



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JAN 14 1994

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CIBA-GEIGY CORP.
P.O. BOX 18300
Greensboro, N.C. 27419

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Subject: Label Amendment Submission of 08/09/93 in Response to PR Notice 93-7
EPA REG. NO. 100-638
DUAL 25G GRANULAR HERBICIDE

Dear Registrant:

The labeling cited above and submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, is accepted. A copy of your proposed labeling stamped "ACCEPTED WITH COMMENTS" is enclosed.

WHAT THIS ACCEPTANCE MEANS:

Based on your certification, the Agency has accepted the labeling changes that are necessary to comply with the Worker Protection Standard (WPS) labeling requirements of 40 CFR part 156, subpart K, described in PR Notices 93-7 and 93-11. Any other labeling changes submitted in connection with this amendment application but not directly related to compliance with the WPS have not been reviewed or accepted by the Agency. If you wish to make such changes, you must submit a separate amendment application proposing them. If your product is currently suspended, the acceptance of this labeling amendment does not affect the suspension in any way.

WHAT YOU NEED TO DO NEXT:

Send to EPA one (1) copy of the final printed labeling:

- **BEFORE** selling or distributing any product bearing the final printed labeling
- AND**
- **WITHIN** one year from date of this acceptance.



Recycled/Recyclable
Printed with Soy/Canola Ink on paper that
contains at least 50% recycled fiber

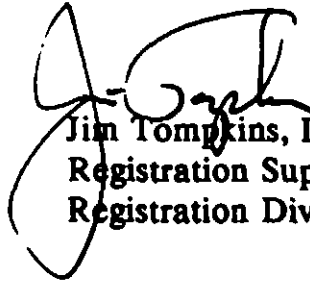
Submit the final printed labeling via the U.S. Postal Service to:

Document Processing Desk (FIN-LABEL)
Office of Pesticide Programs (7505C)
U.S. Environmental Protection Agency
401 M Street, SW
Washington, D.C. 20460-0001

Hand or courier deliveries of final printed labeling may be made to:

Document Processing Desk (FIN-LABEL)
Office of Pesticide Programs
Room 266A, Crystal Mall 2
1921 Jefferson Davis Highway
Arlington, VA 22202

Sincerely,



Jim Tompkins, Deputy Chief
Registration Support Branch
Registration Division (7505W)

Attachment

WPS
(Front Panel)

Dual® 25G

Granular Herbicide

For weed control in corn, peanuts,
potatoes, and soybeans

50 Pounds
Net Weight

Active Ingredient:

Metolachlor: 2-chloro-N-(2-ethyl-
6-methylphenyl)-N-(2-methoxy-1-
methylethyl) acetamide

metylethyl) acetamide	25.0%
Inert Ingredients:	75.0%
Total:	100.0%

Product ID. 52600

Dual 25G is a granular herbicide

KEEP OUT OF REACH OF CHILDREN

CAUTION

See additional precautionary statements
on back of bag.

EPA Reg. No. 100-638
EPA Est. 5905-IA-01

See directions for use on back of bag.

ACCEPTED
with COMMENTS
In EPA Letter Dated

JAN 14 1994

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

100-638

(Back Panel)

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 Ciba-Geigy or the Seller. All such risks shall be assumed by the Buyer.

Ciba-Geigy 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. Ciba-Geigy makes no other express or implied warranty of Fitness or Merchantability or any other express or implied warranty. In no case shall Ciba-Geigy or the Seller be liable for consequential, special, or indirect damages resulting from the use or handling of this product. Ciba-Geigy 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 Ciba-Geigy.

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 over short-sleeved shirt and short pants
- waterproof gloves
- shoes plus socks

General Information

Dual 25G will control many annual grasses and certain broadleaf weeds in corn, peanuts, potatoes, and soybeans. It should be applied prior to the emergence of weeds. It may be preplant surface-applied (corn and soybeans only), or incorporated into the surface 1-2 inches of soil before planting or left on the soil surface during or after planting. Dry weather following application of Dual 25G may reduce its effectiveness. Shallow cultivate if weeds develop or if tillage is necessary to improve the physical condition of the soil.

Precaution: Injury may occur following the use of Dual 25G under abnormally high soil moisture conditions during early development of the crop.

Soil Textures and Herbicide Rates

Where rates are based on coarse-, medium-, or fine-textured soils, it is understood that soil textural classes are generally categorized as follows:

<u>Coarse</u>	<u>Medium</u>	<u>Fine</u>
Sand	Loam	Silty clay loam
Loamy sand	Silt	Sandy clay loam
Sandy loam	Silt loam	Silty clay
		Sandy clay
		Clay loam
		Clay

Within rate ranges in the rate tables and elsewhere on this label, use the lower rate on soils relatively coarse-textured or low in organic matter; use the higher rate on soils relatively fine-textured or high in organic matter.

Application of other products referenced in this label are permitted only in those states where the referenced product is registered.

Weeds Controlled

barnyardgrass	green foxtail	yellow foxtail
(watergrass)	prairie cupgrass	<u>yellow nutsedge</u>
crabgrass	red rice	Eastern black nightshade
crowfootgrass	signalgrass	carpetweed
fall panicum	(Brachiaria)	Florida pusley
foxtail millet	southwestern cupgrass	galinsoga
giant foxtail	witchgrass	pigweed
goosegrass		

Weeds Partially Controlled*: common purslane, Florida beggarweed**, hairy nightshade, sandbur, seedling johnsongrass, shattercane, and volunteer sorghum.

*Control of these weeds can be erratic due partially to variable weather conditions. Control may be improved by following these suggested procedures:

1. Thoroughly till moist soil to destroy germinating and emerged weeds. If Dual 25G is to be applied preplant incorporated, this tillage may be used to incorporate Dual 25G if uniform 2-inch incorporation is achieved as recommended under Application Procedures.
2. Plant crop into moist soil immediately after tillage. If Dual 25G is to be used preemergence, apply at planting or immediately after planting.
3. If available, sprinkler irrigate within 2 days after application. Apply 1/2-1 inch of water. Use lower water volume (1/2 inch) on coarse-textured soils and higher volume (1 inch) on finer-textured soils.
4. If irrigation is not possible and rain does not occur within 2 days after planting and application, weed control may be decreased. Under these conditions, a uniform, shallow cultivation is recommended as soon as weeds emerge.

**For partial control of this weed, use a minimum of 8 lbs./A and apply preemergence.

Application Timing

Preplant Surface Applied: For minimum tillage or no-tillage systems only. Dual 25G alone may be applied up to 45 days before planting certain crops. Use only split applications for treatments made 30-45 days before planting, with 2/3 of the recommended broadcast rate for the crop and soil texture applied initially and the remaining 1/3 at planting. Treatments less than 30 days before planting may be made as either a split or a single application. If weeds are present at the time of treatment, apply a labeled contact herbicide (for example, Gramoxone® Extra or Roundup®). Observe directions for use, precautions, and restrictions on the label of the contact herbicide. To the extent possible, do not move treated soil out of the row or move untreated soil to the surface during planting, or weed control will be diminished.

Preplant Incorporated: Apply Dual 25G to the soil and incorporate into the top 2 inches of soil within 14 days before planting using a finishing disk, harrow, rolling cultivator, or similar implement capable of providing uniform 2-inch incorporation. Use a preplant incorporated application if furrow irrigation is used or when a period of dry weather after application is expected. If crop will be planted on beds, apply and incorporate Dual 25G after bed formation unless specified otherwise.

Preemergence: Apply Dual 25G during planting (behind the planter) or after planting, but before weeds or crops emerge.

Application Procedures

Dual 25G may be applied either broadcast or banded. Do not apply Dual 25G during periods of high winds. Wind may disrupt placement of the granules and reduce weed control. Locate

granular diffusers as close to the ground as possible. Windshield attachments are advisable.

Pneumatic (Compressed Air) Broadcast Application (Dual 25G Alone): Dual 25G may be applied through pneumatic dry fertilizer applicators which are equipped with special on-board herbicide metering bins. These metering units must be properly calibrated with Dual 25G prior to use. The placement of the granules in the applicator's distribution system should be designed to minimize segregation of the granules from the dry fertilizer materials.

Precautions: Dual 25G should never be blended with other pesticide formulations for application through on-board metering bins. Dual 25G should never be blender-mixed with liquid or dry fertilizer materials for broadcast pneumatic application.

Broadcast Application ("Cyclone" or "Spinner" Type Spreaders): Dual 25G may be applied with a broadcast type (spinner) granular applicator or with a cyclone type spreader. Use applicators and techniques that will apply the granules uniformly to the soil. Do not blend Dual 25G with other pesticides or fertilizers. Always calibrate the device with Dual 25G prior to use.

Band Treatment: Dual 25G may be applied with any standard granular applicator capable of uniformly distributing a predetermined amount of granules to a desired area. Band treatment made at seeding should only be applied behind the press wheel.

Notes: Caution should be taken with seeding equipment so that any track (soil depression) made by the planter press wheel is minimal. This will reduce concentration of granules in the press wheel track by heavy rain which can result in crop injury. Soil tillage should not follow the use of band applications unless it is adapted so as not to displace the band and hence reduce weed control in the band. In reduced tillage systems, injury may occur if the planter slit is not properly closed during planting.

Applicator settings are given for band applications in Chart 1. These settings were determined under laboratory conditions to $\pm 5\%$ accuracy. Note that the settings may differ depending on speed of application, as well as rate per acre. It is important that the user calibrate each individual granular applicator before its use. Since the actual setting for each individual granular applicator may vary, the settings shown should serve only as guidelines for calibration.

Calculate the amount of Dual 25G needed for band treatment as follows:

<u>Band width in inches</u>	X	Broadcast rate	Band rate per
Row spacing in inches		per acre	acre

Example: If 16 lbs. per acre is recommended for broadcast application and you wish to treat a band 14 inches wide in crop rows spaced 30 inches apart:

$$14/30 \times 16 = 7.5 \text{ lbs. of granules needed for each acre that is to be treated}$$

Chart 1. Suggested Applicator Settings*

		Rate for 14" Band Width Per 1,000 Linear Ft.				
		2.6 oz.	3.4 oz.	4.3 oz.	5.1 oz.	6.4 oz.
		Equivalent Broadcast Rate Per Acre				
Applicator	Speed MPH	6 lbs.	8 lbs.	10 lbs.	12 lbs.	16 lbs.
Gandy Two Openings for 14" Band Model No. S-902	4	8.6	9.7	11.0	12.2	13.4
	5	9.5	11.0	12.4	13.4	15.0
	6	10.5	12.3	13.4	14.6	16.5
John Deere 7200 and 7300 MaxEmerge® 2	4	10	12	13	14	17
	5	12	13	14	17	21
	6	13	14	17	20	25
White 6100 Series						
John Deere 7000 and 7100 Max-Emerge® Meter Scale 0..15..25..etc.,	4	5	7	8	9	11
	5	6	8	9	11	12
	6	7	9	11	12	14
John Deere 7000 and 7100 Max-Emerge® Meter Scale 0..10..20..etc.,	4	7	8	10	11	14
	5	8	10	11	14	17
	6	9	11	14	16	20
Noble (Remcor) 1973 - Present	4	3	4	5	6	7
	5	4	5	6	7	8
	6	5	6	7	8	10
White 5100 Series						
Deutz Allis 1985 - Present						
Noble 1972 & Before	4	3	4	6	7	9
	5	4	6	8	9	10
	6	5	7	9	10	13
Allis Chalmers 1979 - 1985	4	.60	.73	.80	.87	.98
	5	.68	.80	.90	.98	1.18
	6	.76	.87	.98	1.13	1.50
International Harvester 1980 & Before						
International Harvester 1981 - 1985	4	1.52	1.60	1.65	1.72	1.85
	5	1.58	1.65	1.74	1.85	2.10
	6	1.62	1.71	1.85	2.05	2.45
Case IH 1985 - Present						

*Settings are for application of the equivalent broadcast rates per acre indicated in a 14-inch band at speed (miles per hour) shown. If other than a 14-inch band is to be used, these settings do not apply and additional calibration will be necessary.

Calibration of Band Applicators

To calibrate a granular applicator for a standard 14-inch band, a sample has to be collected while the applicator is either running or simulating a run over a distance of 500 feet.

Procedure

1. Fill applicator box with Dual 25G.
2. Refer to Chart 1 and adjust the setting on your applicator to correspond to the desired rate per acre.
3. Attach a plastic bag or similar container to the applicator spout after detaching the delivery tube.
4. Make the 500-ft. run at planting speed.

Speed/Time required to cover 500 feet:

- 4 mph = 1 min. 25 sec.
- 5 mph = 1 min. 8 sec.
- 6 mph = 57 sec.

5. Weigh granules collected (or measure volume) and, if necessary, adjust and make successive runs until the setting delivers the correct number of ounces per 500 ft. of row, as shown in Chart 2.
6. Repeat this procedure for each granular applicator box.

Chart 2: The Equivalent Broadcast Rate Per Acre in Volume and Weight for 500 Feet on the Basis of a 14-Inch Band

<u>Broadcast Rate</u> <u>Per Acre</u>	<u>Volume Collected</u> <u>in 14-Inch Band</u> <u>500 Linear Feet</u>	<u>Weight Collected</u> <u>in 14-Inch Band</u> <u>500 Linear Feet</u>
6 lbs.	1.6 fl. oz.	1.3 oz.
8 lbs.	2.2 fl. oz.	1.7 oz.
10 lbs.	2.8 fl. oz.	2.2 oz.
12 lbs.	3.2 fl. oz.	2.6 oz.
16 lbs.	4.5 fl. oz.	3.5 oz.

For band widths other than 14 inches, the calibration distance will differ from 500 ft.

For other band widths, calculate the relative calibration distance in which to collect the corresponding weight or volume of Dual 25G in Chart 2 as follows:

$$\frac{14 \text{ (Inches)}}{\text{Desired Band Width (Inches)}} \times 500 = \text{Calibration distance in feet}$$

Example: A band width of 10 inches is to be used, instead of 14 inches, to apply Dual 25G at an equivalent rate of 10 lbs./broadcast acre.

A. $\frac{14 \text{ Inches}}{10 \text{ Inches}} \times 500 \text{ Ft.} = 700 \text{ Ft.}$

- B. Collect 2.8 fl. oz. by volume or 2.15 oz. by weight for the newly calculated calibration distance of 700 ft. for a 10-inch band.

Corn

For control of annual grasses and broadleaf weeds listed under the General Information section, apply Dual 25G either preplant surface, preplant incorporated, or preemergence to corn before weeds emerge. For extended control of annual weeds, Dual 25G may be applied to weed free soil at the time of the last cultivation (lay-by application) as either a surface or shallow incorporated treatment.

Preplant Surface-Applied: Use on medium- and fine-textured soils with minimum-tillage or no-tillage systems in CO, IA, IL, IN, KS, KY, MN, MO, MT, ND, NE, SD, TN, WI, and WY. Apply 2/3 of the recommended broadcast rate of Dual 25G from Table 1 as a split treatment 30-45 days before planting and the remainder immediately before planting, or at planting. Applications less than 30 days before planting may be made either as a split or as a single treatment. Apply 8 lbs./A on coarse soils not more than 2 weeks before planting. If weeds are present at the time of treatment, apply a labeled contact herbicide (for example, Gramoxone Extra or Roundup). Observe the directions for use, precautions, and restrictions on the label of the contact herbicide. To the extent possible, do not move treated soil out of the row or move untreated soil to the surface during planting, or weed control will be diminished. To avoid reduced weed control, do not apply to frozen soil as rainfall may change the pattern of the Dual 25G granules. Injury may occur from movement of Dual 25G into the planter slit if the slit is not properly closed during planting.

On medium- and fine-textured soils with minimum- or no-tillage systems in DE, MD, MI, NY, OH, PA, VA, and WV, preplant surface applications may be applied following the directions for use above. If the amount of rainfall results in unsatisfactory length of weed control following the earlier treatment, a post-emergence application of an appropriately labeled broadleaf and/or grass weed herbicide could be used, i.e., AAtrex®, 2,4-D, Banvel®, Basagran®, or bromoxynil (Brominal® or Buctril®). Observe all directions for use, precautions, and limitations on the label of the postemergence herbicide.

Preplant Incorporated: Using the appropriate rate from Table 1, broadcast Dual 25G to the soil and incorporate within the surface 1-2 inches of soil within 14 days before planting using appropriate surface incorporating equipment such as a finishing disk, harrow, rolling cultivator, or similar implement capable of providing uniform incorporation.

Preemergence: Band or broadcast Dual 25G to the soil surface during or after planting and before weeds emerge using the appropriate rate from Table 1. For band treatment, apply

granules behind the press wheel. In reduced tillage systems injury may occur from movement of Dual 25G into the planter slit if the slit is not properly closed during planting.

Lay-by (Last Cultivation) Application: Apply the appropriate rate of Dual 25G from Table 1 on a broadcast basis at lay-by. Applications should be made before the corn plants exceed 40 inches in height. The soil should be free of weeds at the time of application, and the granules either left on the surface or shallowly incorporated into the soil. Use an application method that will not allow granules to get into the corn whorl. This application of Dual 25G may follow any preplant or preemergence herbicide application including those made with Dual 25G or a Dual EC formulation.

Note for all applications to corn: To avoid possible illegal residues, do not graze or feed forage from treated acres for 30 days following application.

Table 1: Dual 25G - Corn**

Soil Texture	Broadcast Rate Per Acre	
	Less Than 3% Organic Matter	3-6%* Organic Matter
COARSE Sand, loamy sand, sandy loam	6-8 lbs.	8 lbs.
MEDIUM Loam, silt loam, silt	8-10 lbs.	8-10 lbs.
FINE Silty clay loam, sandy clay loam, silty clay, sandy clay, clay loam, clay	8-10 lbs.	10-12 lbs.
Muck or peat soils	DO NOT USE	

*Dual 25G may be used up to 16 lbs./A, broadcast basis, on soils having an organic matter content between 6 and 20%.

**Dual 25G may be used sequentially in place of Dual EC formulations with AAtrex, AAtrex + Lorox®, AAtrex or Princep® + Prowl®, Bladex®, or Banvel applied at the tank-mix rate specified on the respective product labels.

Note: Do not apply more than the equivalent of 24 lbs. of Dual 25G/A during any one year, or illegal residues may result. This includes both Dual 25G and Dual EC formulations (1 pt. of a Dual EC formulation is equivalent to 4 lbs. of Dual 25G).

Peanuts

Dual 25G Single Applications - All Peanut-Growing Areas

Apply Dual 25G either preplant incorporated, postplant incorporated, preemergence, or lay-by, using the appropriate rate specified below. Preplant Incorporated or Preemergence: Follow instructions for use of Dual 25G above under Application Timing. Postplant Incorporated: Broadcast or band Dual 25G to the soil surface and shallowly incorporate into the soil after planting, but before peanut germination. Incorporation depth and incorporating implements must be kept above the seed or seed will be

damaged. Lay-by: Broadcast or band Dual 25G to the soil surface after the last normal cultivation. Do not apply when peanuts are wet with dew or rain.

Apply Dual 25G preplant incorporated, postplant incorporated, preemergence, or lay-by at a broadcast rate of 6-8 lbs./A in the Southeast* or 5-8 lbs./A in OK, NM and TX.

*In the Southeast, use 8-12 lbs./A and apply preemergence for partial control of Florida beggarweed.

Notes: (1) Dual 25G may be applied as directed after any of the following preplant incorporated herbicides when used according to their label recommendations: Balan® at 3-4 qts./A; Treflan® at 1 pt./A; or Vernam® at 2.3-3 pts./A. (2) Pursuit® may be applied sequentially after Dual 25G. Refer to the Pursuit label for use directions and use in accordance with the more restrictive label.

Dual 25G Multiple Applications - Southeast Only (AL, FL, GA, NC, SC, VA)

Where weed pressure is heavy or where species difficult to control are expected, Dual 25G is most effective when used as follows:

1st Application: Apply Dual 25G preplant incorporated as directed under Dual 25G Single Applications. A Dual EC formulation may be substituted as directed on that label.

2nd Application: Broadcast or band Dual 25G at any time from preemergence up to "ground cracking" at 6-12 lbs./A for control of weeds not yet emerged. Refer to General Information for a list of weeds controlled.

3rd Application: Apply Dual 25G lay-by as directed under Dual 25G Single Applications. Use only when late germinating weeds are expected to be a problem. Refer to General Information for a list of weeds controlled.

Notes: (1) Do not apply more than the equivalent of 24 lbs. of Dual 25G/A during any one year or illegal residues may result. This includes both Dual 25G and Dual EC formulation (1 pt. of a Dual EC formulation is equivalent to 4 lbs. of Dual 25G. (2) Do not graze or feed peanut forage or fodder to livestock for 30 days following application and (3) Do not apply within 90 days of harvest, or illegal residues may result.

Soybeans

For control of annual grasses and broadleaf weeds listed under the General Information section, apply Dual 25G either preplant surface, preplant incorporated, or preemergence to soybeans before weeds emerge. Follow instructions for use of Dual 25G under Application Timing.

Preplant Surface-A plied: Use on medium- and fine-textured soils with minimum-tillage or no-tillage systems in CO, DE, IA,

IL, IN, KS, KY, MD, MI, MN, MO, MT, ND, NE, NY, OH, PA, SD, TN, VA, WI, WV, and WY. Apply 2/3 of the recommended rate of Dual 25G from Table 2 as a split treatment 30-45 days prior to planting and the remainder at planting. Applications made less than 30 days before planting may be as either a split or a single treatment. Apply 8 lbs./A on coarse soils not more than 2 weeks prior to planting. If weeds are present at the time of treatment, apply a labeled contact herbicide (for example, Gramoxone Extra or Roundup). Observe the directions for use, precautions, and restrictions on the label of the contact herbicide. To the extent possible, do not move treated soil out of the row or move untreated soil to the surface during planting, or weed control will be diminished. To avoid reduced weed control, do not apply to frozen soil as rainfall may change the pattern of the Dual 25G granules. Injury may occur from movement of Dual 25G into the planter slit if the slit is not properly closed during planting.

Preplant Incorporated: Using the appropriate rate from Table 2, broadcast Dual 25G to the soil surface and incorporate in the top 2 inches of soil within 14 days before planting using a finishing disk, harrow, rolling cultivator, or similar implement capable of providing uniform incorporation.

Preemergence: Band or broadcast Dual 25G to the soil surface during or after planting and before weeds emerge using the appropriate rate from Table 2. For band treatment, apply granules behind the press wheel. In reduced-tillage systems, injury may occur from movement of Dual 25G into the planter slit if the slit is not properly closed during planting.

Table 2: Dual 25G - Soybeans*

Soil Texture	Broadcast Rate Per Acre	
	Less Than 3% Organic Matter	3-6%** Organic Matter
COARSE Sand, loamy sand, sandy loam	6-8 lbs.	8 lbs.
MEDIUM Loam, silt loam, silt	8-10 lbs.	8-10 lbs.
FINE Silty clay loam, sandy clay loam, silty clay, sandy clay, clay loam, clay	8-10 lbs.	10-12 lbs.
Muck or peat soils	DO NOT USE	

*Dual 25G may be used sequentially in place of Dual EC formulations with Sencor®/Lexone®, Lorox, Treflan, Scepter®, Lorox Plus®, Gemini®, Canopy®, Preview®, Command®, Sonalan®, or Pursuit® applied at the tank-mix rate specified on the respective product labels.

**Dual 25G may be used up to 16 lbs./A on soils having an organic matter content between 6% and 20%.

Note: Do not apply more than the equivalent of 16 lbs. of Dual 25G/A during any one year, or illegal residues may result. This includes both Dual 25G and Dual EC formulations (1 pt. of a Dual EC formulation is equivalent to 4 lbs. of Dual 25G).

Potatoes

Apply Dual 25G either incorporated, preemergence, or after hilling/lay-by according to the directions specified below for control of weeds listed under the General Information section. Within a rate range, use the lower rate on soils relatively coarse-textured or low in organic matter; use the higher rate on soils relatively fine-textured or high in organic matter.

Effectiveness will be reduced if later cultural practices expose untreated soil.

Incorporated: Apply Dual 25G at 6-12 lbs./A to the soil and incorporate into the top 3 inches before planting using a finishing disk, harrow, rolling cultivator, or similar implement. Planting and later cultural practices should not bring untreated soil to the surface. Postplant incorporated application may be made any time after planting to drag-off, but before potato emergence. Incorporate using an implement that distributes Dual within the top 1-2 inches of soil. Do not damage potato seed pieces or sprouts with incorporation equipment.

Preemergence: Apply Dual 25G at 6-12 lbs./A either after planting as a preemergence, delayed preemergence, after drag-off or hilling treatment, but before weeds emerge. Up to 16 lbs./A of Dual 25G alone may be used where soil organic matter is between 6% and 20%.

After Hilling/Lay-by: Apply Dual 25G at 10 lbs./A after hilling/at lay-by to control Dual-sensitive weeds for remainder of the growing season. This application will not control emerged weeds. It may be applied over a previous Dual 25G application, but do not apply more than 22 lbs. of Dual 25G/A in a single crop season.

Precautions: (1) Do not use on muck or peat soils. (2) If cool, wet soil conditions occur after application, Dual may delay maturity and/or reduce yield of Superior and other early maturing potato varieties. To avoid crop injury, (3) Do not use on sweet potatoes or yams. (4) Do not apply both preemergence and incorporated treatments, and (5) Do not use in Kern County, California.

Notes: (1) To avoid illegal residues, potatoes treated with Dual 25G should not be harvested within 60 days after the at-planting to drag-off application, or within 40 days after a lay-by application.

Rotational Crops

(1) If crop treated with Dual 25G is lost, any crop on this label may be replanted immediately. Do not make a second broadcast application of Dual 25G. If the original application was banded and the second crop is planted in the untreated row middles, a second banded treatment may be applied. (2) Barley, oats, rye, or wheat may be planted 4 1/2 months following application; alfalfa may be planted 4 months following application. Tomatoes may be planted 6 months following application. (3) Any crop on this label in addition to cotton, cabbage, peppers, pod crops, safflower, grain sorghum*, stone fruits, tree nuts, root crops, tobacco, barley, buckwheat, milo, oats, rice, rye, and wheat may be planted in the spring following treatment. Clover may be seeded 9 months following application. Do not graze or feed forage or fodder from cotton to livestock. All other rotational crops may be planted 12 months after application.

(4) Any crop on this label, in addition to cotton, cabbage, peppers, tobacco, pod crops, safflower, grain sorghum*, stone fruits, and tree nuts, may be planted in the spring following a lay-by treatment or multiple treatments applied the previous

season. All other rotational crops may be planted 12 months after a lay-by application.

*provided the seed has been properly treated with Concep® seed protectant.

Important Notes: To avoid injury to rotational alfalfa or clover, (1) Do not apply more than 3 lbs. ai of metolachlor (12 lbs. Dual 25G) either preplant surface, preplant incorporated, preemergence, or postplant incorporated, and (2) Do not make a lay-by or after-hilling application of Dual 25G.

Storage and Disposal

Pesticide Storage and Disposal

Store in a dry place. Do not contaminate water, food, or feed by storage, disposal, or cleaning of equipment. Open dumping is prohibited. Improper disposal of unused pesticide, spray mixture, or rinsate is a violation of federal law. If these wastes cannot be used 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 in proper disposal methods.

Container Disposal

Completely empty bag into application equipment. Dispose of empty bag in a sanitary landfill or by incineration or, if allowed by state and local authorities, by burning. Stay out of smoke from burning bags.

For minor spills, 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

The active ingredient, metolachlor, may cause skin sensitization reactions in certain individuals. Harmful if swallowed, inhaled or absorbed through the skin. Avoid breathing dust. Causes eye irritation. Avoid contact with eyes, skin or clothing. Do not contaminate food or feed.

Statement of Practical Treatment:

- If in eyes: Flush with plenty of water. Call a physician if irritation persists.
- If on skin: Wash with plenty of soap and water. Get medical attention if irritation persists.
- If inhaled: Move to fresh air. Get medical attention.
- 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. Do not induce vomiting or give anything by mouth to an unconscious person.

Personal Protective Equipment:

Applicators and other handlers must wear:

- Coveralls over short-sleeved shirt and short 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.

User Safety Recommendations:

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

Environmental Hazards

Cover or incorporate granules that are spilled during loading or are visible on soil surface in turn areas. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash waters.

Groundwater and Surface Water Advisory

Metolachlor has been identified in limited sampling of ground water and there is the possibility that it may leach through the soil to ground water, especially where soils are coarse and ground water is near the surface. Following application and during rainfall events that cause runoff, metolachlor may reach surface water bodies including streams, rivers and reservoirs.

Care must be taken using this product to prevent spills or improper disposal of excess pesticide granules.

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Ciba Plant Protection

Ciba-Geigy Corporation

Greensboro, North Carolina 27419

CGA 49L23Q 083 - multi-wall bag

CGA 49L34L 083 - metallized sack

February 4, 1987
Revised June 15, 1987 -
Metolachlor Reg. Standard

Revised August 8, 1988
Farmland's est. #

Revised September 12, 1988
Adding rotational
alfalfa & clover

Revised Septmeber 7, 1990 -
adm. amendments

Revised April 12, 1991 - add
rotational tobacco

Revised March 13, 1992 -
administrative amendments

Revised May 21, 1992 -
rotation to tomatoes

Revised August 4, 1993 - WPS

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