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Printed: 08:09:22 Tuesday, 13 Jul, 1999 # 2 / 3559

Systems Integration Group, Inc.

PM 23

100-849

5/14/99

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

EPA Reg. Number:
100-849

Date of Issuance:
MAY 14 1999

NOTICE OF PESTICIDE:
 Registration
 X Reregistration

Term of Issuance:
Unconditional

Name of Pesticide Product:
SOLICAM DF

(under FIFRA, as amended)

Name and Address of Registrant. Include ZIP Code:

Novartis Crop Protection, Inc.
P.O. Box 18300
Greensboro, NC 27419

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

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

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

Based on your response to the Reregistration Eligibility Document, EPA has reregistered the product listed above. Enclosed is a copy of your label stamped "Accepted". This action is taken under the authority of section 4(g)(2)(C) of the Federal Insecticide, Fungicide and Rodenticide Act, as amended. Reregistration under this section does not eliminate the need for continual reassessment of pesticides. EPA may require submission of data at any time to maintain registration of your product.

Joanne I. Miller
Product Manager (23)
Herbicide Branch
Registration Division (7505C)

Enclosure

Signature of Approving Official:

Date:

MAY 14 1999

EPA Form 7505-1

M. Coak
5-14-99

Solicam® DF

HERBICIDE

For control of grass (monocotyledon) and broadleaf (dicotyledon) weeds in tree fruits and nuts, caneberries, grapes, asparagus, and farmstead areas

Active Ingredient:

Norflurazon: 4-chloro-5-(methylamino)-2-(α,α,α -trifluoro-*m*-tolyl)-3-(2*H*)-pyridazinone 78.6%*

Inert Ingredients: 21.4%

Total: 100.0%

*Technical ingredient analysis by isomer specific method AM-0864. Previously 80% by method T-4295

10 POUNDS
NET WEIGHT

EPA Reg. No. 100-849
EPA Est. 55618-SC-001

U.S. Patent Nos. 3,935,210; 3,834,889

ACCEPTED
with COMMENTS
In EPA Letter Dated
MAY 14 1999

Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg. No.
100-849

KEEP OUT OF REACH OF CHILDREN.

CAUTION

See back panel for additional precautionary statements.

NCP 849A-L1 (DRAFT)

DIRECTIONS FOR USE AND CONDITIONS OF SALE AND WARRANTY

IMPORTANT: Read the entire **Directions for Use** and the **Conditions of Sale and Warranty** before using this product. If terms are not acceptable, return the unopened product container at once.

CONDITIONS OF SALE AND WARRANTY

The **Directions for Use** of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application all of which are beyond the control of Novartis Crop Protection, Inc. or the Seller. All such risks shall be assumed by the Buyer.

Novartis warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the **Directions for Use** subject to the inherent risks referred to above. **Novartis makes no other express or implied warranty of Fitness or Merchantability or any other express or implied warranty. In no case shall Novartis or the Seller be liable for consequential, special, or indirect damages resulting from the use or handling of this product.** Novartis and the Seller offer this product, and the Buyer and user accept it, subject to the foregoing **Conditions of Sale and Warranty**, which may be varied only by agreement in writing signed by a duly authorized representative of Novartis.

DIRECTIONS FOR USE

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

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours. Exception: If the product is soil injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is:

- Coveralls
- Waterproof gloves
- Shoes plus socks

FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN POOR WEED CONTROL, CROP INJURY, OR ILLEGAL RESIDUES.

GENERAL INFORMATION

Solicam DF is a preemergence herbicide which controls certain grass (monocotyledon) and broadleaf (dicotyledon) weeds in certain tree fruits and nuts, caneberries, grapes, hops, asparagus, and farmstead areas.

Solicam DF must be moved into the weed seed germination zone to be effective. If no rainfall occurs within 4 weeks after application, the product must be incorporated by flood or sprinkler irrigation. Solicam DF has no postemergence activity and will not control established weeds. Existing weeds must be mechanically removed or controlled by using a suitable postemergence herbicide.

Multiple or sequential applications can be made, but the total quantity of Solicam DF applied within a year must not exceed the maximum recommended rate in the Maximum Solicam DF Rates Table.

Rotational Crops

Use the following time interval restrictions before planting rotational or replacement crops in land treated with Solicam DF.

Crops listed on this label

Refer to tables of maximum Solicam DF rates in each crop section of this label for interval to wait after application before replacement or rotational crop can be planted.

Cotton

Wait 12 months before replanting to cotton.

In AZ and CA, the plantback interval to cotton or any other rotational crop is 24 months.

Crops that do not have a Solicam DF use pattern described on this label

Crops that do not have a Solicam DF use pattern listed should not be planted in Solicam DF treated soil until a test planting or bioassay of the next intended crop shows no sign of phytotoxicity (loss of pigments [whitening] in the leaf vein) for 4 months after emergence. Test plantings must be done to determine if the soil is free of residues of Solicam DF. Cover crops planted in treated areas must not be harvested, grazed, or fed to livestock.

Tank Mixes

Solicam DF may be tank mixed with other herbicides and liquid fertilizer. Some tank-mix options for Solicam DF are listed in each crop section. Herbicides used as tank-mix partners must be registered for use on crop where application is intended. When tank mixing, read and follow the label of each product for precautionary statements, directions for use, weeds controlled, and geographic and other restrictions.

Use Precautions: (1) Do not apply to container grown plants. (2) Do not apply to chemigation, except for citrus. (3) Do not apply to nursery stock, except for citrus. (4) Do not apply when nuts or fruit are on the ground at harvest. (5) In the Coachella Valley of CA, Solicam DF herbicide may only be applied to asparagus, citrus, apples, or noncrop areas. Do not use in stone fruits on the western slope of CO. (6) Do not apply to erodible soil which may wash into the root zone of sensitive plants or apply in greenhouses, as crop injury may occur. (7) Do not use on wine grapes grown in coarse soils in the State of WA. (8) For all Solicam DF applications, the soil should be firm and settled by rain or by rolling before applying Solicam DF.

Mixing Instructions

Clean and calibrate the sprayer before preparing spray suspension. Add Solicam DF to the spray tank 3/4 filled with the required volume of water. This will eliminate or minimize foaming. Maintain agitation while filling and spraying. If a bypass line is used, discharge at the bottom of the tank to further minimize foaming.

Do not allow Solicam DF spray mixture to remain in the spray tank overnight.

Predetermine the compatibility of labeled tank mixes with your source of water by mixing small proportional quantities in advance.

Amount of Herbicide to Add to One Pt. of Water (Assuming Volume is 25 Gals. per Acre)		
Herbicide Formulation	Label Rate Per Acre	Amount to Mix (Level Teaspoons)
Dry	1.0 lb.	1.5
Liquid	1.0 pt.	0.5

If herbicide(s) do not ball-up or form flakes, sludge, gels, oily films, layers, or other precipitates, the mix is compatible. Incompatibility symptoms will usually occur within 5 minutes after mixing.

If components are incompatible, consult with your local agricultural chemical dealer for the use of an acceptable compatibility agent. Rerun the above compatibility test with a suitable compatibility agent (0.25 teaspoon is equivalent to 2 pts./100 gals. of water).

Products should be added to the spray tank in the following order:

1. Wettable powders and water-dispersible granules. Wettable powders should be premixed in a small amount of water. Water-dispersible granules should be added during filling. Mix thoroughly before other products are added.
2. Flowable liquids
3. Emulsifiable concentrates
4. Surfactants

Begin adding wettable powders, flowable liquids, emulsifiable concentrates, and surfactants after the spray tank is 3/4 full. Continue agitation during the addition of all the materials and while filling and spraying.

Always predetermine tank-mix compatibility by mixing small proportional quantities in a small container. If **after** vigorous shaking there are large flakes, gel, sludge, or other signs of incompatibility, do **not** use the combination. Always follow the order of addition given in the **Mixing Instructions** above.

Application Equipment

Solicam DF should be applied using a carefully calibrated fixed-boom sprayer. Filters with screen sizes of 50-mesh or larger should be used. Supplemental applications may be made in citrus using ring drench techniques or chemigation through low volume sprinkler or drip irrigation systems (see **Special Directions for Citrus and Almonds** for additional information). Chemigation can only be used in citrus crops.

Row Treatment Calculation

When applying a row (or banded) treatment of Solicam DF, the following formula may be used to calculate the amount per acre:

$$\begin{array}{rclcl}
 \text{Width of sprayed band} & & \text{Pounds per acre} & & \text{Pounds per acre} \\
 \text{in ft.} \underline{\hspace{2cm}} & \times & \text{for broadcast} & = & \text{for row} \\
 \text{Distance between rows} & & \text{treatment} & & \text{treatment} \\
 \text{in ft.} & & & &
 \end{array}$$

The solution should be mixed to the maximum label rate and at no point on the field should the solution be applied at a concentration any higher than this rate.

**DIRECTIONS FOR TREE FRUITS AND NUTS, CANEBERRIES, GRAPES,
ASPARAGUS, AND FARMSTEAD AREAS**

Weeds Controlled and Suppressed

Solicam DF at recommended rates controls the following weeds:

Broadleaf Weeds (Dicotyledons)

Black Mustard	<i>Brassica nigra</i>
Camphorweed*	<i>Heterotheca subaxillaris</i>
Carolina (Wild) Geranium	<i>Geranium carolinianum</i>
Common Chickweed	<i>Stellaria media</i>
Common Ragweed*	<i>Ambrosia artemisiifolia</i>
Desert Rockpurslane (Redmaids)	<i>Calandrinia ciliata</i>
Dogfennel	<i>Eupatoria capillifolium</i>
Falsedandelion (Smooth Cat's Ear)	<i>Pyrrhopappus carolinianus</i>
Fiddleneck	<i>Amsinckia intermedia</i>
Filaree (Redstem and Whitestem)**	<i>Erodium</i> spp.
Flixweed	<i>Descurainia sophia</i>
Goldenrod*	<i>Solidaga altissima</i>
Little Mallow	<i>Malva parviflora</i>
London Rocket	<i>Sisymbrium irio</i>
Pineapple Weed	<i>Matricaria matricariodes</i>
Prostrate Spurge	<i>Euphorbia humistrata</i>
Puncturevine	<i>Tribulus terrestris</i>
Purple Cudweed	<i>Gnaphalium purpureum</i>
Shepherdspurse	<i>Capsella bursa-pastoris</i>
Spreading Dayflower*	<i>Commelina diffusa</i>
Stinging Nettle	<i>Urtica dioica</i>
Tumble Mustard (Jimhill)	<i>Sisymbrium altissimum</i>
Velvetleaf	<i>Abutilon theophrasti</i>
Virginia Pepperweed	<i>Lepidium virginicum</i>
Wild Buckwheat	<i>Polygonum convolvulus</i>

Grass and Sedge Weeds (Monocotyledons)

Annual Bluegrass	<i>Poa annua</i>
Annual Sedge	<i>Cyperus compressus</i>
Bahiagrass (seedling)	<i>Paspalum notatum</i>
Barnyardgrass	<i>Echinochloa crus-galli</i>
Bearded Sprangletop	<i>Leptochloa fascicularis</i>
Broadleaf Signalgrass	<i>Brachiaria platyphylla</i>
Cheat	<i>Bromus secalinus</i>
Crabgrass	<i>Digitaria</i> spp.
Crowfootgrass (seedling)*	<i>Dactyloctenium aegyptium</i>

Downy Brome	<i>Bromus tectorum</i>
Fall Panicum	<i>Panicum dichotomiflorum</i>
Feather Fingergrass	<i>Chloris virgata</i>
Foxtails	<i>Setaria</i> spp.
Goosegrass	<i>Eleusine indica</i>
Guineagrass (seedling)*	<i>Panicum maximum</i>
Italian Ryegrass (Annual Ryegrass)	<i>Lolium multiflorum</i>
Johnsongrass (seedling)	<i>Sorghum halepense</i>
Natalgrass (seedling)*	<i>Rhynchelytrum repens</i>
Pangolagrass (seedling)*	<i>Digitaria decumbens</i>
Sandbur (Longspine, Southern and Field)*	<i>Cenchrus</i> spp.
Sixweeks Grama	<i>Bouteloua barbata</i>
Southwestern Cupgrass	<i>Eriochloa gracilis</i>
Tall Fescue	<i>Festuca arundinacea</i>
Texas Panicum	<i>Panicum texanum</i>
Vaseygrass (seedling)*	<i>Paspalum urvillei</i>
Wild Barley	<i>Hordeum leporinum</i>
Wild Onion	<i>Allium canadense</i>
Witchgrass	<i>Panicum capillare</i>

Solicam DF applied at recommended rates suppresses the following grass and broadleaf weeds:

Bermudagrass	<i>Cynodon dactylon</i>
Common Lambsquarters	<i>Chenopodium album</i>
Common Mallow (Cheeseweed)	<i>Malva neglecta</i>
Common Purslane	<i>Portulaca oleracea</i>
Florida Pusley*	<i>Richardia scabra</i>
Groundsel	<i>Senecio vulgaris</i>
Hairy Fleabane (Flax-leaved Fleabane)	<i>Conyza bonariensis</i>
Henbit	<i>Lamium amplexicaule</i>
Horseweed (Marestail)	<i>Conyza canadensis</i>
Johnsongrass (rhizome)	<i>Sorghum halepense</i>
Nutsedge	<i>Cyperus</i> spp.
Orchardgrass	<i>Dactylis glomerata</i>
Pigweeds (Redroot, Tumble, and Green Amaranth)	<i>Amaranthus</i> spp.
Plaintains (Bracted and Buckhorn)	<i>Plantago</i> spp.
Poorjoe	<i>Diodia teres</i>
Quackgrass	<i>Agropyron repens</i>
Russian Thistle	<i>Salsola iberica</i>
Silverleaf Nightshade	<i>Solanum elaeagnifolium</i>
Sowthistle, Annual	<i>Sonchus oleracea</i>
Torpedograss*	<i>Panicum repens</i>
Wirestem Muhly (Western Muhly)	<i>Muhlenbergia frondosa</i>

*When applied at the higher rates recommended for weed control in Florida citrus.

**Treat prior to germination and incorporate with water on coarse and medium soils for adequate control.

TREE FRUITS AND NUTS, CANEBERRIES, AND GRAPES – CROP DIRECTIONS

Solicam DF should be applied prior to weed seed germination and when rainfall or irrigation is likely to occur within 4 weeks of treatment. Solicam DF must be moved into the weed seed germination zone to be effective. If no rainfall occurs within 4 weeks after application, the product must be incorporated by flood or sprinkler irrigation.

The soil should be settled, firm, and relatively free of weeds and debris at the time of application. Soil should be free of depressions around trees or grapevines where rain or irrigation water can concentrate.

Apply as a directed spray to the soil. Avoid contact with fruit or foliage. Do not apply when nuts or fruits are on the ground at harvest.

Loss of pigment (whitening) of leaf veins may occur in almonds, cherries, and grapes grown in coarse-textured soils when Solicam DF is applied within 3 months after bud break.

Multiple or sequential applications can be made, but the total quantity of Solicam DF applied during a year must not exceed the maximum recommended rate for that crop and soil texture. Rainfall or irrigation is necessary to incorporate Solicam DF after each application.

Solicam DF is recommended for application using at least 20 gals. of water per acre with suitable nozzles and pressure for directed ground application. Applications at less than 20 gals. should use appropriate low volume application equipment. Supplemental applications may also be made in citrus using ring drench techniques or chemigation through low volume sprinkler or drip irrigation systems (see **Special Directions for Citrus and Almonds** for additional information). **Chemigation can only be used in citrus crops.**

Read mixing, application, and specific crop sections for additional recommendations and precautions. The following table lists the maximum rate of Solicam DF that can be used per year based on crop, soil texture, and location of use (Read sections following for additional recommendations and precautions):

TABLE 1: Maximum Solicam DF Rates (Lb. Product/Treated Acre Per Year) by Soil Texture

Crop	Coarse		Medium	Fine	Months after planting to first allowed application (West/East of the Mississippi River)	Months after application to planting of replacement crop (West/East of the Mississippi River)	Special use directions & exceptions (see list below)	Pre-Harvest Interval (PHI) (Days)
	Sand, Loamy Sand	Sandy Loam	Loam, Silt Loam, Silt, Sandy Clay Loam	Sandy Clay, Clay Loam, Silty Clay Loam, Silty Clay, Clay				
Citrus	2.5 - 5.0	2.5 - 5.0	3.75 - 5.0	5.0	0/0	0/0	2	30
Irrigated Citrus (Florida and Texas only)	2.5 - 10.0	2.5 - 10.0	3.75 - 10.0	5.0 - 10.0	0/0	0/0	1, 2	30
Apples	2.5 - 5.0	2.5 - 5.0	5.0	5.0	0/0	0/0	3	60
Hops/ Blueberries	2.5	2.5	3.75	5.0	0/6*	12/12	3, 11	60
Avocados Filberts	2.5	2.5	3.75	5.0	6/6	12/12	3	60
Asparagus	2.5	3.75	3.75 - 5.0	3.75 - 5.0	12/12	0/0	3, 9	60
Nectarines Peaches Pecans	2.5	2.5	3.75	5.0	18/6	18/12	3, 6	60
Apricots Blackberries Pears Plums Prunes Raspberries	2.5	2.5	3.75	5.0	18/12	18/12	3, 7	60
Walnuts	2.5	2.5 - 3.25	3.75 - 5.0	5.0	18/12	18/12	3, 7	60
Almonds	1.25	2.5	3.75	5.0	18/18	18/18	3, 4, 5, 8	60
Cherries	Not recommended	2.5	3.75	5.0	18/18	18/18	3, 4	60
Grapes	1.25	2.5	3.75	5.0	24/24	24/24	3, 4, 5, 10	60

* See footnote 11.

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1. In FL and TX, sequential applications of up to 5 lbs. of Solicam DF per acre may be made during a 4-month period. Do not exceed 10 lbs./A for each 12-month period. In FL citrus, a single 10 lb/A ring drench application may be used.
2. Do not apply to germinating seed beds in which citrus seed has or will be planted or where citrus is interplanted with palm trees. See following section for ring drench application directions.
3. Nursery situations: to avoid plant injury, do not apply until the fall following the first full season of field growth after transplanting or the number of months designated in the above table, whichever is longer. Do not apply to cherry, grape, or caneberry nurseries.
4. Loss of pigment (whitening) in leaf veins may occur on almonds, cherries, or grapes grown in coarse-textured soils when Solicam DF is applied within 3 months after bud break.
5. A registered tank-mix partner may be required for broad spectrum control.
6. A higher rate of 3.75 lbs. of Solicam DF may be used in coarse-textured Coastal Plains soils of the Southeast.
7. Apply to blackberries and raspberries during the dormant season. Temporary loss of pigment (whitening) in leaf veins may occur with normal use.
8. See following sections for pre-harvest application directions for almonds.
9. See **Asparagus Use Directions**.
10. Do not apply to wine grapes grown in coarse soil in the State of WA.
11. Solicam DF may be applied immediately after planting **hops** grown in ID, OR, and WA. Solicam DF application to hops in other states west of the Mississippi River should be made at least 6 months after planting. Solicam DF may be applied immediately after planting **blueberries** grown west of the Cascades, but an interval of 6 months should be retained from planting to first Solicam DF application east of the Cascades but west of the Mississippi River.

SPECIAL DIRECTIONS FOR CITRUS AND ALMONDS

Almonds – Pre-Harvest Application

Solicam DF may be used as a soil-applied preemergence treatment prior to almond harvest. Solicam DF applied in this manner should be incorporated with 0.5 inches of irrigation water prior to weed germination and shaking or nut drop. Solicam DF must be moved into the weed seed germination zone to be effective. If no rainfall occurs within 4 weeks after application, the product must be incorporated by flood or sprinkler irrigation.

Citrus – Ring Drench Application (FL Citrus Only)

Apply Solicam DF to newly planted (non-bearing) citrus as a ring drench treatment at the rate of 10 lbs. product broadcast per acre. Make only one application per year. Consult the following table for the ounces of Solicam DF to add to a 500-gallon water tank for various diameter rings.

**TABLE 2: Ounces of Solicam DF per 500 Gals.
for Ring Drench Application**

	Diameter of Ring		
	3 ft.	4 ft.	5 ft.
3 gals./tree (167 trees/tank)	4.3	7.6	12.0
5 gals./tree (100 trees/tank)	2.6	4.6	7.2
7 gals./tree (71 trees/tank)	1.8	3.3	5.2
10 gals./tree (50 trees/tank)	1.3	2.3	3.6

Citrus – Chemigation (Citrus Crops Only)

Low volume sprinkler – 4 to 50 gals. per hour (gph) per emitter, drip – 0.5-3 gph per emitter. Point of application should be above ground.

Irrigation system should run a sufficient amount of time prior to Solicam DF injection to have all emitters functioning properly. After system is operating properly, length of injection should be such that at one period of time during the injection, the first and last emitters in the system contain Solicam DF-treated water. Add Solicam DF to the supply tank already filled with the volume of water required for the injection period (this should be at least 4 gals. for each pound of Solicam DF used). Maintain proper agitation in Solicam DF injection tank. Solicam DF should be mixed in clean water and injected down-line from filters. Following Solicam DF injection, system should be flushed for a period of time sufficient to clear the line of Solicam DF. (If Solicam DF application is made during a normal irrigation cycle, injection should be made during the late stage.)

Apply this product only through low volume sprinkler (micro sprinkler) and drip (trickle) irrigation systems. Do not apply this product through any other type of irrigation system.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water. If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers, or other experts. Do not connect an irrigation system used for pesticide application to a public water system unless the prescribed safety devices for public water systems are in place. A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person must shut the system down and make necessary adjustments should the need arise.

Application of Solicam DF through irrigation systems should be used as a supplemental weed control practice. The addition of Solicam DF through irrigation systems will help prevent weed escapes at the irrigation point when the application is made before weed seeds germinate.

Chemigation Calibration (Citrus Crops Only)

Calculation of use rate is based on **wetted area** around emitters – **NOT** on tree acres. To determine correct amount of Solicam DF, use the following formula:

1. Treated area per each emitter = A
 $A = 3.14 \times (\text{radius} \times \text{radius})$

Example: If the average distance from emitter to perimeter of wetted area, measured one inch below soil surface is 13 inches, then

$$A = 3.14 \times (13" \times 13")$$

$$A = 3.14 \times (169")$$

$$A = 530.7 \text{ sq. ft.}$$

2. The area in sq. ft. wet in each acre = B

$$B = \frac{A \times \text{emitters/acre}}{144}$$

Example: If there are 300 emitters per acre, then

$$B = \frac{530.7 \times 300}{144} = B = 1105.6 \text{ sq. ft. wetted per acre}$$

3. The total area (in sq. ft.) wet by your system = C

$$C = B \times \text{acres covered by system}$$

Example: If the system covers 20 acres, then

$$C = 1105.6 \text{ sq. ft. per acre} \times 20 \text{ acres}$$

$$C = 22,112 \text{ sq. ft. wetted by system}$$

4. Amount of Solicam DF to inject = S

$$\text{Rate per treated acre of Solicam DF} = R$$

$$S = \frac{C}{43,560} \times R = \text{pounds of Solicam DF}$$

Example: If the desired application rate per treated acre is 2.0 lbs. of Solicam DF, then

$$S = \frac{22,112}{43,560} \times 2.0 = S = 1.02 \text{ lbs. of Solicam DF should be injected into the system}$$

Note: Select the proper rate (R) based on soil texture, weeds to control, and length of control required. The total amount of Solicam DF applied in a season from broadcast, ring drench, and/or supplemental chemigation applications cannot exceed the maximum rate stated in the Maximum Solicam DF Rates Table.

PRECAUTIONS FOR ALL SPRINKLER OR DRIP CHEMIGATION APPLICATIONS

1. The system must contain a functional check-valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check-valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump), effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Do not apply when wind speed favors drift beyond the area intended for treatment.
8. Application when drift may occur, such as from windy conditions, or when system joints and connections are leaking, or when nozzles are not providing uniform distribution, may cause crop injury.
9. Application should be directed in such a way that Solicam DF not come into contact with foliage.

ADDITIONAL PRECAUTIONS FOR CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS

1. Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
2. Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There must be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
3. All chemigation systems connected to public water systems must also follow restrictions listed in the preceding **Precautions for All Sprinkler or Drip Chemigation Applications** section.

Tank-Mix Recommendations for Certain Tree Fruits and Nuts, Caneberries, and Grapes

Tank mixes are usually required to control the entire spectrum of weeds found in a particular grove, orchard, or vineyard. Tank-mix herbicides must be registered for use on crop where application is intended (Refer to the **Tank Mix** section of this label for specific directions).

Tank-mix products for use with Solicam DF may include diuron (Karmex®), Goal®, Gramoxone®, bromacil (Hyvar®), Krovar® I and II, Roundup®, simazine (Princep®), or Surlan® A.S. if the herbicide is registered for the intended crop and use pattern. Solicam DF tank-mix combinations should **not** include more than one of the following herbicides: diuron, Hyvar, Krovar, or simazine.

Tank-mix herbicide(s) must be registered for use on crops where application is intended. The following table summarizes some of the common tank-mix options with Solicam DF by crop (√= tank-mix option). If a tank mix is not listed below, but both products have that crop individually listed on their label, you may use that combination in accordance with the directions for use for each product.

TABLE 3: Example Tank-Mix Combinations by Crop

	diuron	Goal	Gramoxone	Hyvar	Krovar	Prowl®	Roundup	simazine	Sinbar®	Surflan A.S.
Almonds		√	√			√	√	√		√
Apples	√	√	√			√	√	√	√	√
Apricots		√	√			√	√			√
Avocados		√	√				√	√		√
Blackberries	√		√					√	√	√
Blueberries	√		√					√	√	√
Cherries		√	√			√	√	√		√
Citrus	√	√*	√	√	√	√	√	√	√	√
Filberts		√	√				√	√		√
Grapes	√	√	√			√	√	√		√
Nectarines		√	√			√	√			√
Peaches	√	√	√			√	√	√	√	√
Pears	√	√	√			√	√	√		√
Pecans	√	√	√				√	√	√	√
Plums		√	√			√	√	√		√
Prunes		√	√			√	√			√
Raspberries	√		√					√	√	√
Walnuts	√	√	√			√	√	√		√

* For use in nonbearing citrus

Tank mix with a postemergence herbicide, such as Gramoxone or Roundup, when emerged weeds are present. Diuron (Karmex), Goal, Hyvar and Krovar I, and Krovar II may provide postemergence control of certain weeds in addition to their residual preemergence control. Other herbicides listed for tank-mix combinations will provide only preemergence activity. For control of additional weeds, products must be applied prior to weed emergence. Consult the use directions of the tank-mix herbicide for specific weeds controlled.

Read and follow the label of each tank-mix herbicide used for precautionary statements, directions for use, weeds controlled, and geographic and other restrictions.

ASPARAGUS DIRECTIONS

The soil should be settled, firm, and relatively free of weeds and debris at the time of application. Soil should be free of depressions around asparagus where rain or irrigation water can concentrate.

Solicam DF must be moved into the weed seed germination zone to be effective. If no rainfall occurs within 4 weeks after application, the product must be incorporated by flood or sprinkler irrigation.

Apply Solicam DF in a minimum of 20 gals. of water per acre as a broadcast preemergence treatment. Use the rates listed in the following table. Do not apply within 14 days of harvest. Solicam DF should not be applied if crop rotation is expected within 24 months (see the **Rotational Crop** section for additional precautions).

Allow newly planted fields (direct seeded, seedlings, or crowns) to become established for one season before application of Solicam DF.

Improved results may be obtained if crop debris is incorporated or removed prior to application.

Select the rate of Solicam DF to use from the following table:

TABLE 4: Asparagus: Maximum Solicam DF Rates (Lbs. of Product Per Treated Acre per Year) by Soil Texture

Crop	Coarse		Medium	Fine	Months after Planting to First Allowed Application	Months after Application to Planting of Rotational Crop
	Sand, Loamy Sand	Sandy Loam	Loam, Silt Loam, Silt, Sandy Clay Loam	Silty Clay Loam, Clay Loam, Sandy Clay, Silty Clay, Clay		
Asparagus	2.5	3.75	3.75-5.0	3.75-5.0	12	24

Tank-Mix Recommendations for Asparagus

Tank-mix herbicides must be registered for use on crop where application is intended (Refer to the **Tank Mix** section of this label for specific directions).

Solicam DF may be tank mixed with other herbicides registered for use in asparagus, such as Banvel®, diuron (Karmex), Gramoxone, Lorox®, Roundup, metribuzin (Sencor®, Lexone®), simazine (Princep), trifluralin (Treflan® HFP), or 2,4-D (amine), when a broader spectrum of weeds would be expected. Consult the label(s) of the individual tank-mix product(s) for specific recommendations on rate, application timing, weed species, and crop safety. Follow directions, restrictions, and precautions listed on the respective tank mix product label.

FARMSTEAD USES

Solicam DF may be used for preemergence weed control in non-cropland areas including: ungrazed fence lines, equipment lots, ditchbanks above the high water line, driveways, on-farm roads, turn rows, and other on-farm non-cropland areas.

Apply Solicam DF at a rate of 2.5-5 lbs. of product per treated acre for farmstead areas. Higher rates within the range should be used for finer-textured soils and where longer residual is desired.

Since Solicam DF is a preemergence herbicide, it must be applied to the soil surface before weeds germinate. Existing weeds should be mechanically removed or controlled with a suitable postemergence herbicide. Solicam DF must be incorporated into the soil by rainfall or sprinkler irrigation within 4 weeks of application for best weed control.

Tank-mix Recommendations for Farmstead Uses

Tank-mix herbicides must be registered for use on farmstead areas where application is intended (Refer to the **Tank Mix** section of this label for specific directions).

Tank-mix combinations may be desired for broader spectrum preemergence control or postemergence control of emerged weeds or woody shrubs. Solicam DF may be tank mixed with Arsenal®, atrazine, Banvel, diuron (Karmex), Garlon™ (amine), Gramoxone, Hyvar, Krovar, Oust®, Roundup, Spike™, simazine (Princep), Surflan A.S., Telar®, Velpar®, or 2,4-D (amine). Refer to the use directions of the respective tank-mix herbicide for additional weeds controlled, rates, and precautions.

STORAGE AND DISPOSAL

Storage

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Disposal

Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If wastes cannot be disposed of by use of label instructions, contact your state pesticide or environmental control agency or hazardous waste representative at the nearest EPA Regional Office for guidance.

Container Disposal

Completely empty and triple rinse container into application equipment. Then dispose of empty container in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire, or other emergency, call 1-800-888-8372, day or night.

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals**CAUTION**

Harmful if swallowed or absorbed through the skin. Avoid contact with skin, eyes, or clothing. In case of skin or eye contact, flush with plenty of water.

Statement of Practical Treatment

If swallowed: Call a physician or a Poison Control Center. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger or if available by administering syrup of ipecac. Do not induce vomiting or give anything by mouth to an unconscious person.

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If on skin: Wash with plenty of soap and water. Get medical attention if irritation persists.

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

Personal Protective Equipment

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Control Statements

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards

Do not contaminate water when disposing of equipment wash water. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not allow this material to drift onto neighboring crops or noncrop areas or use in a manner or at a time other than in accordance with label directions because animal, plant or crop injury, illegal residues, or other undesirable results may occur.

Norflurazon can contaminate surface water through spray drift. Under some conditions, norflurazon may also have a high potential for runoff into surface water (primarily via dissolution in runoff water), for several months post-application. These include poorly draining or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, areas over-laying extremely shallow ground water, areas with in-field canals or ditches that drain to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and areas over-laying tile drainage systems that drain to surface water.

This chemical is known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow may result in ground water contamination.

Banvel®, Princep® and Solicam® trademarks of Novartis

Arsenal® and Prowl® trademarks of American Cyanamid

Garlon™, Spike™, Surflan® A.S., and Treflan® HFP trademarks of Dow AgroSciences

Goal® trademark of Rohm and Haas Company

Gramoxone® trademark of Zeneca Ag Products

Hyvar®, Karmex®, Krovar® I, Krovar® II, Lexone®, Lorox®, Oust®, Sinbar®, Telar®, and Velpar® trademarks of E.I. du Pont de Nemours and Company

Roundup® trademark of Monsanto Company

Sencor® trademark of Bayer AG

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Novartis Crop Protection, Inc.
Greensboro, North Carolina 27419
NCP 849A-L1 (DRAFT)

BASE LABEL

Solicam® DF

HERBICIDE

For control of grass (monocotyledon) and broadleaf (dicotyledon) weeds in tree fruits and nuts, caneberries, grapes, asparagus, and farmstead areas

Active Ingredient:

Norflurazon: 4-chloro-5-(methylamino)-2-(α,α,α -trifluoro- <i>m</i> -tolyl)-3-(2 <i>H</i>)-pyridazinone	78.6%*
Inert Ingredients:	21.4%
Total:	100.0%

*Technical ingredient analysis by isomer specific method AM-0864.
Previously 80% by method T-4295

10 POUNDS
NET WEIGHT

EPA Reg. No. 100-849
EPA Est. 55618-SC-001

U.S. Patent Nos. 3,935,210; 3,834,889

See directions for use in attached booklet.

NCP 849A-L1 (DRAFT)

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

KEEP OUT OF REACH OF CHILDREN.

CAUTION

Precautionary Statements

Hazards to Humans and Domestic Animals

Harmful if swallowed or absorbed through the skin. Avoid contact with skin, eyes, or clothing. In case of skin or eye contact, flush with plenty of water.

Statement of Practical Treatment

If swallowed: Call a physician or Poison Control Center. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger or if available by administering syrup of ipecac. Do not induce vomiting or give anything by mouth to an unconscious person.

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Revised - August 25, 1997 (Revise per RED)

[GANNONC.SNDZ/SOLIDF-A] - CCG - 2/19/99