation machinery does not damage potato seed pieces or elongating sprouts.

Split Application in Idaho, Oregon and Washington

Apply and incorporate 0.75 pint of Trifluralin 4EC per acre before planting and 0.75 pint after planting when potato plants have fully emerged fromall soils except do not apply to soils containing a 2% or more organic matter. Follow incorporation directions listed above for application to potato after planting.

Trifluralin 4EC with EPTAM tank mix in Kansas, Minnesota, Nebraska, North Dakota, Oklahoma, South Dakota, and Texas

This tank mix will effectively control the following weeds in addition to those weeds controlled by Trifluralin 4EC.

Henbit (spring applications)	Oat Wild
Nightshade Black	Ragweed Common
Nightshade Harry	Smartweed Pennsylvania
Nutsedge	Velvetleaf Buttonweed

Follow the recommendations for soil preparation and incorporation procedures for Trifluralin 4EC. The Trifluralin 4EC with EPTAM tank mix may be applied after planting but before crop emergence. In areas where potatoes are normally dragged off this tank mix should be applied and incorporated up to or immediately following drag off.

Broadcast Rates Per Acre

	Coarse	Medium	Fine
Trifluralin 4EC (pints)			
Areas receiving less than 20" average annual rainfall	1	1-1.5	1-1.5
Areas receiving greater than			

20' average annual rainfall	1	1-1.5	1-2
PLUS			
Eptam 7E	1.75-7**	1.75-7	1.75-7

**For nutsedge control use the higher rate of EPTAM 7E.

On soils with 2-5% organic matter use 1.5 pints per acre on coarse and medium soils and on soil with 5-10% organic matter use 2 pints on all soils.

PRECAUTION
Follow direction and precautions on the EPTAM label before using. Observe all precautions and limitations on the labels of each product used in tank mixes and overlays. Do not use foliage from treated plants for feed or forage or for grazing.

Trifluralin 4EC with EPTAM application before planting in Idaho, Oregon and Washington

Trifluralin 4EC with EPTAM may be applied prior to planting using a broadcast rate of 0.75 pint of Trifluralin 4EC per acre and 3.5 pints of EPTAM 7E per acre on all soil textures. Incorporate immediately.

PRECAUTION
Do not use this tank mix both before and after planting in the *same* season. Observe all precautions and limitations on the labels of each product used in tank mixes and overlays. Do not use foliage from treated plants for feed on forage or for grazing.

RAPESEED (Canola)
(Except in Alaska)

Follow recommended procedures for soil preparation and application of Trifluralin 4EC. Trifluralin 4EC may be applied in the fall or early spring prior to seeding. Set incorporation equipment to incorporate to a depth of 3-4 inches with equipment specified in this label.

Broadcast Rates Per Acre

	Coarse	Medium	Fine
Trifluralin 4EC (pints)	1	1.5	2

SAFFLOWER

Recommended soil preparation application and incorporation procedures for Trifluralin 4EC should be followed. Use Trifluralin 4EC before planting in the spring or between October 15

and December 31.

Broadcast Rates Per Acre

Trifluralin 4EC (pints)	Coarse	Medium	Fine
Areas receiving less than 20" average annual rainfall	1	1.25-1.5	1.5
Areas receiving greater than 20" average annual rainfall	1	1.5	2

On coarse and medium soils use 1.5 pints per acre and 2 pints on fine soils with 2-5% organic matter. Use 2 to 2.5 pints on all soils with 5-10% organic matter.

For Fall Application in Arizona, Idaho, Montana, Nevada, Oregon, Utah, Washington and Wyoming

Apply and incorporate Trifluralin 4EC any time between October 15 and December 31. Ground may be left flat or bedded-up over winter. On bedded ground, beds should be knocked down to desired height before planting moving some treated soil from tops into furrows Where soil is left flat over winter care should be taken during spring bedding operations to prevent turning up untreated soil. Destroy established weeds during seedbed preparation. Before planting destroy weeds that become established in furrows due to uncovering of untreated soil. Apply and incorporate Trifluralin 4EC at a broadcast rate of 1.5 pints per acre on coarse soils, 2 pints on medium and 2.5 pints on fine soils. Trifluralin 4EC should not be applied in the fall to soils which are wet or are subject to prolonged periods of flooding.

SOUTHERN PEA

Apply and incorporate Trifluralin 4EC prior to planting only.

Broadcast Rates Per Acre

Trifluralin 4EC (pints)	Coarse	Medium	Fine
Areas receiving less than 20" average annual rainfall	1	1.25-1.5	1.5
Areas receiving greater than 20" average annual rainfall	1	1.5	2

For soils with 2-5% organic matter use 1.5 pints on coarse and medium and 2 pints on fine

soils. On soils with 5-10% organic matter use 2 pints on all soils.

SOYBEANS

Preemergence

Follow recommended soil preparation, application, and incorporation procedures for Trifluralin 4EC.

Broadcast Rates Per Acre

	Coarse	Medium	Fine
Trifluralin 4EC (pints)	1	1.5	2

Use 1.5 pints per acre on coarse and medium textured soils and 2 pints on fine soils with 2-5% organic matter, use 2 to 2.5 pints on all soils with 5-10% organic matter.

Fall Application

Trifluralin 4EC may be applied and incorporated any time between October 15 and December 31. The ground may be left flat or bedded-up over winter. Where soil is left flat, care should be taken not to turn up untreated soil from beds into furrows. On bedded grounds, beds should be knocked down to desired heights before planting, moving some treated soil into furrow from the beds. Established weeds should be destroyed during preparation of seedbed. Before planting, destroy weeds which may have become established in furrows due to the uncovering of untreated soil during bedding. Trifluralin 4EC should not be applied to wet soil or soils which are subject to prolonged periods of flooding of ground where rice was grown the previous year.

Apply and incorporate Trifluralin 4EC at a broadcast rate of 2 pints per acre on coarse and medium soils and 2.5 pints on fine soils in Alabama, Arkansas, northern Florida, Georgia, Louisiana, Mississippi, southeastern Missouri bootheel, North Carolina, Oklahoma, South Carolina, Tennessee and Texas.

For other states where soybeans may be grown, use Trifluralin 4EC at a broadcast rate of 1 pint per acre on coarse soils, 1.5 pints on medium soils; 2 pints on fine soils. For coarse soils with 2-5% organic matter use 1.5 pints. For soils with 5-10% organic matter use 2 to 2.5 pints.

SPECIAL USE DIRECTIONS FOR SOYBEANS

Fall Panicum

Apply and incorporate Trifluralin 4EC broadcast at the rate of 2 pints per acre on coarse and medium soils.

Crop Rotation

Plant only rice and those crops for which Trifluralin 4EC can be applied as a preplant treatment following a double rate treatment season or injury may result.

Pigweed and Seedling Johnsongrass Control

In Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, southeastern Missouri, North Carolina, Oklahoma, South Carolina, Tennessee and southern Virginia, apply Trifluralin 4EC preplant at a broadcast rate of 1 to 1.5 pints per acre on course soils, 1.5 to 2 pints on medium soils and 2 pints on fine soils. Exception: Use 3 pints per acre on fine soils in Louisiana.

Additional Weed and Grass Control

In the Texas Gulf Coast counties of Brazoria, Calhoun, Chambers, Fort Bend, Galveston, Harris, Jackson, Jefferson, Liberty, Matagorda, Orange, Victoria, Waller and Wharton, apply Trifluralin 4EC at a broadcast rate of 1.5 pints per acre on coarse soils, 2 pints on medium soils and 3 pints on fine soils, up to two weeks before planting.

Charcoal Soils in Arkansas, Louisiana and Mississippi

Freshly cleared land sometimes contains 5-10% organic matter and charcoal from burning debris. This charcoal and organic matter has a tendency to bind Trifluralin 4EC and reduce its weed control activity, If these conditions exist, higher acres of Trifluralin 4EC are needed for weed control. Crop injury can occur if increased rates are used and the charcoal or organic matter is not present in the soil. In the burn row a high level of charcoal is present, consequently, poor weed control may result even with an increased rate of Trifluralin 4EC.

Use Trifluralin 4EC broadcast at the rate of 1.5 to 2.5 pints per acre on coarse soils, 2.5 pints on medium soils and 3 pints on fine soils. Follow recommended soil preparation, application and incorporation procedures for Trifluralin 4EC.

Red Rice in Arkansas, Louisiana, Mississippi and Texas only

Partial suppression or control of red rice can be obtained when Trifluralin 4EC is applied at the following recommended rates.

Broadcast Rates Per Acre

Application	Coarse	Medium	Fine	Coarse with 2-5% organic matter	Coarse with 5-10% organic matter
Year 1	2	3	4	3	4
Year 2	1	1.5	2	1.5	2-2.5

If high organic matter and/or charcoal are present in the soil use Trifluralin 4EC the second year as follows for Arkansas, Louisiana, and Mississippi:

	Coarse	Medium	Fine
Trifluralin 4EC (pints)	1	1.5-2.5	2.5-3

Crop Rotation

Use a two year program for red rice control in soybeans. Use rates listed for 1 year and plant soybeans. The second year plant only those plants which Trifluralin 4EC can be used preplant using the normal rates listed for your soil type and charcoal level. Do not plant rice the second year. Rice may be planted the third year.

Rhizome Johnsongrass in Eastern United States and Texas

Rhizome Johnsongrass can be acceptably controlled using a double rate program for two consecutive years as follows.

Soil Preparation

For satisfactory results proper soil preparation is essential. To bring rhizomes to the top of the soil use a chisel plow or similar implement. Follow twice with a disc prior to application to cut rhizomes into small 2 to 3 inch pieces and to destroy any emerged Johnsongrass.

Application

Choose one of the following programs which best meets your cultural practices.

For spring application use Trifluralin 4EC prior to planting in the spring for two consecutive years. A broadcast rate of 2 pints per acre should be used on coarse soils, 3 pints on medium soils and 4 pints on fine soils. Use 3 pints on coarse soils with 2-5% organic matter and 4 pints on soils with 5-10% organic matter.

OR

For fall application use Trifluralin 4EC between October 15 and December 31 for two consecutive years using the same rates as for spring application.

OR

A split application of Trifluralin 4EC may be used in spring and fall for two consecutive years using the following rates.

Broadcast Rates Per Acre

	Coarse	Medium	Fine	Coarse with 2-5% organic matter	Coarse with 5-10% organic matter
Trifluralin 4EC (pints)					
Spring & Fall	1	1	2	1.5	2

Incorporation

For good rhizome johnsongrass control deep incorporation is necessary. Incorporate Trifluralin 4EC thoroughly with a disc set to cut 4 to 6 inches deep and operate at 4 to 6 mph. Two passes are necessary with the second pass in a different direction from the first.

Cultivation

To control Johnsongrass plants which have escaped Trifluralin 4EC timely cultivations douring the crop season may be necessary to obtain control. Control cannot be obtained with only 1 year of double rate Trifluralin 4EC use.

Crop Rotation

Plant only rice and those crops for which Trifluralin 4EC can be applied as a preplant treatment following a double rate treatment season or injury may result.

Wild Cane (Shattercane)

Follow recommended soil preparation and application procedures for Trifluralin 4EC.

Germination of wild cane (shattercane) occurs throughout the growing season and from deeper in the soil than most other weed seeds. Effective control can be obtained by using the following increased rates of Trifluralin 4EC.

A broadcast rate of 1 pint per acre on coarse soils, 2 pints on medium soils and 2.5 pints on fine soils.

Incorporation

For good wild cane control deep incorporation is necessary. Incorporate Trifluralin 4EC thoroughly with a disc set to cut 4 to 6 inches deep and operate at 4 to 6 mph. Two passes are necessary with the second pass in a different direction from the first.

Cultivation

Cultivation during the crop season will also contribute to control.

PRECAUTIONS
When using higher rates, soybeans should be planted after early season adverse weather conditions. This is to avoid additional stress to the plants due to cool, wet weather early in the growth period. Use of high rates and adverse growing conditions can cause reduced stands, delayed maturity and reduced yields.

TANK MIXES AND OVERLAYS

Observe all precautions and limitations on the labels of each product used in tank mixes and overlays.

Trifluralin 4EC with SENCOR or LEXONE

Trifluralin 4EC with SENCOR or LEXONE will control certain grasses and broadleaf weeds listed for Trifluralin 4EC alone and the following weeds:

Jimsonweed	Ragweed, Common
Mallow, Venice (Flower-of-an-hour)	Sesbania, Hemp
Mustard, Wild	Smartweed, Pennsylvania
Prickly Sida	Velvetleaf

Cocklebur, morningglory and giant ragweed (horseweed) control may be erratic. Timely cultivation may improve control. An overlay of SENCOR or LEXONE may be preferred to the tank mix where cocklebur is a serious problem.

Trifluralin 4EC tank mixed with SENCOR or LEXONE may be applied from 2 weeks prior to planting up to planting.

Broadcast Rates Per Acre

	Coarse	Medium	Fine
Trifluralin 4EC (pints)	1	1.5	2
PLUS			
SENCOR 4L (pints)	0.5	0.75	1
OR			
LEXONE DF or			
SENCOR DF (pounds)	0.33	0.5	0.67

Do not use SENCOR or LEXONE on coarse soils with less than 1% organic matter.

PRECAUTIONS
Do not plant any crop other than soybeans within 4 months after treatment. Crop Injury, herbicide residue or erratic weed control may result from over application, uneven application or improper soil incorporation. Cold weather, deep planting, seedling disease, excessive

moisture, soil pH over 7.5, high salt concentration or drought are additional stress factors. Any of these may weaken crop seedlings and possible damage from the tank mix is increased. These factors may also delay crop development or reduce yields when SENCOR or LEXONE is applied. Do not use foliage from treated plants for feed on forage.

Trifluralin 4EC preplant followed by SENCOR or LEXONE as an overlay

After Trifluralin 4EC has been applied as a preplant incorporated herbicide make a single application of SENCOR or LEXONE as either a broadcast or band spray either during planting or after planting, but before the soybeans emergence. Crop injury may result if SENCOR or LEXONE is sprayed over the top of emerged soybeans.

Broadcast Rates Per Acre

	Coarse	Medium	Fine
Trifluralin 4EC (pint)	1	1.5	2
PLUS			
SENCOR 4L (pints)	0.75-1	0.75-1.5	1-1.75
OR			
SENCOR DF (pounds)	0.5-0.67	0.5-1	0.67-1.17
OR			
LEXONE DF (pounds)	0.5	0.5-0.67	0.67

LEXONE or SENCOR should not be applied to sands or soils with less than ½% organic matter or to coarse soils (sandy loam and loamy sand) containing less than 2% organic matter.

PRECAUTIONS

Tracy, Semmes, Altona, Vansoy or Coker 102 soybean varieties are sensitive and crop injury may result if LEXONE or SENCOR is used. Before a SENCOR or LEXONE application seeds must be planted at least 1.5 inches but not more than 2 inches below the soil surface. Only one application per season should be used at these rates. Do not plant areas treated with SENCOR or LEXONE To any crop other than soybeans within 4 months after treatment. Soybean injury may occur if LEXONE or SENCOR is used on soils having a calcarious surface, a pH of 7.5 or higher, or if they are used in conjunction with soil-applied organic phosphate pesticides. Do not use foliage from treated plants for feed or forage. Observe all precautions and limitations on the labels of each product used in tank mixes and overlays.

SUGAR BEET

Use Trifluralin 4EC when plants are between 2 and 6 inches tall as a broadcast overtop spray at a rate of 1 pint per acre on coarse soils and 1.25 to 1.5 pints on medium and fine soils. Use the higher rate for medium and fine soils in areas receiving more than 20" average annual rainfall. Set incorporation machinery to throw treated soil toward the plants in the row. Care should be taken that incorporation machinery does not damage the sugar beet taproot.

PRECAUTION
To reduce the possibility of girdling, exposed beet roots should be covered with soil before applying Trifluralin 4EC.

In Colorado, Idaho, Montana, Nebraska, Oregon, Texas, Utah, Washington and Wyoming use a tinetooth harrow (Flextine or Melroe) for incorporation of Trifluralin 4EC for effective weed control in sugar beets. The tine-tooth harrow should be operated two times over the field the second time in opposite direction at a speed of 3 to 6 mph. The harrow should be set to cut 1 or 2 inches deep. Care should be taken that the tine-tooth harrow does not damage the sugar beet taproot. All recommendations for application procedures and broadcast rates per acre for sugar beet should be followed.

SUGAR CANE
Plant Cane

Apply and incorporate Trifluralin 4EC twice a year at a broadcast rate of 2 to 4 pints per acre for all soil textures Make the first application of Trifluralin 4EC in the fall immediately after the seed pieces are planted and the second application of Trifluralin 4EC in the spring before or shortly after the cane emerges. Before the spring application rain-packed beds should be loosened 2 to 3 inches deep. Care should be taken so that the seed pieces or emerging shoots are not damaged by incorporation machinery.

Hawaii (postplant) for control of most annual grasses including guineagrass

Surface apply Trifluralin 4EC after planting for plant cane or after harvesting for ratoon cane but before weeds and cane emergence A broadcast rate of 6 to 8 pints per acre should be used for all soil textures. For plant cane, form or roll beds before application. For ratoon cane remove crop residue prior to application. Trifluralin 4EC will not be effective if large amounts of residue are present. Use Trifluralin 4EC just before anticipated rainfall or sprinkle irrigate immediately after application.

Applications in Louisiana or Texas up to layby for plant cane or ratoon cane

Use Trifluralin 4EC at a broadcast rate of 2 to 4 pints per acre for all soil textures. This should be done in the spring from before or shortly after the cane emerges up to layby. Use Trifluralin 4EC after the beds have been shaved or false shaved. Rain-packed beds should be loosened 2 to 3 inches deep before application. Care should be taken that seed pieces or emerging shoots are not damaged by incorporation machinery. A rolling cultivator or bed chopper may be used to incorporate Trifluralin 4EC layby applications in sugarcane on all soil textures. Normal incorporation directions for the rolling cultivator should be followed. Bed chopper should be set to cut 3 to 4 inches deep and operate at 4 to 6 mph. Two incorporation passes are necessary.

Itchgrass (Raoulgrass) control in Louisiana

Apply and incorporate Trifluralin 4EC on either plant or ratoon cane at a broadcast rate of 4 pints per acre for all soil textures. Directions above for sugarcane layby application in Louisiana and Texas should be followed.

SUNFLOWER

Use Trifluralin 4EC in the spring or in the fall between October 15 and December 31. Recommendations for soil preparation application and incorporation procedures for Trifluralin 4EC should be followed.

Broadcast Rates Per Acre

Trifluralin 4EC (pints)	Coarse	Medium	Fine
Areas receiving less than 20" average annual rainfall	1	1.25-1.5	1.5
Areas receiving greater than 20" average annual rainfall	1	1.5	2

On coarse and medium use 1.5 to 2 pints per acre and 2 pints on fine soils with 2-5% organic matter. Use 2 pints on all soils with 5-10% organic matter.

TOMATO

For direct-seeded tomato use Trifluralin 4EC at blocking or thinning as a directed spray to the soil between rows and beneath the plants and incorporated. For transplant tomato apply and incorporate Trifluralin 4EC prior to transplanting. Trifluralin 4EC should not be applied after transplanting.

Broadcast Rates Per Acre

Trifluralin 4EC (pints)	Coarse	Medium	Fine
Areas receiving less than 20" average annual rainfall	1	1.25-1.5	1-2
Areas receiving greater than 20' average annual rainfall	1	1.5	2

On soils with 2-5% organic matter use 1.5 pints per acre on coarse and medium textured soils

and 2 pints on fine soils. On soils with 5-10% organic matter use 2 pints.

VINEYARDS

See FRUIT AND NUT CROPS AND VINEYARDS for Instructions

WHEAT (WINTER)

Colorado, Idaho, Kansas, Montana, Nebraska, Oregon, Washington and Wyoming

Apply Trifluralin 4EC for preplant preemergence control of cheatgrass and other annual grasses and broadleaf weeds controlled by Trifluralin 4EC. If the seed is placed below the zone of soil treated with Trifluralin 4EC the growth development and yield of winter wheat will not be adversely affected.

Use Trifluralin 4EC any time during a period from 3 weeks up to immediately prior to planting. Apply Trifluralin 4EC at a broadcast rate of 1.5 pints per acre on coarse and medium soils and 2 pints on fine soils.

Incorporation

Incorporate Trifluralin 4EC into the soil with a flexible tine-tooth harrow (Flextine Melroe) set to cut 1 to 2 inches deep and operate at 3 to 6 mph. Within 24 hours after application incorporate one time followed by a second incorporation in a different direction from the first prior to planting. After the Trifluralin 4EC has been incorporated with a flexible tine harrow do not till the soil with a disc.

Seeding Directions

Use only a deep furrow or semi-deep furrow drill that will place the seed below the zone of soil into which Trifluralin 4EC has been incorporated.

PRECAUTION
Crop injury such as delayed emergence and development may occur when wheat is planted in direct contact with treated soil.

<u>Fallow soil application in Washington and Oregon</u>

To control cheatgrass and certain annual grasses and broadleaf apply Trifluralin 4EC and shallowly incorporate into fallow soil up to four months ahead of planting. As long as the seed is placed below the zone of soil treated with Trifluralin 4EC the growth development or yield will not be adversely affected. Use deep or semi-deep furrow drills. Use at a broadcast rate

of 1.5 pints per acre on coarse and medium soils and 2 pints on the fine soils. Trifluralin 4EC can be applied any time from May to September prior to the fall planting of winter wheat.

Incorporation

Incorporate Trifluralin 4EC using a flexible tine-tooth harrow (Flextine or Melroe) set to cut 1 to 2 inches deep and operated at 3 to 6 mph. Two passes over the field in different directions are necessary for thorough incorporation. Incorporate one time within 24 hours after application followed by a second incorporation prior to seeding. When a flexible tine harrow has been used to apply Trifluralin 4EC do not till the soil with a disc.

PRECAUTION

Deep furrow or semi-deep furrow drills only should be used. Seed should be placed below the zone of soil into which Trifluralin 4EC has been incorporated. Injury to the crop or delay in emergence or development may occur if wheat is planted directly into the zone of soil treated with Trifluralin 4EC.

WHEAT (SPRING), DURUM AND BARLEY

Preplant Barley

Apply and incorporate Trifluralin 4EC before planting in the spring or in the fall after September 1, at the rate of 1 pint per acre on coarse soils, 1.5 pints per acre on medium soils and 1.5 pints on fine soils. Use 1.5 pints of Trifluralin 4EC per acre on coarse and medium soils with 2-5% organic matter. Incorporate Trifluralin 4EC into the soil with a flexible tine-tooth harrow, (Flextine, Melroe) set to cut 1 to 2 inches deep and operate at 3 to 6 mph. Within 24 hours after application, incorporate one time followed by a second incorporation in a different direction from the first, prior to planting. After the Trifluralin 4EC has been incorporated with a flexible tine harrow do not till the soil with a disc. Use only a deep furrow or semideep furrow drill that will place the seed below the zone of soil into which Trifluralin 4EC has been incorporated.

PRECAUTION

Crop injury such as delayed emergence and development may occur when barley is planted in direct contact with treated soil. **DO NOT MAKE MORE THAN ONE Trifluralin 4EC APPLICATION PER SEASON.**

Postemergence Wheat (Spring), Durum and Barley

Trifluralin 4EC Alone

To control foxtail (pigeongrass) Trifluralin 4EC is recommended as a postplant incorporated treatment. Use Trifluralin 4EC at a broadcast rate of 1 pint per acre on coarse and medium soils

and 1.5 pints on fine soils. Seedbed should be well-tilled and seed planted 2 to 3 inches deep. Use Trifluralin 4EC after seeding but prior to crop emergence. Use flextine or diamond harrow operated two times in different directions to incorporate. Incorporate by operating equipment at a speed of at least 5 mph and set at to 1.5 inches deep. Apply and incorporate the first time in the same operation if possible. Both incorporations must be done with 24 hours.

Trifluralin 4EC with FAR-GO tank mix

This tank mix will effectively control all the weeds controlled by Trifluralin 4EC alone plus these additional weeds.

Foxtail	Pigeongrass
Wild Oat	

Apply Trifluralin 4EC with FAR GO as a postplant incorporated treatment. Plant 2 to 3 inches deep in a well-tilled seedbed. Trifluralin 4EC with FAR-GO should be applied after seeding but prior to crop emergence. Use flextine or diamond harrows to incorporate. Make two passes each in different directions at speeds of at least 5 mph operating equipment 1 to 1.5 inches deep. Application and the first incorporation should be done in the same operation if possible. If not incorporate immediately after application.

Broadcast Rates Per Acre

	Coarse	Medium	Fine
Trifluralin 4EC (pints)			
Barley, Durum, Spring Wheat	1	1	1.5
PLUS			
FAR-GO (pints)			
Durum, Spring Wheat	2.5	2.5	2.5
Barley	2	2	2

PRECAUTION

Over application may result in crop injury. Observe all precautions and limitations on the label of each product used in tank mixes and overlays. **DO NOT MAKE MORE THAN ONE Trifluralin 4EC APPLICATION PER SEASON.**

FERTILIZER USE DIRECTIONS

LIQUID FERTILIZERS

Trifluralin 4EC may be mixed with most liquid fertilize materials. A combination of Trifluralin 4EC with solutions and suspension-type fertilizers will provide weed and grass control equal to

the same rates of Trifluralin 4EC applied to water. Trifluralin 4EC label recommendations regarding rates per acre crops incorporation directions special instructions cautions and special precautions should be followed. Labeling and applications relating to liquid fertilizer mixing for individual state regulations are the responsibility of the individual and/or company selling the fertilizer and chemical mixture.

Testing for Tank Mix Compatibility In Liquid Fertilizers

A tank mixture of Trifluralin 4EC alone or with dry flowables, wettable powders, aqueous suspensions, flowables liquids or solutions may not combine properly with some liquid fertilizer materials. Always test a small quantity before full-scale mixing to determine whether a compatibility agent is needed and which agent does the best job. Phosphate ester type surfactants designed for use with liquid fertilizers are suggested. Use the following test to select the correct agent for your mixture.

1. Measure one pint of intended spray water or fertilizer solution into a jar.

2. Check the pH of the liquid and adjust if necessary.

3. Add in the given order the intended ingredients shaking well after each addition.
(a) surfactants (spreaders), acidifies, compatibility agents and activators; add one teaspoon for each pint/100 gallons.
(b) dry ingredients (wettable powders or dry flowables); add one tablespoon for each pound 100 gallons
(c) emulsifiable concentrates; add one teaspoon for each pint/100 gallons.
(d)flowables: add one teaspoon for each pint per 100 gallons
(e) soluble ingredients: add one tablespoon for each pound/100 gallons.
(f)spreader-stickers: one teaspoon for each pint/100 gallons.

4.The final mixture should be uniform and smooth with no evidence of coagulation occurring. If incompatibility is evident begin test again with a compatibility agent added first. Six drops is equivalent to four ounces per 100 gallons. If this does not smooth the mixture try higher concentrations and other compatibility agents.

5.Allow the mixture to stand undisturbed thirty minutes. If separation occurs shake and observe the resulting mixture. If not do not attempt to spray the mixture. You may try:
(a)more compatibility agents
(b) different formulations of the active ingredients (switch from wettable or emulsifiable concentrates to flowable or from wettable powder to emulsifiable concentrates).

Mixing Instructions

When mixing Trifluralin 4EC in liquid fertilizers continuous agitation is required to prevent the Trifluralin 4EC from rising to the surface as an oily layer. Use a compatibility agent to make

the Trifluralin 4EC emulsify properly. When tank mixing emulsifiable concentrates with dry flowables wettable powders aqueous suspensions, flowables liquids or solutions in liquid fertilizer using a compatibility agent is especially important. If Trifluralin 4EC rises to the surface of the fertilizer as an oil and the emulsion is not properly formed the oil may combine with the formulation or suspension to form oil curds which is difficult to redisperse. A compatibility agent is helpful in causing liquid concentrates to form non-oiling mixtures with liquid fertilizers. Compatibility agents can be used at rates as low as 1.5 to 2 pints per ton of liquid fertilize and should be mixed well with the fertilizer before adding the liquid concentrate. Follow the directions on the compatibility agent label.

The following is a list of some phosphate ester type surfactants designed to be used with liquid fertilizers. They usually do not work as compatibility agents in tank mixtures in plain water.

*Amoco Spray Mate (Amoco Oil Company, Chicago, IL)
*Compat (Farm Chemicals Incorporated, Aberdeen, NC)
Kem-Link (Universal Coop., Minneapolis, MN)
Rigo Compatibility Agent (Rigo Company, Buckner, KY)
Sponto 168D (Witco Chemicals Company, Chicago, IL)
*T-Mulz 734-2 (Thompson-Hayward Chemical Co.)
Unite (Hopkins Ag Chemicals, Madison, WI)

*Not for use in California

Application

Use a properly calibrated applicator to spread the fertilizer/ pesticide mixture and apply material uniformly to the soil surface.

Incorporation

Follow normal Trifluralin 4EC incorporation procedures.

Rate Chart For Impregnating Fertilizer With Trifluralin 4EC Added to a Ton of Fertilizer

CHART QUANTITIES LISTED ARE QUARTS OF Trifluralin 4EC PER TON OF FERTILIZER

Fertilizer Rate Per Acre	Trifluralin 4EC Rate Per Acre 1 pint	1.5 pints	2 pints	3 pints	4 pints
200 lbs.	5	7.5	10	15	20
250 lbs	4	6	8	12	16
300 lbs	3.33	5	6.67	10	13.33

350 lbs.	2.75	4.25	5.75	8.5	11.5
400 lbs.	2.5	3.75	5	7.5	10
450 lbs	2.25	3.33	4.5	6.67	9

For rates other than those listed above use the following formula to calculate the amount of Trifluralin 4EC to be impregnated on a ton of dry bulk fertilizer

$$\frac{\text{Pints Trifluralin 4EC}}{\text{Acre}} \times \frac{1000}{\text{lbs. Fertilizer Per Acre}} = \text{Quarts Trifluralin 4EC Per Ton of Fertilizer}$$

All individual state regulations relating to dry bulk fertilizer blending, registration, labeling and application are the responsibility of the individual and/or company selling the fertilizer and chemical mixture.

DRY BULK FERTILIZERS

Trifluralin 4EC may be used for impregnation or coating of dry bulk fertilizers. Application of dry bulk fertilizers impregnated with Trifluralin 4EC has provided weed and grass control equal to the same rates of Trifluralin 4EC applied in water. Follow all Trifluralin 4EC label recommendations regarding rates per acre approved crops incorporation special instructions, cautions and special precautions. A minimum of 200 pounds per acre of dry fertilizer impregnated with Trifluralin 4EC at the recommended rates should be applied. Trifluralin 4EC can be used for impregnation of any commonly used fertilizer except coated ammonium nitrate and straight limestone. Trifluralin 4EC will not be absorbed by these materials. Blends containing mixtures of these materials can be impregnated.

Impregnation

A closed drum belt ribbon or other commonly used dry bulk fertilizer blender may be used. Trifluralin 4EC should be applied uniformly to the fertilizer.

Rates

Specific crop recommendations for the rate of Trifluralin 4EC per acre should be followed. Check the rate table above to determine the amount of Trifluralin 4EC to be impregnated into a ton of dry bulk fertilizer based on the amount of fertilizer which will be applied per acre.

Application

Use a properly calibrated applicator to spread the fertilizer/chemical mixture. The material should be applied uniformly to the soil surface.

Incorporation

Follow Trifluralin 4EC incorporation procedures.

NOTICE OF WARRANTY

Retzloff warrants that this product conforms to the chemical description on the label thereof and is reasonably fit for purposes stated on such label only when used in accordance with directions under normal use conditions. It is impossible to eliminate all risks inherently associated with use of this product. Crop injury ineffectiveness or other unintended consequences may result because of such factors as weather conditions presence of other materials or the manner of use or application all of which are beyond the control of Retzloff. In no case shall Retzloff be liable for consequential special or indirect damages resulting from the use or handling of this product. All such risks shall be assumed by the Buyer. Retzloff MAKES NO WARRANTIES OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

CAPAROL - prometryn, Ciba-Geigy Corporation
COTORAN - fluometuron, Ciba-Geigy Corporation
Cotton Pro - prometryn, Griffin Corporation
Direx 4L - diuron, Griffin Corporation
EPTAM - EPTC, ICI Americas, Incorporated
FAR-GO - triallate, Monsanto Agricultural Products Company
KARMEX - diuron, E.I. Dupont de Nemours and Company
LEXONE - metribuzir, E.I. Dupont de Nemours and Company
Meturon - fluometuron, Griffin Corporation
SENCOR - metribuzin, Mobay Corporation
Trifluralin 4EC - trifluralin, Retzloff Corporation.