

U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF PESTICIDES PROGRAMS
REGISTRATION DIVISION (75-767)
WASHINGTON, DC 20460

NOTICE OF PESTICIDE: ☒ REGISTRATION
☐ REREISTRATION
(Under the Federal Insecticide, Fungicide
and Rodenticide Act, as amended)

EPA REGISTRATION NO.

75-767

DATE OF ISSUANCE

OCT 01 1981

TERM OF ISSUANCE

Indefinite

NAME OF PESTICIDE PRODUCT

Senalax 100F

NAME AND ADDRESS OF REGISTRANT (include ZIP code)

Dow Chemical
Quad IV
2000 Purdue Road
Indianapolis, IN 46206-1100

BEST AVAILABLE COPY

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

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

A copy of the labeling accepted in connection with this Registration/Reregistration is returned herewith.

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

☐ ATTACHMENT IS APPLICABLE

SIGNATURE OF APPROVING OFFICIAL

DATE

10/1/81

7. Provide copies of the raw analytical data and calculations of five or more representative sample analyses along with the active ingredient label claim.

Submit three (3) copies of your final printed labeling, before you release the product for shipment. Refer to the A-79 previously mailed to you for a further description of final printed labeling.

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

Joanne L. Miller
Product Manager (23)
Fungicide Herbicide Branch
Registration Division (H7505C)

Enlosure

[BEST AVAILABLE COPY]

CONCURRENCES							
SYMBOL	H7505C						
SURNAME	Robbins						
DATE	9/30/91						

EPA Form 1320-1 (12-70)

OFFICIAL FILE COPY

401 1001 (1 - 003-201)

711.22 6,200-188

(Container Label):

(logo) DowElanco

Sonalan* HFP

(High Flash Point formulation)

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

Active Ingredient:

ethalfluralin: N-ethyl-N-(2-methyl-2-propenyl)-

2, 6-dinitro-4-(trifluoromethyl)benzenamine 31.50%

Inert Ingredients 68.50%

Total 100.00%

Contains 3 pounds active ingredient per gallon.

EPA Reg. No. 62719-XXX

EPA Est. No. 1471-IN-2

WARNING

Keep Out of Reach of Children

See additional precautionary statements inside booklet.

Avoid Freezing - Store Above 40 °F.

Notice: Read the entire label. Use only according to label directions.

Before buying or using this product, read "Warranty Disclaimer" and "Limitation of Remedies" elsewhere on this label.

In case of an emergency endangering life or property involving this product, call collect 517-636-4400.

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

Herbicide

Net Contents - 2.5 Gallons

ACCEPTED
with COMMENTS
in EPA Letter Dated

OCT 01 1981

Under the Federal Insecticide,
Fungicide, and Rodenticide Act
Registration No. 62719-XXX
EPA Est. No. 1471-IN-2
62719-188

Precautionary Statements (Note: Precautionary Info is provisional)

Hazards to Humans and Domestic Animals

Keep Out of Reach of Children

WARNING

Sonalan HFP herbicide 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 when disposing of equipment washwaters. Runoff or erosion from treated areas may be hazardous to fish in neighboring areas.

Physical or Chemical Hazards

Do not use or store near heat or open flame.

Directions for Use

- It is a violation of Federal law to use this product in a manner inconsistent with its labeling.
- See attached literature for complete Directions for Use.
- Read all Directions for Use carefully before applying.

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 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.

Warranty Disclaimer

DowElanco warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. **DowElanco makes no other express or implied warranty of merchantability or fitness for a particular purpose or any other express or implied warranty.**

Inherent Risks of Use

It is impossible to eliminate all risks associated with use of this product. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of DowElanco or the seller. All such risks shall be assumed by buyer.

Limitation of Remedies

The exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at DowElanco's election, one of the following

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

DowElanco shall not be liable for losses or damages resulting from handling or use of this product unless DowElanco is promptly notified of such loss or damage in writing. In no case shall DowElanco be liable for consequential or incidental damages or losses.

The terms of the Warranty Disclaimer above and this Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of DowElanco or the seller is authorized to vary or exceed the terms of the Warranty Disclaimer or this Limitation of Remedies in any manner.

*Trademark of DowElanco

DowElanco
Quad IV, 9002 Purdue Road
Indianapolis, IN 46268-1189 U.S.A.

(Product Label Literature)

(logo) DowElanco

Sonalan* HFP

(High Flash Point formulation)

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

Active Ingredient:

ethalfuralin: N-ethyl-N-(2-methyl-2-propenyl)-	
2, 6-dinitro-4-(trifluoromethyl)benzenamine	31.50%
Inert Ingredients	68.50%
Total.....	100.00%

Contains 3 pounds active ingredient per gallon.

Keep Out of Reach of Children**WARNING**

See additional precautionary statements inside booklet. See Directions for Use inside booklet.

Notice: Read the entire label. Use only according to label directions.

Before buying or using this product, read "Warranty Disclaimer" and "Limitation of Remedies" in the enclosed label booklet.

In case of an emergency endangering life or property involving this product, call collect 517-636-4400.

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

EPA Reg No 62719-120

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DowElanco

Quad IV, 9002 Purdue Road

Indianapolis, IN 46268-1189, U.S.A.

Avoid Freezing - Store Above 40°F.

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Precautionary Statements

Hazards to Humans and Domestic Animals**Keep Out of Reach of Children****WARNING**

Senalan HFP herbicide 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 when disposing of equipment washwaters. Runoff or erosion from treated areas may be hazardous to fish in neighboring areas.

Physical or Chemical Hazards

Do not use or store near heat or open flame.

Directions for Use

- It is a violation of Federal law to use this product in a manner inconsistent with its labeling
- Read all Directions for Use carefully before applying

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 residue is a violation of Federal law. If these wastes cannot be disposed of 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 incineration, 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.

General Information

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

General Use Precautions

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 HFP 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 HFP on any crop grown in the state of Montana.

Rotation Crop Restrictions

Replanting

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

Sugar Beets or Red Beets

Do not plant sugar beets or red beets within 13 months following an application of three (3) pints or more per acre of Sonalan HFP. Where less than three (3) pints of Sonalan HFP have been applied, sugar beets or red beets may be planted eight (8) months after an application of Sonalan HFP if the soil treated with Sonalan HFP is moldboard plowed to a depth of at least 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 HFP.

Mixing Directions

Sonalan HFP - 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 HFP, continue agitation and finish filling the tank.

Sonalan HFP In 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 1/4 to 1/3 full with clean water or liquid fertilizer. (See page 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 HFP 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 HFP when the wind can cause drifting of spray particles which can result in non-uniform application.

Application Directions

Ground Application: Apply Sonalan HFP 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 HFP 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 HFP may be mixed with most liquid fertilizer materials. Combinations of Sonalan HFP with solutions and suspension type fertilizers have provided weed and grass control equal to the same rates of Sonalan HFP applied in water. Follow Sonalan HFP 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 HFP, can be mixed with liquid fertilizers. In all cases, continuous agitation is required to prevent the Sonalan HFP from rising to the surface as an oily layer. When necessary, (see "Testing for Tank Mix Compatibility in Liquid Fertilizers") a compatibility agent can be used to ensure that the Sonalan HFP 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 (DF), 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 oily mixtures with liquid fertilizers. These compatibility agents can be used at rates as low as one and one half (1 1/2) 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. Sponto 168D (Wilco Chemicals Co., Chicago, IL)
2. Compat (Farm Chemicals, Inc., Aberdeen, NC) Not for use in California
3. Unite (Hopkins Ag Chemical, Madison, WI)
4. T-Mulz 734-2 (Thompson-Hayward Chemical Co., Kansas City, MO) Not for use in California
5. Rigo Compatibility Agent (Rigo Company, Buckner, KY)
6. Amoco Spray Mate™ (Amoco Oil Co., Chicago, IL) Not for use in California
7. Kim 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 fluid 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) teaspoonful(s) 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 HFP to the jar and shake well. Add solution herbicides 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, use a clean quart jar, and starting at Step 1 above, add one-half (1/2) teaspoonful of the compatibility agent to the liquid fertilizer. Mix well. 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 HFP. Application of dry bulk fertilizer impregnated with Sonalan HFP has provided weed and grass control equal to the same rates of Sonalan HFP applied in liquid carriers.

Follow Sonalan HFP label recommendations regarding rates per acre, crops, special instructions, cautions and special precautions. For best results, Sonalan HFP should be incorporated two times when applied impregnated on dry bulk fertilizers. For best weed control results, the second incorporation should be delayed three (3) to five (5) days after the first. Follow other Sonalan HFP 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 HFP at the recommended rate. Most dry fertilizers can be used for impregnation with Sonalan HFP. When coated ammonium nitrate and/or limestone are used alone, do not impregnate with Sonalan HFP. These materials will not absorb the herbicide. Blends containing a mixture 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 HFP onto the fertilizer should be placed to provide uniform spray coverage. Add water to the Sonalan HFP to give a total volume of at least six (6) pints per ton of fertilizer.

Grasses and Broadleaf Weeds Controlled by Sonalan HFP

Sonalan HFP applied preplant soil incorporated controls the following weeds:

Grasses:

<u>Common Name</u>	<u>Scientific Name</u>
Annual bluegrass	<i>Poa annua</i>
Barnyardgrass <i>Echinochloa crus-galli</i>	
Crabgrass	<i>Digitaria</i> spp.
(Large crabgrass)	
(Small crabgrass)	
Foxtail <i>Setaria</i> spp.	
(Giant foxtail)	
(Green foxtail)	
(Foxtail millet)	
(Pigeongrass)	
(Yellow foxtail)	
Johnsongrass (from seed)	<i>Sorghum halepense</i>
Junglerice	<i>Echinochloa colonum</i>
Oat, wild†	<i>Avena fatua</i>
Panicum, fall	<i>Panicum dichotomiflorum</i>
Panicum, Tex 3	<i>Panicum texanum</i>
(Buffalograss)	
(Colorado grass)	
Ryegrass, Italian	<i>Lolium multiflorum</i>
(Annual ryegrass)	
Sandbur, Field	<i>Cenchrus incertus</i>
Shattercane	<i>Sorghum bicolor</i>
(Wild cane)	
Signalgrass, broadleaf	<i>Bracharia platyphylla</i>
(Brachiana)	
Witchgrass	<i>Panicum capillare</i>
Woolly Cupgrass	<i>Eriochloa villosa</i>

Broadleaf Weeds:

<u>Common Name</u>	<u>Scientific Name</u>
Buckwheat, wild	<i>Polygonum convolvulus</i>
Carpetweed	<i>Mollugo verticillata</i>
Catchfly, conical	<i>Silene conica</i>
Chickweed, common	<i>Stellaria media</i>
Fiddleneck tarweed	<i>Amaranthus lycopoides</i>
Groundcherry†† (annual)	
(Lanceleaf	<i>Physalis lanceifolia</i>
groundcherry)	
(Wright's	<i>Physalis wrightii</i>
groundcherry)	
Henbit	<i>Lamium amplexicaule</i>
Kochia	<i>Kochia scoparia</i>
Lambsquarters, common	<i>Chenopodium album</i>
Nightshade†† (annual)	<i>Solanum</i> spp.
(Black nightshade)	
(Eastern black	
nightshade)†††	

(Hairy nightshade)	
Pigweed	<i>Amaranthus spp.</i>
(Prostrate pigweed)	
(Redroot pigweed)	
(Smooth pigweed)	
(Tumble pigweed)	
Purslane, common	<i>Portulaca oleracea</i>
Pusley, Florida	<i>Richardia scabra</i>
Rockpurslane, redmaids	<i>Calandrinia caulescens</i>
Thistle, Russian	<i>Salsola kali</i>

† Sonalan HFP will provide wild oat control except those germinating below the zone treated with Sonalan HFP

†† See special instructions for control in dry bean.

††† See special instructions for partial control in soybean.

Soil Preparation

Factors that influence uniform application and incorporation of Sonalan HFP are:

Crop Residues or Existing Weeds: Ground cover, such as crop residues or existing weeds can interfere with the incorporation of Sonalan HFP into the soil. A manageable level of such ground cover will allow the Sonalan HFP 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 HFP

Soil 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 HFP

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

Soil Incorporation Directions

Use incorporation equipment that thoroughly and uniformly mixes Sonalan HFP 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 HFP up to three (3) weeks prior to planting. Sonalan HFP 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 HFP 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 HFP. Apply Sonalan HFP 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

Sod treated with Sonalan HFP may be shallowly cultivated without reducing the weed control activity of Sonalan HFP. 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 HFP applied will vary with the soil texture and organic matter. A fine textured soil will require more Sonalan HFP 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, silt, 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 predominantly sand or silt they are usually classified as medium textured soils. If they are predominantly clay, they are usually classified as fine textured soils.

These recommendations are given as the broadcast rates of Sonalan HFP 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 HFP rate for the coarser textured soil. Sonalan HFP is not recommended for use on soils containing more than 10% organic matter.

Approved Crops

Soybeans

Soybean - Sonalan HFP - Alone

General weed control - except groundcherry and nightshade: Sonalan HFP should be applied as a preplant incorporated treatment. Follow recommended soil preparation, application, and incorporation procedures for Sonalan HFP.

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

Broadcast Rates per Acre

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

Eastern Black Nightshade - Partial Control: Sonalan HFP 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 HFP. Two incorporation passes are required for partial control of eastern black nightshade. For broader spectrum weed control, Sonalan HFP may be used in combination with Basagran, Blazer, Dual,

Lasso, Loxone, Lorox, Sencor and Vernam. Read the combination product label for the directions, cautions and limitations prior to use.

Broadcast Rates per Acre

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

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 HFP/Canopy Tank Mix (Do Not Use in California)

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

Controlled

Common cocklebur
Florida beggarweed
Hemp sesbania
Hophornbeam coppertail
Jimsonweed
Morningglory
(Entireleaf)
(Ivyleaf)
(Pitted)
(Smallflower)
(Tail)

Prickly sida
(Teaweed)
Ragweed
(Common)
(Giant)
Sicklepod
Smartweed
Spotted spurge
Stirrer
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 HFP. Plant soybeans within two (2) weeks after application.

Broadcast Rates per Acre

Soil Texture	Sonalan HFP	Canopy Dispersible Granules	
		0.5-3% O.M.	3 - 5% O.M.
	(pints)	(fl. oz.)	(fl. oz.)
Coarse	1 1/4-2	6 - 8	8 - 10
Medium	1 3/4-2 1/2	8 - 10	10 - 12
Fine	2 1/4-3	10 - 12	12 - 14

Do not apply Canopy to soil with less than one-half percent (1/2%) organic matter (O.M.).

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 1 1/2" 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 HFP/Canopy tank mix.

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

**Soybean - Sonalan HFP/Command Tank Mix
(Do Not Use In California)**

Sonalan HFP/Command should be applied as a preplant incorporated tank mix treatment. The combination of Sonalan HFP/Command effectively controls the weeds listed for Sonalan HFP 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 HFP/Command should be applied as a preplant incorporated treatment. Apply Sonalan HFP/Command up to three (3) weeks prior to planting.

Do not apply aerially or through irrigation equipment.

Apply Sonalan HFP/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 HFP/Command must be incorporated immediately after application. Sonalan HFP/Command should be thoroughly and uniformly mixed into the top two (2) to three (3) inches of the final seedbed. Application to overly moist or wet soils will also increase the potential for off site movement of Canopy and 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 HFP	Command 4 E.C.
	(pints)	(pints)
Coarse	1 1/4 - 2	3/4
Medium	1 3/4 - 2 1/2	1 1/8
Fine	2 1/4 - 3	1 1/2

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 HFP/Command/Lexone or Sonalan HFP/Command/Sencor Tank Mix (Do Not Use In California)

Sonalan HFP plus Command and Lexone or Sencor should be applied as a preplant incorporated tank mix treatment. Sonalan HFP/Command/Lexone or Sencor controls those weeds listed for Sonalan HFP 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 HFP/Command/Lexone or Sencor should be applied as a preplant incorporated treatment. Apply Sonalan HFP/Command/Lexone or Sencor up to two (2) weeks prior to planting.

Do not apply aerially or through irrigation equipment.

Apply Sonalan HFP/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 to 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 HFP/Command/Lexone or Sencor must be incorporated immediately after application. Sonalan HFP/Command/Lexone or Sencor should be thoroughly and uniformly mixed into the top two (2) to three (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 HFP label.

Broadcast Rates per Acre

Soil Texture	Sonalan HFP	Command 4 E.C.	Lexone 4L or Sencor 4F	Lexone Dry Flow-able or Sencor Dry Flow-able
Coarse	(pints) 1 1/4-2	(pints) 1/2	(pints) 1/3-1/2†	(pounds) 1/4 - 1/3†
Medium	1 3/4 - 2 1/2	3/4	1/2-3/4	1/3 - 1/2
Fine	2 1/4-3	1 1/8	3/4 - 1	1/2 - 2/3

†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 HFP/Dual Tank Mix

Sonalan HFP/Dual should be applied as a preplant incorporated tank mix. The combination of Sonalan HFP/Dual effectively controls the weeds listed for Sonalan HFP 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
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Follow recommended soil preparation procedures for Sonalan HFP. Apply the tank mix in at least 10 gallons of water per acre up to 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 HFP		Dual 8E	
	General Weed Control	Partial Control of Eastern Black Nightshade	Less than 3% O.M.	3% O.M. or greater
Coarse	(pints) 1 1/4-2	(pints) N/A	(pints) 1 1/2-2	(pints) 2
Medium	1 3/4 - 2 1/2	3†	2-2 1/2	2-2 1/2
Fine	2 1/4-3	3 1/2†	2-2 1/2	2 1/2-3

†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 HFP/Lasso Tank Mix

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

Black nightshade ^a	Red rice ^b
Galinsoga	Yellow nutsedge ^b
Hairy nightshade ^a	

a or b Check beneath the rate tables for additional Lasso directions.

Additional weeds partially controlled by this combination include:

Common ragweed	Smartweed
Florida beggarweed	Spiny sida (teaweed)

Follow recommended soil preparation recommendations for Sonalan HFP. Apply Sonalan HFP/Lasso in a minimum of 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 HFP		Lasso or Lasso Micro Tech
	General Weed Control	Partial Control of Eastern Black Nightshade	
Coarse	(pints) 1 1/4-2	(pints) N/A	(quarts) 2 1/2
Medium	1 3/4 - 2 1/2	3†	3-3 1/2
Fine	2 1/4-3	3 1/2†	3 1/2-4

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

‡Use a minimum of two and one-half (2 1/2) quarts of Lasso or Lasso Microtech to control these weeds.

‡Use three (3) to four (4) quarts of Lasso per acre applied alone or, on medium and fine textured soils, in tank mix combination preplant incorporated only for control of these weeds.

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

Soybean - Sonalan HFP/Lexone or Sonalan HFP/Sencor Tank Mix

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

Common ragweed	Prickly sida
Hemp sesbania	Velvetleaf
Jimsonweed	Venice 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 HFP

Broadcast Rates per Acre

Soil Texture	Sonalan HFP		Lexone or Sencor	
	General Weed Control	Partial Control of Eastern Black Nightshade	Lexone 4L or Sencor 4	Lexone Dry Flowable or Sencor Dry Flowable
Coarse	(pints) 1 1/4-2	(pints) NA	(pints) 1/2 ††	(pounds) 1/3 ††
Medium	1 3/4 - 2 1/2	3 †	3/4	1/2
Fine	2 1/4-3	3 1/2 †	1	2/3

†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 tank mixes of Lexone/Sencor, 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 tank mix of Sonalan HFP/Lexone or Sonalan HFP/Sencor. 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 HFP/Preview Tank Mix (Do Not Use In California)

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

Annual smartweeds	Prickly sida
Common cocklebur	(Tasweed)
Common ragweed	Spotted spurge
Hophornbeam 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	(Ivyleaf)
	(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 HFP. Plant soybeans within two (2) weeks after application.

Broadcast Rates per Acre

Soil Texture	Sonalan HFP	Preview Dispersible Granules	
		0.5 - 3% O.M.	3 - 5% O.M.
Coarse	(pints) 1 1/4 - 2	(fl oz) 6	7
Medium	1 3/4 - 2 1/2	7	8
Fine	2 1/4 - 3	8	9 - 10

Do not apply Preview to soil with less than one-half percent (1/2 %) organic matter (O.M.).

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 1 1/2" to 2" deep on a flat or raised seedbed only or crop injury may occur.

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

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 HFP/Preview tank mix.

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

Soybean - Sonalan HFP/Lasso/Lexone or Sonalan HFP/Lasso/Sencor Tank Mix

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

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

Black nightshade ^a	Shepherdspurse
Crowfootgrass	Spotted spurge
Galinsoga	Spurred anoda
Hairy nightshade ^a	Velvetleaf
Jimsonweed	Venice mustard
Pennsylvania smartweed	Wild mustard
Red rice ^b	Yellow nutsedge ^b
Sesbania	
(Coffeebean)	
(Coffeeweed)	

a or b Check beneath the rate tables for additional Lasso directions.

Additional weeds partially controlled by this combination include:

Common ragweed	Spiny sida
Florida beggarweed	(teaweed)

Follow recommended soil preparation recommendations for Sonalan HFP. Apply the tank mixes in a minimum of 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.

Broadcast Rates per Acre

Soil Texture	Sonalan HFP		Lasso or Lasso Micro-Tech	Lexone or Sencor	
	General Weed Control	Partial Control of Eastern Black Nightshade		Lexone 4L or Sencor 4	Lexone Dry Flowable or Sencor Dry Flowable
Coarse	(pints) 1 1/4 - 2	(pints) N/A	(quarts) 2 1/2	(pints) 1/2††	(pounds) 1/3††
Medium	1 3/4 - 2 1/2	3†	3 - 3 1/2	3/4	1/2
Fine	2 1/4 - 3	3 1/2†	3 1/2 - 4	1	2/3

†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 percent (1%) organic matter.

^aUse a minimum of two and one-half (2 1/2) quarts of Lasso per acre to control these weeds.

^bUse three (3) to four (4) quarts of Lasso per acre on medium and fine textured soils to control these weeds.

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

Soybean - Sonalan HFP/Dual/Lexone or Sonalan HFP/Dual/Sencor Tank Mix

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

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

Black nightshade	Shepherdspurse
Crowfootgrass	Southwestern cupgrass
Galinsoga	Spotted spurge
Jimsonweed	Spurred anoda
Pennsylvania smartweed	Velvetleaf
Prairie cupgrass	Vernice mallow
Red rice	Wild mustard
Sesbania	Yellow nutsedge
(Coffeebean)	
(Coffeeweed)	

Additional weeds partially controlled by this combination include:

Hairy nightshade Volunteer sorghum

Follow recommended soil preparation recommendations for Sonalan HFP. Apply the tank mixes in a minimum of 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 14 days prior to planting.

Broadcast Rates per Acre

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

Soil Texture	Sonalan HFP		Dual		Lexone or Sencor	
	General Weed Control	Partial Control of Eastern Black Nightshade	Less than 3% O.M.	3% O.M. or Greater	Lexone 4L or Sencor 4	Lexone Dry Flowable or Sencor Dry Flowable
Coarse	(pints) 1 1/4 - 2	(pints) N/A	(pints) 1 1/2 - 2 2 -	(pints) 2	(pints) 1/2††	(pounds) 1/3††
Medium	1 3/4 - 2 1/2	3†	2 1/2	2 - 2 1/2 2 1/2 -	3/4	1/2
Fine	2 1/4 - 3	3 1/2	2 - 2 1/2	3	1	2/3

†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 percent (1%) organic matter (O.M.).

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

Soybean - Sonalan HFP/Vernam Tank Mix
Sonalan HFP plus Vernam should be applied as a preplant incorporated tank mix treatment.

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

Annual morningglory	Velvetleaf
Purple nutsedge	Yellow nutsedge
Sicklepod	

Apply Sonalan HFP/Vernam in at least 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 HFP		Vernam 7E
	General Weed Control	Partial Control of Eastern Black Nightshade	
Coarse	(pints) 1 1/4-2	(pints) N/A	(pints) 2 1/3
Medium	1 3/4 - 2 1/2	3†	3
Fine	2 1/4-3	3 1/2†	3

†Two 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.

Note: Do not use Sonalan HFP plus Scepter as a two-way preplant incorporated tank mix.

Soybean - Sonalan HFP Preplant Incorporated Followed by Overlay Treatments (Do Not Use In California)

Sonalan HFP should be applied as a preplant incorporated treatment. Additional weeds tolerant to Sonalan HFP may be controlled by using overlay preemergence applications of Canopy, Dual, Gemini, Lasso, Lexone, Lorox, Lorox Plus, Preview, or Sencor. Consult these product labels for additional weeds controlled, application directions and precautions before use. Do not use Scepter as an overlay preemergence treatment following a preplant incorporated treatment with Sonalan HFP.

Soybean - Sonalan HFP Preplant Incorporated Followed by Postemergence Treatments (Do Not Use In California)

Sonalan HFP should be applied as a preplant incorporated treatment. Additional weeds tolerant to Sonalan HFP may be controlled by using postemergence applications of Basagran, Blazer, Classic, Cobra, Pinnacle, Pursuit[†], Reflex Storm[†] or Tackle. Consult these product labels for additional weeds controlled, application directions and precautions before use. Do not use Scepter as a postemergence treatment following a preplant incorporated treatment with Sonalan HFP.

¹Use of Pursult is limited to certain states. Use Pursult as a postemergence treatment following Sonalan HFP only in states specified on the Pursult label.

Dry Bean

Dry Bean - Sonalan HFP - Alone

(Does not include soybean)

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

General weed control - except groundcherry and nightshade:

Broadcast Rates per Acre

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

For broader spectrum control, Sonalan HFP 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 HFP rates for garden bean, green bean, snap bean, or string bean.

Broadcast Rates per Acre

Soil Texture	Sonalan HFP
	(pints)
Coarse	3 - 3 1/2
Medium	3 1/2 - 4
Fine	4 - 4 1/2

For broader spectrum control, Sonalan HFP 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 HFP/Dual Tank Mix or Overlay

Sonalan HFP/Dual may be applied as a preplant incorporated tank mix or Sonalan HFP may be applied preplant incorporated followed by a Dual overlay. The combination of Sonalan HFP and Dual effectively controls the weeds listed for Sonalan HFP 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
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Follow recommended soil preparation procedures for Sonalan HFP. Apply the tank mix in at least 10 gallons of water per acre up to 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 HFP, apply Dual after planting (behind the planter) prior to crop and weed emergence.

Broadcast Rates per Acre

Soil Texture	Sonalan HFP		Dual SE	
	General Weed Control	Night-shade and Ground-cherry Control†	Less than 3% O.M.	3% O.M. or Greater
	(pints)	(pints)	(pints)	(pints)
Coarse	1 1/4-2	3-3 1/2	1 1/2-2	2
Medium	1 3/4 - 2 1/2	3 1/2-4	2-2 1/2	2-2 1/2
Fine	2 1/4-3	4-4 1/2	2-2 1/2	2 1/2-3

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

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

Dry Bean - Sonalan HFP/Eptam, Sonalan HFP/EPTC Tank Mixes

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

The tank mixes of Sonalan HFP/Eptam or other Sonalan HFP/EPTC effectively control the weeds listed for Sonalan HFP 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 HFP. Incorporate the tank mix immediately after application.

Broadcast Rates per Acre

Soil Texture	Sonalan HFP		Eptam 7E or other EPTC 7E formulations
	General Weed Control	Nightshade and Groundcherry Control†	
Coarse	(pints) 1 1/4-2	(pints) 3-3 1/2	(pints) 3 1/2
Medium	1 3/4-2 1/2	3 1/2-4	3 1/2
Fine	2 1/4-3	4-4 1/2	3 1/2

†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 HFP/Lasso Tank Mix

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

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

Black nightshade ^a	Red rice ¹
Florida pusley	Witchgrass
Gainsoga	Yellow nutsedge ¹
Hairy nightshade ^a	

¹Use a minimum of two and one-half (2 1/2) quarts of Lasso on coarse soils and three (3) quarts on medium and fine soils to control these weeds.

Additional weeds partially controlled by this combination include:

Common ragweed	Smartweed
Florida beggarweed	Spiny sida (leaweed)

Follow recommended soil preparation recommendations for Sonalan HFP. Apply the tank mix in a minimum of 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.

Broadcast Rates per Acre

Soil Texture	Sonalan HFP		Lasso or Lasso Micro-Tech
	General Weed Control	Night-shade and Ground-cherry Control†	
Coarse	(pints) 1 1/4-2	(pints) 3-3 1/2	(quarts) 2 1/2-3
Medium	1 3/4-2 1/2	3 1/2-4	2 1/2-3
Fine	2 1/4-3	4-4 1/2	2 1/2-3

†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 HFP Preplant Incorporated Followed by Basagran Postemergence Application

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

The Sonalan HFP Basagran combination effectively controls the weeds listed for Sonalan HFP 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 HFP		Basagran††
	General Weed Control	Night-shade and Ground-cherry Control†	
Coarse	(pints) 1 1/2-2	(pints) 3-3 1/2	(pints) 2
Medium	2-2 1/2	3 1/2-4	2
Fine	2 1/2-3	4-4 1/2	2

†Two incorporation passes are required for groundcherry or nightshade control

††Apply Basagran as follow. 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

Peanut - Sonalan HFP - Alone

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

Broadcast Rates per Acre

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

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

Peanut - Sonalan HFP/Dual Tank Mix

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

Galinsoga	Southwestern cupgrass
Prairie cupgrass	Yellow nutsedge
Red rice	

Follow recommended soil preparation procedures for Sonalan HFP. Apply the tank mix in at least 10 gallons of water or liquid fertilizer per acre up to 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 HFP	Dual SE	
		Southeas t	OK, TX, NM
	(pints)	(pints)	(pints)
Coarse	1 1/4 - 2	1 1/2 - 2	1 1/4 - 2
Medium	1 3/4 - 2 1/2	1 1/2 - 2	1 1/4 - 2
Fine	2 1/4 - 3	1 1/2 - 2	1 1/4 - 2

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

Peanut - Sonalan HFP/Lasso Tank Mix

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

Galinsoga	Yellow nutsedge
Red rice	

Follow recommended soil preparation procedures for Sonalan HFP. Apply the tank mix in at least 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.

Broadcast Rates per Acre

Soil Texture	Sonalan HFP	Lasso 4EC
	(pints)	(quarts)
Coarse	1 1/4-2	3
Medium	1 3/4 - 2 1/2	3
Fine	2 1/4-3	3

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

Peanut - Sonalan HFP/Vernam Tank Mix

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

Annual morningglory
Purple nutsedge

Sicklepod
Yellow nutsedge

Apply Sonalan HFP/Vernam in at least 10 gallons per acre of water or liquid fertilizer. Follow recommended soil preparation procedures for Sonalan HFP. Sonalan HFP/Vernam can be applied up to 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 HFP	Vernam 7E
	(pints)	(pints)
Coarse	1 1/4-2	2 1/3
Medium	1 3/4 - 2 1/2	3
Fine	2 1/4-3	3

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

Sunflower**Sunflower - Sonalan HFP - Alone**

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

For broader spectrum weed control, Sonalan HFP may be used in combination with 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 HFP
	(pints)
Coarse	1 1/2 - 2
Medium	2 - 2 1/2
Fine	2 1/2 - 3

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

Sunflower - Sonalan HFP/Eptam or Sonalan HFP/EPTC Tank Mix for Use Only in North Dakota, South Dakota and Minnesota
 Sonalan HFP/Eptam or Sonalan HFP/EPTC should be applied as a preplant incorporated tank mix treatment.

The Sonalan HFP/Eptam tank mix effectively controls the weeds listed for Sonalan HFP 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 HFP. Apply the tank mix in at least 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 HFP General Weed Control	Eptam 7E or other EPTC 7E formulations
	(pints)	(pints)
Coarse	1 1/4-2	2 1/2-
Medium		3 1/2
	1 3/4-	2 1/2-
Fine	2 1/2	3 1/2
	2 1/4-3	2 1/2-
		3 1/2

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

Dry Peas - Sonalan HFP - Alone
(Do Not Use in California)

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

General weed control - except groundcherry and nightshade:

Broadcast Rates per Acre

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

Precaution: Do not exceed these Sonalan HFP rates for weed control in dry peas or crop injury may occur. Not all varieties of peas have been tested for tolerance to Sonalan HFP. Consult your seed contractor before applying Sonalan HFP to determine the tolerance of a particular pea variety. Application of Sonalan HFP 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.

Warranty Disclaimer

DowElanco warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. DowElanco makes no other express or implied warranty of merchantability or fitness for a particular purpose or any other express or implied warranty.

Inherent Risks of Use

It is impossible to eliminate all risks associated with use of this product. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of DowElanco or the seller. All such risks shall be assumed by Buyer.

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The exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at DowElanco's election, one of the following:

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

DowElanco shall not be liable for losses or damages resulting from handling or use of this product unless DowElanco is promptly notified of such loss or damage in writing. In no case shall DowElanco be liable for consequential or incidental damages or losses.

The terms of the Warranty Disclaimer above and this Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of DowElanco or the seller is authorized to vary or exceed the terms of the Warranty Disclaimer or this Limitation of Remedies in any manner.

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Revisions:

1. Label being developed for high flash point formulation, otherwise label is identical to Sonalan HFP
 2. Woolly cupgrass added to weeds controlled
 3. Amben combinations with Sonalan deleted
- Label Status: Initial printing