

ELANCO ID 5036

Herbicide

Sonalan

E.C.

A selective herbicide for
preemergence control of
certain annual grasses and
broadleaf weeds

Active Ingredient:

ethallfluralin N ethyl-N-(2-methyl-2-propenyl)-2,6-
dinitro-4-(trifluoromethyl)benzenamine 36.1%

Inert Ingredients 63.9%

Contains 3 pounds active ingredient per gallon.

(Sonalan®—ethallfluralin, Elanco)

Keep Out of Reach of Children.

WARNING

See additional precautionary
statements inside booklet.
See directions for use inside booklet.

Net Contents 2½ Gallons

EPA Est. 1471-IN-2

EPA Reg. No. 1471-122

FN 0802

WU 1682 AMX

Elanco Products Company

A Division of Eli Lilly and Company

Indianapolis, IN 46285, U.S.A.

Directions for Use

See literature for Complete Directions for Use.
Read all directions carefully before applying.
It is a violation of Federal Law to use this product in a
manner inconsistent with the label.

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

Sonalan® E.C. formulation is irritating to the eyes and skin.
Avoid breathing vapors. Avoid contact with skin, eyes, or
clothing. Do not contaminate foodstuffs or feed. Harmful if
swallowed or absorbed through the skin. Use protective
clothing such as coveralls, long sleeved shirt, and
impermeable gloves when handling or using this product.
First Aid: In case of contact, immediately flush eyes or skin
with plenty of water. For eyes, call a physician. Remove and
wash contaminated clothing before reuse.

Environmental Hazards

This pesticide is toxic to fish. Do not apply directly to any body
of water or wetlands. Do not contaminate water by cleaning of
equipment or disposal of wastes. Runoff or erosion from
treated areas may be hazardous to fish in neighboring areas.

STORAGE AND DISPOSAL

Storage: Avoid freezing. Store above 40°F (5°C). If frozen,
poor weed control may result. Do not use or store near heat
or open flame. Store in original container only. In case of
leak or spill, use absorbent materials to contain liquids and
dispose as waste.

Pesticide Disposal: Do not contaminate water, food or feed
by storage or disposal. Pesticide wastes are toxic. Improper
disposal of excess pesticide, spray mixture, or rinsate is a
violation of Federal Law. If these wastes cannot be disposed
of by use according to label instructions, contact your State
Pesticide or Environmental Control Agency, or the
Hazardous Waste representative at the nearest EPA
Regional Office for guidance.

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.

The manufacturer makes no warranties, express or implied, concerning this
product or its use, which extend beyond the description on the label or in
literature published by Elanco Products Company, and all statements made
concerning this product apply only when used as directed. Elanco Products
Company expressly disclaims all warranties, express or implied, in relation
to any use of the product in combination or sequential use with any other
product not specifically recommended in writing by Elanco Products
Company. If used in a combination or sequential use recommended by
Elanco Products Company, the liability of Elanco shall in no manner extend
to the damage, loss or injury not directly caused by the inclusion of the
Elanco product in such combination or sequential use.

Avoid Freezing—Store Above 40°F.

ACCEPTED
OCT 29 1987

1471-122

ELANCO

ID 5036



Net Contents 2½ Gallons

**A selective herbicide for
preemergence control of certain
annual grasses and broadleaf weeds**

Active Ingredient:

ethallfluralin *N*-ethyl-*N*-(2-methyl-2-propenyl)-2,6-dinitro-

4-(trifluoromethyl)benzenamine 36.1%

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Contains 3 pounds active ingredient per gallon.

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See additional precautionary
statements inside booklet.

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Elanco Products Company - A Division of Eli Lilly and Company
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EPA Reg. No. 1471-122

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FN 0802

PI 3182 AMP

Avoid Freezing—Store Above 40°F.



H2

161****/EC**36/LABELS/US/****/277

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(Amben® - chloramben, Union Carbide)
 (Basagran® - bifenox, BASF)
 (Blazer® - acifluorfen, Adama and Harsco)
 (Canopy® - chloramben ethyl plus metolachlor, DuPont)
 (Classic® - chloramben ethyl, DuPont)
 (Command® - FMC)
 (Dual® - metolachlor, Ciba Geigy)
 (Eptam® - EPTC, Stauffer)
 (Genus® - chloramben ethyl plus bifenox, DuPont)
 (Lasso® - alachlor, Monsanto)
 (Lasso® Macro-Tech™ - alachlor, Monsanto)
 (Lexone® - metolachlor, DuPont)
 (Preview® - bifenox, DuPont)
 (Sencor® - metolachlor, Bayer)
 (Scepter® - imazethabenz, American Cyanamid)
 (Tackle® - acifluorfen, Rhone-Poulenc)
 (Vernam® - vernolate, Stauffer)

Precautionary Statements

Keep Out of Reach of Children

Hazards to Humans and Domestic Animals

WARNING

Sonalan E C. formulation is irritating to the eyes and skin. Avoid breathing vapors. Avoid contact with skin, eyes or clothing. Do not contaminate foodstuffs or feed. Harmful if swallowed or absorbed through the skin. Use protective clothing such as coveralls, long sleeved shirt, and impermeable gloves when handling or using this product.

First Aid: In case of contact, immediately flush eyes or skin with plenty of water. For eyes, call a physician. Remove and wash contaminated clothing before reuse.

Environmental Hazards

This pesticide is toxic to fish. Do not apply directly to any body of water or wetlands. Do not contaminate water by cleaning of equipment or disposal of wastes. Runoff or erosion from treated areas may be hazardous to fish in neighboring areas.

STORAGE AND DISPOSAL

Storage: Avoid freezing. Store above 40°F (5°C). If frozen, poor weed control may result. Do not use or store near heat or open flame. Store in original container only. In case of leak or spill, use absorbent materials to contain liquids and dispose as waste.

Pesticide Disposal: Pesticide, spray mixture, or rinse water that cannot be used according to label instructions must be disposed of according to applicable federal, state or local procedures. Do not contaminate water, food or feed by storage or disposal. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinse is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

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

Metal Container Disposal: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Bulk/Mini-bulk Tank Handling: Tanks that have been used for phenoxy-type herbicides should not be used for Sonalan. To clean, triple rinse (or equivalent) and wash with appropriate cleaners before reusing.

General Agricultural Precaution

Poor weed control and/or crop injury may result if directions are not followed. Uneven application, over application or improper incorporation can result in erratic weed control or injury to the treated or rotational crops.

Do not graze or forage crop grown in treated soil or cut for hay or silage.

Do not apply Sonalan to soils which are wet, cloddy, or subject to prolonged periods of flooding because poor weed control or crop injury may result.

Do not apply to any area not specified on the label.

Do not use Sonalan on any crop grown in the state of Montana.

Rotational Restrictions

Replanting

If replanting is required, replant only crops listed on the Sonalan label.

Sugar Beets or Red Beets

Do not plant sugar beets or red beets within thirteen (13) months following an application of three (3) pints or more per acre of Sonalan. Where less than three (3) pints of

Sonalan have been applied, sugar beets or red beets may be planted eight (8) months after an application of Sonalan, if the Sonalan treated soil is moldboard plowed to a depth of at least twelve (12) inches prior to planting.

Spinach or Oats

In California and Arizona, do not plant spinach or oats within eight (8) months following an application of three (3) pints per acre or more of Sonalan.

Directions for Use

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

Sonalan is a preemergence herbicide that controls many annual grasses and broadleaf weeds. Sonalan controls weeds as they germinate. Sonalan will not control established weeds.

Mixing and Application Directions

Sonalan Alone

Start with a clean spray tank. Fill sprayer one third (1/3) to one-half (1/2) full with clean water or liquid fertilizer. Start agitation. Add correct quantity of Sonalan, continue agitation and finish filling the tank.

Sonalan Tank Mix

Vigorous, continuous agitation is required for all tank mixes. 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 one-fourth (1/4) to one-third (1/3) full with clean water or liquid fertilizer. (See page 3 for additional liquid fertilizer mixing instructions.) Start the agitation. Add in the following order: dry flowables (DF), wettable powders (WP), aqueous suspensions (AS), flowables (F), or liquids (L) to the water and agitate until the product(s) are completely dispersed. Allow additional mixing and dispersion time when using dry flowable (DF) products. Continue agitation and fill tank to three-fourths (3/4) full, add the Sonalan or other emulsifiable concentrates (EC) and mix thoroughly. Then add any solution (S) formulations, agitate and finish filling. Maintain 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. In this case, it is important to resuspend all of the material in the bottom of the tank before continuing the spray application. A sparger agitator is particularly useful for this purpose. Sometimes it is more difficult to resuspend settled material than it is to suspend it originally.

Read and carefully follow all label instructions for each material added to the tank. Premixing dry and flowable formulations with water (slurrying) and pouring the slurry through a

20 or 35 mesh wetting screen in the top of the tank will help assure good initial dispersion in the tank. Line screens in the tank should be no finer than 50 mesh (100 mesh is finer than 50 mesh).

If a buildup of material on the walls of the spray tank is observed, wash the tank with soapy water between fillings. Rinse and continue the spraying operation. Clean the tank, lines, and screens thoroughly after use. Check the sprayer daily to ensure proper calibration and uniform application. Do not apply Sonalan when the wind can cause drifting of spray particles which can result in non-uniform application.

Application

Ground Application: Apply Sonalan in at least five (5) gallons of water or liquid fertilizer per acre (broadcast basis), using any properly calibrated, low pressure herbicide sprayer that will apply the spray uniformly.

Chemigation: Refer to supplemental labeling entitled "Sonalan E.C. Chemigation Instructions" for use directions for chemigation. Do not apply this product through any irrigation system unless the supplemental labeling on chemigation is followed.

Application with Liquid Fertilizer

Sonalan may be mixed with most liquid fertilizer materials. Combinations of Sonalan with solutions and suspension type fertilizers have provided weed and grass control equal to the same rates of Sonalan applied in water. Follow Sonalan label recommendations regarding rates per acre, crops, incorporation directions, special instructions, cautions and special precautions.

Individual state regulations relating to liquid fertilizer mixing, registration, labeling and applications are the responsibility of the individual and/or company selling the fertilizer and chemical mixture.

Liquid Fertilizer Mixing Instructions

Emulsifiable concentrates, such as Sonalan, can be mixed with liquid fertilizers. In all cases, continuous agitation is required to prevent the Sonalan from rising to the surface as an oily layer. When necessary, (see Liquid Fertilizer Compatibility Test), a compatibility agent can be used to ensure that the Sonalan emulsifies properly (i.e., has a milky appearance rather than an oily layer). The use of compatibility agents is especially important when tank mixing emulsifiable concentrates (EC) with dry flowables (LF), wettable powders (WP), flowables (F), liquids (L), aqueous suspensions (AS), or solutions (S) in liquid fertilizer. If the emulsion is not properly formed, and the EC rises to the surface of the fertilizer as an oil ("oils out"), the oil may combine with the wettable powder, flowable or suspension to form oily curds (viscous phase) which are difficult to disperse.

Any one of the following compatibility agents is helpful in causing emulsifiable concentrates to form non-oiling mixtures with liquid fertilizers. These compatibility agents can be used at rates as low as one and one-half (1½) to two (2) pints per ton of liquid fertilizer and should be mixed well with the

fertilizer before adding the emulsifiable concentrate.

Read the label on the compatibility agent and follow the directions.

- 1 Sponlo 168D (Waco Chemicals Co., Chicago, IL)
- 2 Compat (Farm Chemicals, Inc., Aberdeen, NC)
- 3 Unite (Hopkins Ag Chem., Madison, WI)
- 4 T Mulz 734-2 (Thompson-Hayward Chemical Co., Kansas City, MO)
- 5 Rigo Compatibility Agent (Rigo Company, Buckner, KY)
- 6 Amoco Spray Mate™ (Amoco Oil Co., Chicago, IL)
- 7 Kum Link (Universal Coop., Minneapolis, MN)
- 8 Blendex™ (Helena Chemical Co., Cayce-West Columbia, SC)
- 9 Spray-Aide™ (Miller Chemical and Fertilizer Corp., Hanover, PA)

Each of the above is a phosphate ester type surfactant designed to be used with liquid fertilizers. They usually do not work well as compatibility agents in tank mixtures in water.

Testing for Tank Mix Compatibility in Liquid Fertilizers:

Emulsifiable concentrates alone or in tank mixture with dry flowables (DF), wettable powders (WP), liquids (L), flowables (F), aqueous suspensions (AS), or solutions (S), may not combine properly with some liquid fertilizer materials. Small quantities should always be tested before full-scale mixing. This will determine whether a compatibility agent is needed, and which agent does the best job. The nine (9) agents listed above have been thoroughly tested. There are many other surfactants on the market which were not designed for use with liquid fertilizers.

Use the following test to select the correct agent for your mixture.

- 1 Put one (1) pint of the liquid fertilizer in a quart jar.
- 2 Add one (1) to four (4) teaspoonfuls of the DF, WP, L, F or AS formulations (depending on the recommended rate per acre) to the liquid fertilizer. Close jar and agitate until dispersed evenly in the fertilizer. If the materials do not disperse well, it may be necessary to slurry the chemicals in water before adding to the fertilizer.
- 3 After dispersing the materials (Step 2), add three (3) to four (4) teaspoonfuls of the Sonalan to the jar and shake well. Add solution fertilizers to the mixture last and agitate. Observe the jar for about 10 minutes. If the materials rise to the surface and form a thick layer (oily curds) which will not disperse when agitated, a compatibility agent is needed. If the mixture is easily dispersed to its original state with slight agitation, no agent is needed, but good agitation must be provided in the fertilizer spray tank.
- 4 If the need for a compatibility agent is shown in Step 3, using a clean quart jar, start at Step 1 above, add one half (½) teaspoonful of the compatibility agent to the liquid fertilizer, mix well, then repeat Steps 2 and 3.

An effective compatibility agent will cause the mixture to remain uniformly mixed with little or no separating or oil rising to the surface for one-half (1/2) hour or longer. If slight separation does occur, two (2) to three (3) inversions of the jar should give a uniform remix. If oily curds form which will not disperse, more agent or another agent should be tried.

Use a clean jar for each test. The compatible mixture will have a uniform appearance and will be relatively easy to keep mixed with gentle agitation of the jar.

Application with Dry Bulk Fertilizer

Dry bulk fertilizer may be impregnated or coated with Sonalan. Application of dry bulk fertilizer impregnated with Sonalan has provided weed and grass control equal to the same rates of Sonalan applied in liquid carriers.

Follow Sonalan label recommendations regarding rates per acre, crops, special instructions, cautions and special precautions. For best results, Sonalan should be incorporated two times when applied impregnated on dry bulk fertilizers. The second incorporation must be delayed at least five (5) days after the first, completed prior to planting, and should be run in a different direction from the first. Follow other Sonalan label recommendations for soil incorporation.

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.

Limitations: Apply a minimum of 200 pounds per acre of dry fertilizer impregnated with Sonalan at the recommended rate. Most dry fertilizers can be used for Sonalan impregnation. When coated ammonium nitrate and/or limestone are used alone, do not impregnate with Sonalan. These materials will not absorb the herbicide. Blends containing mixtures of these materials can be impregnated.

Impregnation: Use any closed drum, belt, ribbon or other commonly used dry bulk fertilizer blender. Nozzles used to spray the Sonalan onto the fertilizer should be placed to provide uniform spray coverage. Add water to the Sonalan to give a total volume of at least six (6) pints per ton of fertilizer.

Sonalan—Preplant Incorporated Application

Weeds Controlled

Sonalan applied preplant soil incorporated will control the following weeds:

Grasses:

Annual bluegrass	<i>Poa annua</i>
Barnyardgrass	<i>Echinochloa crus galli</i>
Crabgrass	<i>Digitaria</i> spp
(Large crabgrass)	
(Smooth crabgrass)	
Foxtail	<i>Setaria</i> spp
(Giant foxtail)	
(Green foxtail)	

(Foxtail millet)
(Pigeongrass)
(Yellow foxtail)

Goosegrass
Johnsongrass (from seed)
Junglerice
Dai wild¹
Panicum, fall
Panicum Texas
(Buffalograss)
(Colorado grass)

Ryegrass, Italian
(Annual ryegrass)

Sandbar, Field
Shattercane

(Wild cane)
Signalgrass, broadleaf
(Brachiaria)

Witchgrass

Broadleaf Weeds:

Buckwheat, wild
Carpelweed
Catchfly, conical
Chickweed, common
Fiddleneck larweed
Groundcherry² (annual)
(Lanceleaf groundcherry)
(Wright's groundcherry)

Henbit
Kochia
Lambsquarters common
Nightshade² (annual)
(Black nightshade)
(Eastern black nightshade)³
(Hairy nightshade)

Pigweed
(Prostrate pigweed)
(Redroot pigweed)
(Smooth pigweed)
(Tumble pigweed)

Purslane common
Pursley Florida
Rockpurslane redmaids
Tribble, Russian

Elysiene indica
Sorghum halepense
Echinochloa colonum
Avena fatua
Panicum dichotomiflorum
Panicum texanum

Lolium multiflorum

Cenchrus incertus
Sorghum bicolor

Brachiaria platyphylla

Panicum capillare

Polygonum convolvulus
Mollugo verticillata
Silene conica
Stellaria media
Amsinckia lycopsoides

Physalis lanceifolia

Physalis Wrightii

Lamium amplexicaule
Kochia scoparia
Chenopodium album
Solanum spp

Amaranthus spp

Portulaca oleracea
Richardia scabra
Calandrinia caulescens
Salsola kali

¹ Sonalan does not provide control except those germinating before the Sonalan treated zone.

² See notes at instructions for control in dry soil.

³ See notes at instructions for control in wet soil.

Soil Preparation—General Directions

Sonalan should be mixed uniformly into the top two (2) to three (3) inches of soil.

Factors that influence uniform application and incorporation of Sonalan are:

Crop Residues or Existing Weeds: Ground cover, such as crop residues or existing weeds, can interfere with the incorporation of Sonalan into the soil. A manageable level of such ground cover will allow the Sonalan to be uniformly mixed into the top two (2) to three (3) inches of soil. If the level of the ground cover is such that this cannot be done, the soil must be tilled prior to the application of Sonalan.

Roughness: The soil surface should be smooth enough so that you can operate a sprayer and incorporation equipment efficiently and at speeds which ensure a uniform application and incorporation of Sonalan.

General Soil Conditions: To assure uniform incorporation of Sonalan, soil moisture conditions should be such that large clods can be broken up during the incorporation process.

Soil Mixing Directions

Use incorporation equipment that thoroughly and uniformly mixes Sonalan into the top two (2) to three (3) inches of the seedbed, or erratic weed control and/or crop injury may result.

Incorporation Before Planting

Apply Sonalan up to three (3) weeks prior to planting. Sonalan should be thoroughly and uniformly mixed into the top two (2) to three (3) inches of the seedbed within two (2) days after application.

Incorporation in Bedded Culture

Application prior to bedding: Apply Sonalan and mix thoroughly into the top two (2) to three (3) inches of soil. The bedding operation provides additional mixing. Do not expose untreated soil during post-bedding operations.*

Application after bedding: Knock off beds to planting height before applying Sonalan. Apply Sonalan and mix thoroughly with equipment that will conform to the bed shape. Do not leave untreated soil exposed.*

*Avoid removal of treated soil from the seedbed before or during the planting operation. This would expose untreated soil, allowing weeds to germinate in the drill row.

Cultivation after Planting

Soil treated with Sonalan may be shallowly cultivated without reducing the weed control activity of Sonalan. Do not cultivate deeper than the treated soil since this may bring untreated soil to the surface, and poor weed control may result.

Soil Texture Guide

The amount of Sonalan applied will vary with the soil texture and organic matter. A fine textured soil will require more Sonalan per acre than a coarse soil. Choose the proper rate based on the following soil texture group and specific crop

recommendations. Do not exceed recommended rates.

Soil Texture Group	Soil Classification
Coarse soils (Light)	Sand, loamy sand, sandy loam
Medium soils	Loam, silty clay loam*, silt loam, silty sandy clay loam*
Fine soils (Heavy)	Clay, clay loam, silty clay loam*, silty clay, sandy clay, sandy clay loam*

*Silty clay loam 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 predominately sand or silt, they are usually classified as medium textured soils. If they are predominately clay, they are usually classified as fine textured soils.

These recommendations are given as the broadcast rates of Sonalan per acre. Where a rate range is shown, use the lower rate for coarser textured soils or soils with lower organic matter. Use the higher rate, where a rate range is shown, on soils containing more than five percent (5%) organic matter. Where soil texture is variable within the same field, use the higher recommended Sonalan rate for the coarser textured soil. Sonalan is not recommended for use on soils containing more than 10% organic matter.

Crop Recommendations

Soybean—Sonalan Alone

General weed control—except groundcherry and nightshade:

Sonalan should be applied as a preplant incorporated treatment. Follow recommended soil preparation, application and incorporation procedures for Sonalan.

For broader spectrum weed control, Sonalan may be used in combination with Amiben, Basagran, Blazer, Canopy, Classic, Command, Dual, Eptam, Gemini, Lasso, Lexone, Lorox, Lorox Plus, Preview, Sencor, Scepter, Tackle, or Vernam. Read the combination product label for directions, cautions, and limitations prior to use.

Broadcast Rates per Acre

Soil Texture	Sonalan (pints)
Coarse	1 1/2-2
Medium	2-2 1/2
Fine	2 1/2-3

Eastern Black Nightshade—Partial Control:

Sonalan should be applied as a preplant incorporated treatment for partial control of nightshade in medium and fine textured soils. Follow recommended soil preparation and application procedures for Sonalan. Two incorporation passes are required for partial control of eastern black nightshade. For

broader spectrum weed control. Sonalan may be used in combination with Amiben, Basagran, Blazer, Dual, Lasso, Lexone, Lorox, Sencor and Vernam. Read the combination product label for directions, cautions and limitations prior to use.

Broadcast Rates per Acre

Soil Texture	Sonalan
	(pints)
Medium	3
Fine	3½

Precaution: Soybeans should be planted no more than two (2) inches deep after early season adverse weather conditions have passed, especially when using higher rate programs. Excessively deep planting or cool, wet weather early in the growth cycle causes additional stress to the soybean plant. These factors may result in reduced stands, delayed maturity and reduced yields.

Soybean—Sonalan/Amiben® Tank Mix

Sonalan/Amiben should be applied as a preplant incorporated tank mix. The Sonalan/Amiben combination effectively controls the weeds listed for Sonalan alone for general weed control plus these additional weeds:

Black nightshade Velvetleaf
Common ragweed Wild mustard
Pennsylvania smartweed

Broadcast Rates per Acre

Soil Texture	Sonalan		Amiben	
	General Weed Control	Partial Control of Eastern Black Nightshade	Amiben 2S	Amiben DS
	(pints)	(pints)	(quarts)	(pounds)
Coarse	1½ - 2	N/A	4 - 6**	2 - 4 3 - 6**
Medium	1½ - 2½	3*	4 - 6	2 - 4 3 - 6
Fine	2½ - 3	3½*	4 - 6	2 - 4 3 - 6

*Two incorporation passes are required for partial control of eastern black nightshade.

**Use the higher rate where heavy populations of smartweed, velvetleaf, ragweed, wild mustard or black nightshade are expected. Read the Amiben label for additional weeds controlled, directions, cautions and limitations prior to use.

Soybean—Sonalan/Canopy® Tank Mix (Do Not Use in California)

Sonalan/Canopy should be applied as a preplant incorporated tank mix. The Sonalan/Canopy combination effectively controls the weeds listed for Sonalan alone for general weed control plus these additional weeds:

Controlled

Common cocklebur Prickly sida
Florida beggarweed (Teaweed)

Hemp sesbania
Hophornbeam copperleaf
Jimsonweed
Morningglory
(Entireleaf)
(Ivyleaf)
(Pitted)
(Smallflower)
(Tail)

Ragweed
(Common)
(Giant)
Sicklepod
Smartweed
Spotted spurge
Sunflower
Velvetleaf
(Buttonweed)

Additional weeds partially controlled by this combination include:

Purple nutsedge
Yellow nutsedge

Large seeded weeds, germinating deep in the soil, such as morningglory, sicklepod, cocklebur and giant ragweed or weeds with subsequent flushes may require a cultivation or an application of a postemergence herbicide for season-long control.

Follow recommended soil preparation, application and incorporation procedures for Sonalan. Plant soybeans within two (2) weeks after application.

Broadcast Rates per Acre

Soil Texture	Sonalan	Canopy Dispersible Granules	
		0.5-3% O.M.	3-5% O.M.
	(pints)	(ounces)	(ounces)
Coarse	1½ - 2	6 - 8	8 - 10
Medium	1½ - 2½	8 - 10	10 - 12
Fine	2½ - 3	10 - 12	12 - 14

Do not apply Canopy to soil with less than ½% organic matter.

Use higher rates of Canopy on soils with higher organic matter or heavy pressure from large deep germinating weed seeds.

Where Canopy is applied, plant soybean seed 1½" to 2" deep on a flat or raised seedbed only, or crop injury may occur.

Soybean injury may occur where Canopy is applied if excessive rainfall occurs after application but before soybeans germinate.

Precautions: Read the Canopy label carefully for cautions and precautions relating to environmental hazards, planting of rotation crops, sprayer contamination and cleanup, soil pH, organic matter and soil texture use restrictions, soybean variety planting restrictions, restrictions where Atrazine or Scepter were used the previous year, restrictions concerning use with organic phosphate pesticides, grazing restrictions and other directions, precautions and limitations before applying the Sonalan/Canopy tank mix.

Read the Canopy label for additional weeds controlled, directions, cautions and limitations prior to use.

Soybean—Sonalan/Command® Tank Mix (Do Not Use in California)

Sonalan/Command should be applied as a preplant incorporated tank mix treatment. The Sonalan/Command combination effectively controls the weeds listed for Sonalan alone for general weed control plus

Velvetleaf (Buttonweed)

Additional weeds partially controlled by this combination include

Annual morningglory	Pennsylvania smartweed
Common ragweed	Prickly sida
Eastern black nightshade	(Teaweed)
Jimsonweed	Venice mallow

Control of these weeds may be erratic, ranging from poor to excellent depending upon soil temperature, time of weed germination, depth of weed seed in the soil and the amount and timing of soil moisture. Control may be improved with timely cultivation.

Application Directions: Tank mixed Sonalan/Command should be applied as a preplant incorporated treatment. Apply Sonalan/Command up to three (3) weeks prior to planting.

Do not apply aerially or through irrigation equipment.

Apply Sonalan/Command using a finished spray volume of 10 to 40 gallons of water per acre. NOTE: The use of an agriculturally approved drift reducing additive is required at finished spray volumes of 10-15 gallons per acre. Use nozzles suitable for broadcast boom application of herbicides. Coarse sprays are less likely to drift out of the target area than fine sprays.

Incorporation Directions: Sonalan/Command must be incorporated immediately after application. Sonalan/Command should be thoroughly and uniformly mixed into the top 2 to 3 inches of the final seed bed. Application to overly moist or wet soils will also increase the potential for off site movement of Command vapors and may result in poor soil incorporation and unsatisfactory weed control. These directions must be followed to reduce the potential for off site movement of Command vapors and potential injury to desirable vegetation including adjacent crops, trees and ornamentals.

Broadcast Rates per Acre

Soil Texture	Sonalan	Command 4 E.C.
	(pints)	(pints)
Coarse	1½-2	¾
Medium	1½-2½	1½
Fine	2½-3	1½

Special Precaution: Off-site movement of spray drift or vapors of Command can cause foliar whitening or yellowing of adjacent crops, trees and ornamental plants which is usually temporary in nature but can result in permanent injury or death of the plants if exposure is excessive. Prior to making application of this product, read and strictly follow all precautions and application instructions on the Command label.

Read the Command label carefully for additional directions, cautions and limitations prior to use.

Soybean—Sonalan/Command®/Lexone® or Sonalan/Command®/Sencor® Tank Mix (Do Not Use in California)

Sonalan plus Command and Lexone or Sencor should be applied as a preplant incorporated tank mix treatment. Sonalan/Command/Lexone or Sencor controls those weeds listed for Sonalan alone for general weed control plus these additional weeds:

Common ragweed	Spotted spurge
Hemp sesbania	Velvetleaf
Jimsonweed	Venice mallow
Pennsylvania smartweed	Wild mustard
Prickly sida	
(Teaweed)	

Additional weeds partially controlled by this combination include

Annual morningglory	Giant ragweed
Common cocklebur	

Control of these weeds may be erratic, ranging from poor to excellent depending upon soil temperature, time of weed germination, depth of weed seed in the soil and the amount and timing of soil moisture. Control may be improved with timely cultivation.

Application Directions: Tank mixed Sonalan/Command/Lexone or Sencor should be applied as a preplant incorporated treatment. Apply Sonalan/Command/Lexone or Sencor up to two (2) weeks prior to planting.

Do not apply aerially or through irrigation equipment.

Apply Sonalan/Command/Lexone or Sencor using a finished spray volume of 10 to 40 gallons of water per acre. NOTE: The use of an agriculturally approved drift reducing additive is required at finished spray volumes of 10-15 gallons per acre. Use nozzles suitable for broadcast boom application of herbicides. Coarse sprays are less likely to drift out of the target area than fine sprays.

Incorporation Directions: Sonalan/Command/Lexone or Sencor must be incorporated immediately after application.

Sonalan/Command/Lexone or Sencor should be thoroughly and uniformly mixed into the top 2 to 3 inches of the final seed bed. Application to overly moist or wet soils will also increase the potential for off-site movement of Command vapors and may result in poor soil incorporation and unsatisfactory weed control. These directions must be followed to reduce the potential for off-site movement of Command vapors and potential injury to desirable vegetation including adjacent crops, trees and ornamentals.

Follow other soil preparation application and incorporation procedures described on the Sonalan label.

Broadcast Rates per Acre

Soil Texture	Sonalan	Command 4 E. C.	Lexone 4L or Sencor 4F	Lexone Dry Flowable or Sencor Dry Flowable
Coarse	(pints) 1½-2	(pints) ½	(pints) ½-¾	(pounds) ¼-½
Medium	1½-2½	¾	½-¾	¼-½
Fine	2½-3	1½	¾-1	½-¾

Use the higher rate in the rate range in areas where weed populations are dense, for control of Venice mallow and wild mustard and for best control of common cocklebur, annual morningglory and giant ragweed.

Special Precaution: Off-site movement of spray drift or vapors of Command can cause foliar whitening or yellowing of adjacent crops, trees and ornamental plants which is usually temporary in nature but can result in permanent injury or death of the plants if exposure is excessive. Prior to making application of this product, read and strictly follow all precautions and application instructions on the Command label.

Read the Command, Lexone or Sencor labels carefully for additional directions, cautions and limitations prior to use.

Soybean—Sonalan/Dual* Tank Mix

Sonalan/Dual should be applied as a preplant incorporated tank mix. The Sonalan/Dual combination effectively controls the weeds listed for Sonalan alone for general weed control plus these additional weeds:

Black nightshade Red rice
Galinsoga Southwestern cupgrass
Prairie cupgrass Yellow nutsedge

Additional weeds partially controlled by this combination include:

Hairy nightshade Volunteer sorghum

Follow recommended soil preparation procedures for Sonalan. Apply the tank mix in at least ten (10) gallons of water per acre up to fourteen (14) days prior to planting. Incorporate the tank mix within two (2) days after application in the top two (2) inches of soil.

Broadcast Rates per Acre

Soil Texture	Sonalan		Dual SE	
	General Weed Control	Partial Control of Eastern Black Nightshade	Less than 3% G.I.A.	3% O.I.A. or greater
Coarse	(pints) 1½-2	(pints) N/A	(pints) 1½-2	(pints) 2
Medium	1½-2½	3*	2-2½	2-2½
Fine	2½-3	3½*	2-2½	2½-3

*Two incorporation passes are required for partial control of eastern black nightshade.

Read the Dual label for additional weeds controlled, directions, cautions and limitations prior to use.

Soybean—Sonalan/Lasso* Tank Mix

Sonalan/Lasso should be applied as a preplant incorporated tank mix, or Sonalan preplant incorporated followed by a Lasso overlay. The Sonalan/Lasso combination effectively controls the weeds listed for Sonalan alone for general weed control plus these additional weeds:

Black nightshade* Red rice*
Galinsoga Yellow nutsedge*
Hairy nightshade*

Additional weeds partially controlled by this combination include:

Common ragweed Smartweed
Florida beggarweed Spiny sida (tearweed)

Follow recommended soil preparation recommendations for Sonalan. Apply Sonalan/Lasso in a minimum of 1½ (15) gallons of water or liquid fertilizer per acre and incorporate thoroughly into the top two (2) inches of soil. Apply the tank mix up to seven (7) days prior to planting.

Broadcast Rates per Acre

Soil Texture	Sonalan		Lasso or Lasso Micro-Tech
	General Weed Control	Partial Control of Eastern Black Nightshade	
Coarse	(pints) 1½-2	(pints) N/A	(quarts) 2½
Medium	1½-2½	3*	3-3½
Fine	2½-3	3½*	3½-4

*Two incorporation passes are required for partial control of eastern black nightshade.

For more details see the label for Lasso or Lasso Micro-Tech.

Use a minimum of two and one-half (2½) quarts of Lasso to control these weeds.

Use three (3) to four (4) quarts of Lasso per acre applied alone or in combination with Sonalan for control of these weeds.

Read the Lasso label for additional weeds controlled, directions, cautions and limitations prior to use.

Soybean—Sonalan/Lexone* or Sonalan/Sencor* Tank Mix

Sonalan plus Lexone or Sencor should be applied as a preplant incorporated tank mix. Do not allow Sonalan or Sonalan/Sencor tank mix to remain in the tank overnight. The Sonalan/Lexone or Sonalan/Sencor combination effectively controls the weeds listed for Sonalan alone for general weed control plus these additional weeds:

Common ragweed	Prickly sida
Hemp sesbania	Velvetleaf
Jimsonweed	Vernice mallow
Pennsylvania smartweed	Wild mustard

Control of cocklebur, morningglory, and giant ragweed may be erratic, ranging from poor to excellent depending upon soil temperature, time of weed germination, depth of weed seed in the soil and the amount and timing of soil moisture. Control may be improved with timely cultivation.

Follow recommended soil preparation, application, and incorporation directions for Sonalan.

Broadcast Rates per Acre

Soil Texture	Sonalan		Lexone or Sencor	
	General Control	Partial Control of Eastern Black Nightshade	Lexone 4L or Sencor 4	Lexone or Sencor Dry Flowable
Coarse	(pints) 1½-2	(pints) N/A	(pints) ¾	(pounds) ½
Medium	1½-2½	3*	¾	½
Fine	2½-3	3½*	1	¾

* Two incorporation passes are required for partial control of eastern black nightshade.

** Do not use Lexone/Sencor on coarse soils with less than one percent (1%) organic matter.

Additional Precaution: For Lexone/Sencor tank mixes, do not plant any crop other than soybeans within four (4) months after treatment. Over application, uneven application or improper soil incorporation may result in crop injury, soil residue, or erratic weed control. Seedling disease, cold weather, deep planting, excessive moisture, soil pH over seven and one-half (7.5), high salt concentration or drought may weaken crop seedlings and increase possibility of damage from the Sonalan/Lexone or Sonalan/Sencor tank mix. Under these conditions, delayed crop development or reduced yields may result. Read the Lexone and Sencor labels for directions, cautions and limitations prior to use. Do not use the foliage from soybeans treated with Lexone or Sencor for feed or forage.

Soybean—Sonalan/Preview* Tank Mix (Do Not Use in California)

Sonalan/Preview should be applied as a preplant incorporated tank mix. The Sonalan/Preview combination controls the weeds listed for Sonalan alone for general weed control plus these additional weeds:

Annual smartweeds	Prickly sida
Common cocklebur	(Teaweed)
Common ragweed	Spotted spurge
Hopbush/copperleaf	Sunflower
Jimsonweed	Velvetleaf
Mustards	
Pigweed	
(Palmer amaranth)	
(Smooth)	
(Tall waterhemp)	

Additional weeds partially controlled by this combination include:

Burcucumber	Morningglory
Eastern black nightshade	(Tall)
Giant ragweed	(Lycial)
	(Pitted)
	(Entireleaf)
	Nutsedge species

Large seeded weeds, germinating deep in the soil, such as morningglory, sicklepod, cocklebur and giant ragweed or weeds with subsequent flushes may require a cultivation or an application of a postemergence herbicide for season long control.

Follow recommended soil preparation, application and incorporation procedures for Sonalan. Plant soybeans within two (2) weeks after application.

Broadcast Rates per Acre

Soil Texture	Sonalan	Preview Dispersible Granules	
		0.5-3% O.M.	3-5% O.M.
Coarse	(pints) 1½-2	(ounces) 6	(ounces) 7
Medium	1½-2½	7	8
Fine	2½-3	8	9-10

Do not apply Preview to soil with less than ½% organic matter.

Use higher rates of Preview on soils with higher organic matter or heavy pressure from large deep germinating weed seeds.

Where Preview is applied, plant soybean seed 1½" to 2" deep on a flat or raised seedbed only. Crop injury may occur.

Soybean injury may occur where Preview is applied if excessive rainfall occurs after application but before soybeans germinate.

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Precautions: Read the Preview label carefully for cautions and precautions relating to environmental hazards, planting of rotation crops, sprayer contamination and cleanup, soil pH, organic matter and soil texture use restrictions, soybean variety planting restrictions, restrictions where atrazine or Scepter® were used the previous year, restrictions concerning use with organophosphate pesticides, grazing restrictions and other directions, precautions and limitations before applying the Sonalan/Preview tank mix.

Read the Preview label for additional weeds controlled, directions, cautions and limitations prior to use.

Soybean—Sonalan/Lasso/Lexone or Sonalan/Lasso/Sencor Tank Mix

Sonalan plus Lasso and Lexone or Sencor should be applied as a preplant incorporated tank mix treatment. Do not allow the Sonalan/Lasso/Lexone or Sencor tank mix to remain in the tank overnight.

Sonalan/Lasso/Lexone or Sencor controls those weeds listed for Sonalan alone for general weed control plus these additional weeds:

Black nightshade	Sesbania
Crowfootgrass	(Coffeebean)
Galinsoga	(Coffeeweed)
Hairy nightshade	Shepherdspurge
Jimsonweed	Spotted spurge
Mallow, Venice	Spurred anoda
Mustard, wild	Velvetleaf
Pennsylvania smartweed	Yellow nutsedge
Red rice	

Additional weeds partially controlled by this combination include:

Common ragweed	Spiny sida (teaweed)
Florida beggarweed	

Follow recommended soil preparation recommendations for Sonalan. Apply the tank mixes in a minimum of fifteen (15) gallons of water or liquid fertilizer per acre. Set equipment to mix the soil no deeper than four inches. Apply the tank mix up to seven (7) days prior to planting.

USE A MINIMUM OF 15 GALLONS OF WATER OR LIQUID FERTILIZER PER ACRE TO MIX THE TANK MIX UP TO SEVEN (7) DAYS PRIOR TO PLANTING.

Broadcast Rates per Acre		
Sonalan	Lasso or Lasso Micro-Tech	Lexone or Sencor
General Weed Control	Partial Control of Eastern Black Nightshade	Lexone 4L or Sencor 4
(pints): 1 1/2, 2 1 3/4, 2 1/2 2 3/4, 3	(pints): NA 3 3 1/2	(pints): 1/2** 3/4 1
Soil Texture		
Coarse	(pounds): 2 1/2 3-3 1/2 3 3/4-4	(pounds): 1/2** 3/4 1
Medium		
Fine		

*Two incorporation passes are required for partial control of eastern black nightshade.

**Do not use Lexone or Sencor on coarse soils with less than one (1) percent organic matter.

Read the Lasso, Lexone or Sencor label for additional weeds controlled, directions, cautions and limitations prior to use.

Soybean—Sonalan/Dual/Lexone or Sonalan/Dual/Sencor Tank Mix

Sonalan plus Dual and Lexone or Sencor should be applied as a preplant incorporated tank mix treatment. Do not allow the Sonalan/Dual/Lexone or Sencor tank mix to remain in the tank overnight.

Sonalan/Dual/Lexone or Sencor controls those weeds listed for Sonalan alone for general weed control plus these additional weeds:

Black nightshade	Shepherdspurge
Crowfootgrass	Smoothstem cupgrass
Galinsoga	Spotted spurge
Jimsonweed	Spurred anoda
Pennsylvania smartweed	Velvetleaf
Prarie cupgrass	Venice mallow
Red rice	Wild mustard
Sesbania	Yellow nutsedge
(Coffeebean)	
(Coffeeweed)	

Additional weeds partially controlled by this combination include:

Mary nightshade Volunteer sorghum
Follow recommended soil preparation recommendations for Sonalan. Apply the tank mixes in a minimum of ten (10) gallons of water or liquid fertilizer per acre. Mix the tank mix into the top two (2) inches of soil. Apply the tank mixes up to fourteen (14) days prior to planting.

Broadcast Rates per Acre

Use the recommended rates listed for Sonalan and Dual for the two-way combination; add the recommended rate of Lexone or Sencor for the Sonalan/Dual/Lexone or Sencor tank mix.

Soil Texture	Sonalan		Dual		Lexone or Sencor		
	General Weed Control	Partial Control of Eastern Black Nightshade	Less than 3% OM	3% OM or Greater	Lexone 4L or Sencor 4	Lexone Dry Flowable or Sencor Dry Flowable	(pounds)
Coarse	(pints) 1½-2	(pints) NA	(pints) 1½-2	(pints) 2	(pints) ¼	(pounds) ½	½
Medium	(pints) 1½-2½	(pints) 3*	(pints) 2-2½	(pints) 2-2½	(pints) ¾	(pounds) ¾	¾
Fine	(pints) 2½-3	(pints) 3½	(pints) 2-2½	(pints) 2½-3	(pints) 1	(pounds) 1	1

*Two incorporation passes are required for partial control of eastern black nightshade.

**Do not use Sencor or Lexone on coarse soils with less than one (1) percent organic matter. Read the Dual, Lexone and Sencor labels for additional weeds controlled, directions, cautions and limitations prior to use.

Soybean—Sonalan/Vernam[®] Tank Mix

Sonalan plus Vernam should be applied as a preplant incorporated tank mix treatment.

Sonalan/Vernam effectively controls the weeds listed for Sonalan alone for general weed control plus these additional weeds:

Annual morningglory Velvetleaf
Purple nutsedge Yellow nutsedge
Sicklepod

Apply Sonalan/Vernam in at least ten (10) gallons per acre of water or liquid fertilizer. Follow recommended soil preparation procedures. Incorporate the tank mix immediately following application. Read the Vernam label for additional directions, cautions and limitations prior to use.

Broadcast Rates per Acre

Soil Texture	Sonalan		Vernam 7E
	General Weed Control	Partial Control of Eastern Black Nightshade	
Coarse	(pints) 1½-2	(pints) N/A	(pints) 2½
Medium	(pints) 1½-2½	(pints) 3*	(pints) 3
Fine	(pints) 2½-3	(pints) 3½*	(pints) 3

*Incorporation passes are required for partial control of eastern black nightshade.

Read the Vernam label for additional weeds controlled, directions, cautions and limitations prior to use.

Soybean—Sonalan Preplant Incorporated Followed by Overlay Treatments (Do Not Use in California)

Sonalan should be applied as a preplant incorporated treatment. Additional weeds tolerant to Sonalan may be controlled by using overlay preemergence applications of Amiben[®], Canopy[®], Dual[®], Gemini[™], Lasso[®], Lexone[®], Lorox[®], Lorox[®] Plus, Preview[®], Scepter[®] or Sencor[®]. Consult these product labels for additional weeds controlled, application directions and precautions before use.

Soybean—Sonalan Preplant Incorporated Followed by Postemergence Treatments (Do Not Use in California)

Sonalan should be applied as a preplant incorporated treatment. Additional weeds tolerant to Sonalan may be controlled by using postemergence applications of Basagran[®], Blazer[®], Classic[®], Scepter[®] or Tackle[®]. Consult these product labels for additional weeds controlled, application directions and precautions before use.

Dry Bean—Sonalan Alone (Does not include soybean)

Sonalan should be applied as a preplant incorporated treatment. Follow recommended soil preparation, application and

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Incorporation procedures for Sonalan

General weed control—except groundcherry and nightshade:

Broadcast Rates per Acre

Soil Texture	Sonalan
	(pints)
Coarse	1½ 2
Medium	2 2½
Fine	2½ 3

For broader spectrum control, Sonalan may be used in combination with Amiben, Dual, Eptam or Lasso. Read the combination product label for directions, cautions and limitations prior to use.

Groundcherry and Nightshade control (annual)—dry bean:

Two incorporation passes are required for groundcherry and nightshade control.

Do not use these Sonalan rates for garden bean, green bean, snap bean, or string bean.

Broadcast Rates per Acre

Soil Texture	Sonalan
	(pints)
Coarse	3 3½
Medium	3½ 4
Fine	4 4½

For broader spectrum control, Sonalan may be used in combination with Amiben, Dual, Eptam or Lasso. Read the combination product label for directions, cautions and limitations prior to use.

Dry Bean—Sonalan/Amiben* Tank Mix or Overlay

Sonalan/Amiben should be applied as a preplant incorporated tank mix or Sonalan preplant incorporated followed by an Amiben overlay.

The Sonalan/Amiben combination effectively controls the weeds listed for Sonalan alone for general weed control plus these additional weeds:

Black nightshade
Common ragweed
Pennsylvania smartweed
Velvetleaf
Wild mustard

Follow recommended soil preparation, application and incorporation procedures for Sonalan.

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Broadcast Rates per Acre

Soil Texture	Sonalan		Amiben**	
	General Weed Control	Nightshade and Groundcherry Control*	2S	DS
	(pints)	(pints)	(quarts)	(pounds)
Coarse	1½ 2	3 3½	4 6	2 4 3 6
Medium	1½ 2½	3½ 4	4 6	2 4 3 6
Fine	2½ 3	4 4½	4 6	2 4 3 6

*Two incorporation passes are required for groundcherry or nightshade control.

**Use the higher rate where a heavy population of smartweed, velvetleaf, ragweed, wild mustard, or black nightshade are expected. Read the Amiben label for directions, cautions and limitations prior to use.

Read the Amiben label for additional weeds controlled, directions, cautions and limitations prior to use.

Dry Bean—Sonalan/Dual* Tank Mix or Overlay

Sonalan/Dual should be applied as a preplant incorporated tank mix or Sonalan preplant incorporated followed by a Dual overlay. The Sonalan/Dual combination effectively controls the weeds listed for Sonalan alone for general weed control plus these additional weeds:

Black nightshade Red rice
Galinsoga Southwestern cupgrass
Prairie cupgrass Yellow nutsedge

Additional weeds partially controlled by this combination include:

Hairy nightshade Volunteer sorghum

Follow recommended soil preparation procedures for Sonalan. Apply the tank mix in at least ten (10) gallons of water per acre up to fourteen (14) days prior to planting. Incorporate the tank mix within two (2) days after application in the top two (2) inches of soil. When Dual is applied as an overlay to Sonalan, apply Dual after planting (behind the planter) prior to crop and weed emergence.

Broadcast Rates per Acre

Soil Texture	Sonalan		Dual BE	
	General Weed Control	Nightshade and Groundcherry Control*	Less than 3½ O M	3½ O M or greater
	(pints)	(pints)	(pints)	(pints)
Coarse	1½ 2	3 3½	1½ 2	2
Medium	1½ 2½	3½ 4	2 2½	2 2½
Fine	2½ 3	4 4½	2 2½	2½ 3

*Two incorporation passes are required for groundcherry or nightshade control.

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Read the Dual label for additional weeds controlled, directions, cautions and limitations prior to use

Dry Bean—Sonalan/Eptam*, Sonalan/EPTC Tank Mixes

Sonalan plus Eptam or Sonalan plus EPTC should be applied as a preplant incorporated tank mix treatment

The Sonalan/Eptam or other Sonalan/EPTC tank mixes effectively control the weeds listed for Sonalan alone for general weed control plus these additional weeds

Nightshade (black and hairy)
Nutsedge (purple and yellow)

Follow recommended soil preparation and application directions for Sonalan. Incorporate the tank mix immediately after application

Broadcast Rates per Acre

Soil Texture	Sonalan		Eptam 7E or other EPTC 7E formulations
	General Weed Control	Nightshade and Groundcherry Control*	
Coarse	(pints) 1½-2	(pints) 3-3½	(pints) 3½
Medium	1½-2½	3½-4	3½
Fine	2½-3	4-4½	3½

*Two incorporation passes are required for groundcherry or nightshade control

Read the Eptam or other EPTC labels for additional weeds controlled, directions, cautions and limitations prior to use

Dry Bean—Sonalan/Lasso* Tank Mix—

(For use only west of the Mississippi River, except in Kern County, California)

Sonalan/Lasso should be applied as a preplant incorporated tank mix. The Sonalan/Lasso combination effectively controls the weeds listed for Sonalan alone for general weed control plus these additional weeds

Black nightshade* Red rice*
Florida pusley Witchgrass
Galinsoga Yellow nutsedge*
Hairy nightshade*

Additional weeds partially controlled by this combination include

Common ragweed Smartweed
Florida beggarweed Spiny sida (teaweed)

Sonalan/Lasso tank mix. Follow recommended soil preparation recommendations for Sonalan. Apply Sonalan/Lasso in a minimum of fifteen (15) gallons of water per acre and incorporate thoroughly into the top two (2) inches of soil. Apply the tank mix up to seven (7) days prior to planting.

*These weeds are not controlled by Sonalan/Lasso alone. Apply a minimum of two and one-half (2½) quarts of Lasso on coarse soils and more (3) quarts on medium and fine soils to control these weeds.

Broadcast Rates per Acre

Soil Texture	Sonalan		Lasso or Lasso Micro-Tech
	General Weed Control	Nightshade and Groundcherry Control*	
Coarse	(pints) 1½-2	(pints) 3-3½	(quarts) 2½-3
Medium	1½-2½	3½-4	2½-3
Fine	2½-3	4-4½	2½-3

*Two incorporation passes are required for groundcherry or nightshade control

Read the Lasso label for additional weeds controlled, directions, cautions and limitations prior to use

Dry Bean — Sonalan Preplant Incorporated Followed by Basagran* Postemergence Application

Sonalan should be applied preplant incorporated followed by a postemergence application of Basagran

The Sonalan/Basagran combination effectively controls the weeds listed for Sonalan alone for general weed control plus these additional weeds

Cocklebur Ragweed
Jimsonweed Tropic croton
Prickly sida Velvetleaf

Consult the Basagran label for specific weed growth stage directions to achieve best results

Broadcast Rates per Acre

Soil Texture	Sonalan		Basagran**
	General Weed Control	Nightshade and Groundcherry Control*	
Coarse	(pints) 1½-2	(pints) 3-3½	(pints) 2
Medium	2-2½	3½-4	2
Fine	2½-3	4-4½	2

*Two incorporation passes are required for groundcherry or nightshade control

**Apply Basagran as follows for optimum results

Do not treat earlier than weed stage indicated on Basagran label. Add oil concentrate according to label use directions

Read the Basagran label for additional weeds controlled, directions, cautions and limitations prior to use

Peanut—Sonalan Alone

Sonalan should be applied as a preplant incorporated treatment. Follow recommended soil preparation, application and incorporation procedures for Sonalan.

Broadcast Rates per Acre

Soil Texture	Sonalan
	(pints)
Coarse	1½-2
Medium	2-2½
Fine	2½-3

Do not graze or forage crop grown in treated soil or cut for hay or silage.

Peanut—Sonalan/Dual Tank Mix

Sonalan/Dual should be applied as a preplant incorporated tank mix treatment. The Sonalan/Dual combination effectively controls the weeds listed for Sonalan alone for general weed control plus these additional weeds:

Gambusia Southwestern cupgrass
Prairie cupgrass Yellow nutsedge
Red rice

Follow recommended soil preparation procedures for Sonalan. Apply the tank mix in at least ten (10) gallons of water or liquid fertilizer per acre up to fourteen (14) days prior to planting. Incorporate the tank mix within two (2) days after application in the top two (2) to three (3) inches of soil.

Broadcast Rates per Acre

Soil Texture	Sonalan	Dual BE	
		Southeast	OK, TX, NM
	(pints)	(pints)	(pints)
Coarse	1½-2	1½-2	1½-2
Medium	1½-2½	1½-2	1½-2
Fine	2½-3	1½-2	1½-2

Read the Dual label for additional directions, cautions and limitations prior to use.

Peanut—Sonalan/Lasso Tank Mix

Sonalan/Lasso should be applied as a preplant incorporated tank mix treatment. The Sonalan/Lasso combination effectively controls the weeds listed for Sonalan alone for general weed control plus these additional weeds:

Gambusia Yellow nutsedge
Red rice

Follow recommended soil preparation procedures for Sonalan. Apply the tank mix in at least ten (10) gallons of water or liquid fertilizer per acre up to seven (7) days prior to planting. Incorporate the tank mix within two (2) days after application in the top two (2) to three (3) inches of soil.

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Broadcast Rates per Acre

Soil Texture	Sonalan	Lasso 4EC
	(pints)	(quarts)
Coarse	1½-2	3
Medium	1½-2½	3
Fine	2½-3	3

Read the Lasso label for additional directions, cautions and limitations prior to use.

Peanut—Sonalan/Vernam Tank Mix

Sonalan/Vernam should be applied as a preplant incorporated tank mix treatment. The Sonalan/Vernam combination effectively controls the weeds listed for Sonalan alone for general weed control plus these additional weeds:

Annual morningglory Sicklepod
Purple nutsedge Yellow nutsedge

Apply Sonalan/Vernam in at least ten (10) gallons per acre of water or liquid fertilizer. Follow recommended soil preparation procedures for Sonalan. Sonalan/Vernam can be applied up to ten (10) days prior to planting. Incorporate the tank mix immediately following application, uniformly in the top two (2) to three (3) inches of soil.

Broadcast Rates per Acre

Soil Texture	Sonalan	Vernam 7E
	(pints)	(pints)
Coarse	1½-2	2½
Medium	1½-2½	3
Fine	2½-3	3

Read the Vernam label for additional directions, cautions and limitations prior to use.

Sunflower—Sonalan Alone

Sonalan should be applied as a preplant incorporated treatment. Follow recommended soil preparation, application and incorporation procedures for Sonalan.

For broader spectrum weed control, Sonalan may be used in combination with Amaran and Eptam. Read the combination product label for directions, cautions and limitations prior to use.

General weed control—except groundcherry and nightshade.

Broadcast Rates per Acre

Soil Texture	Sonalan
	(pints)
Coarse	1½-2
Medium	2-2½
Fine	2½-3

Precaution: Do not graze or forage crop grown in treated soil or cut for hay or silage.

Sunflower—Sonalan/Amiben Tank Mix or Overlay

Sonalan/Amiben should be applied as a preplant incorporated tank mix treatment, or Sonalan preplant incorporated followed by an Amiben overlay treatment. The Sonalan/Amiben combination effectively controls the weeds listed for Sonalan alone for general weed control plus these additional weeds:

Black nightshade Velvetleaf
Common ragweed Wild mustard
Pennsylvania smartweed

Broadcast Rates per Acre

Soil Texture	Sonalan	Amiben	
	General Weed Control	Amiben 2S	Amiben DS
	(pints)	(quarts)	(pounds)
Coarse	1½ - 2	4 - 6*	24 - 36*
Medium	1½ - 2½	4 - 6	24 - 36
Fine	2½ - 3	4 - 6	24 - 36

*Use the higher rate where heavy populations of black nightshade, ragweed, smartweed, velvetleaf or wild mustard are expected.

Precaution: Do not graze or forage crop grown in treated soil or cut for hay or silage.

Read the Amiben label for additional weeds controlled, directions, cautions and limitations prior to use.

Sunflower—Sonalan/Eptam® or Sonalan/EPTC Tank Mix for Use Only in North Dakota, South Dakota and Minnesota.

Sonalan/Eptam or Sonalan/EPTC should be applied as a preplant incorporated tank mix treatment.

The Sonalan/Eptam tank mix effectively controls the weeds listed for Sonalan alone for general weed control plus these additional weeds:

Annual Weeds	Perennial Weeds
Annual morningglory	Bermudagrass
Bermudagrass (seedling)	Purple nutsedge
Black nightshade	Yellow nutsedge
Corn spurry	
Fiddleneck	
Goosefoot nettleleaf	
Hairy nightshade	
Rescuegrass	
Ryegrass (Italian)	
Shepherdspurse	
Tumble pigweed	
Volunteer grains (barley, oat, wheat)	

Follow recommended soil preparation directions for Sonalan. Apply the tank mix in at least ten (10) gallons of water or liquid fertilizer per acre. Apply and immediately incorporate the tank mix prior to planting in the spring.

Broadcast Rates per Acre

Soil Texture	Sonalan General Weed Control	Eptam 7E or other EPTC 7E formulations
	(pints)	(pints)
Coarse	1½ - 2	2½ - 3½
Medium	1½ - 2½	2½ - 3½
Fine	2½ - 3	2½ - 3½

Precaution: Do not graze or forage crop grown in treated soil or cut for hay or silage.

Read the Eptam or other EPTC labels for additional weeds controlled, directions, cautions and limitations prior to use.

Dry Peas—Sonalan Alone

Sonalan should be applied as a preplant incorporated treatment. Follow recommended soil preparation, application and incorporation procedures for Sonalan.

General weed control—except groundcherry and nightshade.

Broadcast Rates per Acre

Soil Texture	Sonalan
	(pints)
Coarse	1½ - 2
Medium	2

Precaution: Do not exceed these Sonalan rates for weed control in dry peas or crop injury may occur. Not all varieties of peas have been tested for tolerance to Sonalan. Consult your seed contractor before applying Sonalan to determine the tolerance of a particular pea variety. Application of Sonalan to non tolerant pea varieties may result in crop injury and reduced yields. Do not graze or forage crop grown in treated soil or cut for hay or silage.

Sonalan Performance Guarantee

A Limited Warranty of Sonalan Weed and Grass Control

Elanco Products Company warrants that Sonalan will provide commercially acceptable control of the weeds and grasses as indicated on its current label when used according to label directions and subject to the following limitations:

1. Purchaser must notify Elanco promptly if a lack of commercially acceptable control occurs. Notice must be given within forty-five (45) days after the first planting or after application of Sonalan to the treated crop, whichever occurs later.
2. An Elanco representative must be satisfied that Purchaser used Sonalan according to the label directions.
3. The Purchaser must provide an Elanco representative with an invoice or other satisfactory record which shows the price and quantity of Sonalan purchased.
4. Elanco's liability will be limited to a refund of the purchase price of the Sonalan applied to the acreage on which commercially acceptable control was not obtained.
5. Void outside the U.S.A.

Disclaimer of Warranties

The warranty printed above is the only warranty applicable to this product. All other warranties, express or implied, including but not limited to any implied warranties of merchantability and fitness for a particular purpose, are disclaimed. This disclaimer of warranties does not apply where prohibited by operation of law.

Limitation of Damages

Elanco's liability, whether in contract, warranty, tort, negligence, strict liability or otherwise shall not exceed the return of the amount of the purchase price of the Sonalan and under no circumstances shall Elanco be liable for special, indirect or consequential damages. This limitation of damages does not apply where prohibited by operation of law.

Inherent Risks of Use

Failure to carefully follow the directions for use of Sonalan, as well as other factors such as seedling disease, cold weather, deep planting, excessive moisture, high salt concentration, sodic soils or drought may result in unsatisfactory weed control or crop injury. Reduced yields may result under these conditions.

Literature revised September 4, 1987
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