

PM 23

100-712

4/16/98

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Ms. Karen S. Stumpf
Novartis Crop Protection, Inc.
P.O. Box 18300
Greensboro, NC 27419-8300

APR 16 1998

Dear Ms. Stumpf:

Subject: Dual II™ Granular Herbicide
EPA Registration No. 100-712
Application and Letter Dated March 12, 1998,
Request to Amend Registration by Adding a
"Variable-Rate Broadcast Ground Application for
Corn and Soybeans" and Use of Chemical Abstract
Service (CAS) Number for the Chemical Name in
the Ingredient Statement

The proposed subject label amendments have been reviewed and found acceptable as amendments to the registration of the subject pesticide product under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) as amended, provided that you:

- o Submit one (1) copy of the final printed labeling prior to shipping this pesticide product under the subject amended labeling

If this condition is not complied with, the registration will be subject to cancellation in accordance with FIFRA, section 6(e). Your release for shipment of the pesticide product under the subject labeling constitutes your acceptance of this condition.

A stamped copy of the proposed label is enclosed for your records.

Sincerely yours,

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

Enclosure

Ewilson:Diskette:Metolachlor: 04-16-98

CONCURRENCES

SYMBOL							
SURNAME							
DATE							

3922

(BACK PANEL)

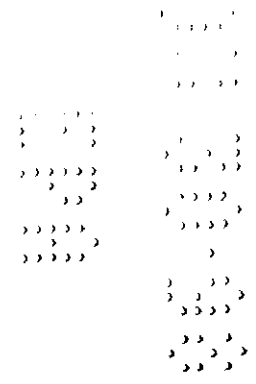
DIRECTIONS FOR USE AND CONDITIONS OF SALE AND WARRANTY

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 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 24 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
- Chemical-resistant gloves
- Shoes plus socks

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



GENERAL INFORMATION

Dual IIG will control many annual grasses and certain broadleaf weeds in corn (all types), 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 an application of Dual IIG 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 to crops other than corn following the use of Dual IIG under abnormally high soil moisture conditions during early development of the crop.

Do not apply under conditions which favor runoff or wind erosion of soil containing this product to non-target areas.

To prevent off-site movement due to runoff or wind erosion,

1. Avoid treating powdery dry or light sand soils when conditions are favorable for wind erosion. Under these conditions, the soil surface should first be settled by rainfall or irrigation.
2. Do not apply to impervious substrates such as paved or highly compacted surfaces.
3. Do not use tailwater from the first flood or furrow irrigation of treated fields to treat non-target crops unless at least 1/2 inch of rainfall has occurred between application and the first irrigation.

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:

Coarse	Medium	Fine
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

bamyardgrass (watergrass)	prairie cupgrass	yellow foxtail
crabgrass	red rice	<u>yellow nutsedge</u>
crowfootgrass	robust foxtails (purple, white)	carpetweed
fall panicum	signalgrass (<i>Brachiaria</i>)	common waterhemp
foxtail millet	southwestern cupgrass	Eastern black nightshade
giant foxtail	wild proso millet*	Florida pusley
goosegrass	witchgrass	galinsoga
green foxtail	woolly cupgrass*	pigweed
		tall waterhemp

*For control of these weeds in corn only, refer to the **Corn-Woolly Cupgrass and Wild Proso Millet Control Program** section of this label.

Weeds Partially Controlled*: common purslane, eclipta, Florida beggarweed**, hairy nightshade, sandbur, seedling johnsongrass, shattercane, volunteer sorghum, wild proso millet, and woolly cupgrass.

*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 IIG is to be applied preplant incorporated, this tillage may be used to incorporate Dual IIG if uniform 2-inch incorporation is achieved as recommended under **Application Procedures**.
2. Plant crop into moist soil **immediately after tillage**. If Dual IIG 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 fine-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.

5. In corn, use 12-15 lbs./A or the preplant surface-applied rates for Dual IIG alone or sequentially, if allowed, when making preplant incorporated or preemergence applications.

**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 IIG 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 $\frac{2}{3}$ of the recommended broadcast rate for the crop and soil texture applied initially and the remaining $\frac{1}{3}$ 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 IIG 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 IIG after bed formation, unless specified otherwise.

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

Fall Application (Only in IA, MN, ND, SD, WI, and portions of NE and IL - See specific instructions in the Corn and Soybean sections of this label for timing of application and other information): Do not apply to frozen ground. Use on medium and fine soils with greater than 2.5% organic matter that will be planted to corn or soybeans the next spring. Ground may be tilled before or after application. Do not exceed a 2 to 3-inch incorporation depth if tilled after treatment. **Note:** If a spring application is made, the total rate of the fall plus spring applications must not exceed the maximum total rate for the specific crop, or illegal residues may result.

Application Procedures

Dual IIG may be applied either broadcast or banded. Do not apply Dual IIG 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 IIG Alone): Dual IIG 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 IIG 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.

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

Broadcast Application ("Cyclone" or "Spinner" Type Spreaders): Dual IIG 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 IIG with other pesticides or fertilizers. Always calibrate the device with Dual IIG prior to use.

Variable-Rate Broadcast Ground Application for Corn and Soybeans: Variable-rate technologies may be used for more precise applications. Two additive factors have been determined for use in application using variable-rate technologies. One of these factors (A) is directly related to soil texture and the other (B) is related to percent organic matter (OM) and soil texture. When these two factors are added together, the resulting application rate will be more precise for a soil of a given soil texture and organic matter content. Use the formulas below to assure a more precise rate for any given area within a field.

Formulas* for Preplant Surface-Applied, Preplant Incorporated, Preemergence, and Early Preplant Applications - Refer to specific instructions regarding these applications in the **Application Procedures** section of this label, as well as the appropriate crop section.

Soil Texture	Rates in Pounds per Acre					
	Preplant Surface Applied Preplant Incorporated Preemergence			Early Preplant		
	Factors			Factors		
	A	B		A	B	
COARSE	6.0	+	(0.6 x % OM)	7.2	+	(0.60 x % OM)
MEDIUM	7.0	+	(0.6 X % OM)	8.4	+	(0.50 x % OM)
FINE	8.0	+	(0.6 x % OM)	10.0	+	(0.40 x % OM)

*Do not use on soils with greater than 8% organic matter (OM).

Formulas* for Fall Applications - This product is registered for fall use only where corn or soybeans will be grown the following year in IA, MN, SD, ND, WI, and portions of NE and IL. Refer to specific instructions and restrictions regarding fall applications in the **Corn** and **Soybeans** sections of this label.

Soil Texture	Rates in Pounds Per Acre	
	Fall Applications	
	Factors	
	A	B
COARSE	DO NOT USE	
MEDIUM	8.4 +	(0.68 x % OM)
FINE	10.8 +	(0.4 x % OM)

*Do not use with soils with greater than 8% organic matter (OM).

Band Treatment: Dual IIG 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.

Note: 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 ±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 IIG needed for band treatment as follows:

$$\frac{\text{Band width in inches}}{\text{Row spacing in inches}} \times \text{Broadcast rate per acre} = \text{Band rate per acre}$$

Example: If 15 lbs./A is recommended for broadcast application and you wish to treat a band 14 inches wide in crop rows spaced 30 inches apart:

$$\frac{14}{30} \times 15 = 7.0 \text{ lbs. of granules needed for each acre that is to be treated}$$

Chart 1: Suggested Applicator Settings*

Applicator	Speed MPH	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				
		6 lbs.	8 lbs.	10 lbs.	12 lbs.	15 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 White 6100 Series	4	10	12	13	14	17
	5	12	13	14	17	21
	6	13	14	17	20	25
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 Kinze® 1980-Present 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 White 5100 Series Deutz Allis 1985-Present	4	3	4	5	6	7
	5	4	5	6	7	8
	6	5	6	7	8	10
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 International Harvester 1980 & Before	4	0.60	0.73	0.80	0.87	0.98
	5	0.68	0.80	0.90	0.98	1.18
	6	0.76	0.87	0.98	1.13	1.50
International Harvester 1981-1985 Case IH 1985-Present	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

*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 ft.

Procedure

1. Fill applicator box with Dual IIG.
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 ft.:

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 oz. 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 Ft. on the Basis of a 14-Inch Band

Broadcast Rate Per Acre	Volume Collected In 14-Inch Band 500 Linear Ft.	Weight Collected In 14-Inch Band 500 Linear Ft.
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.
15 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 IIG in Chart 2 as follows:

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

Example: A band width of 10 inches is to be used, instead of 14 inches, to apply Dual IIG at an equivalent rate of 10 lbs. per 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 (ALL TYPES)

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

Preplant Surface-Applied

A. Fall Application:

- 1. Apply after September 30 in ND, SD, MN, WI, and north of Route 30 in IA.
- 2. Apply after October 15 north of Route 91 in NE and south of Route 30 in IA.
- 3. Apply after October 31 north of Route 136 in IL.

In all locations, apply to crop stubble after harvest when the sustained soil temperature at a 4-inch depth is less than 55°F and falling. In minimum-till or no-tillage systems on soils having greater than 2.5% organic matter, use 10-15 lbs./A on *medium-textured* soils and 12-15 lbs./A on *fine-textured* soils. Do not apply to frozen ground. A tillage operation may precede the application. A fall and/or a spring tillage may follow application, but do not exceed an incorporation depth greater than 2-3 inches. Minimize furrow and ridge formation in the tillage operations. **Note:** If a spring application is made, the total rate of the fall plus spring applications must not exceed the maximum total rate for corn, or illegal residues may result.

- B. 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

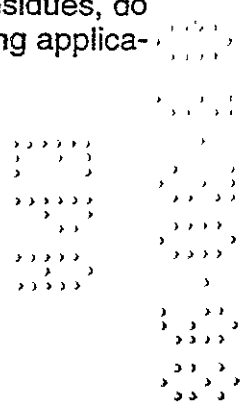
Dual IIG from Table 1 as a split treatment 30-45 days before planting and the remainder immediately before planting, or at planting. Applications less than 30 days before planting may be made either as a split or as a single treatment. Apply 8 lbs./A on coarse soils not more than 2 weeks before planting. 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 IIG granules. Injury may occur from movement of Dual IIG into the planter slit if the slit is not properly closed during planting.

- C. On medium- and fine-textured soils with minimum- or no-tillage systems in CT, DE, MA, MD, ME, MI, NH, NY, OH, PA, RI, VA, VT, 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 postemergence application of an appropriately labeled broadleaf and/or grass weed herbicide could be used, i.e., AAtrex®, Beacon®, Bicep®, Exceed®, Accent®, Banvel®, Basagran®, bromoxynil (Brominal® or Bucril®), or 2,4-D. 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 IIG 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 IIG 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 IIG into the planter slit if the slit is not properly closed during planting.

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.



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Table 1: Dual IIG – 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 IIG may be used up to 15 lbs./A, broadcast basis, on soils having an organic matter content between 6 and 20% or up to 12 lbs./A on any soil for extended residual control and where severe stands of problem weeds are expected.

**Dual IIG 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.

Woolly Cupgrass and Wild Proso Millet Control Program: For control of these species, use the following 3-step program: (1) Apply Dual IIG early preplant, preplant incorporated, or preemergence at 10 lbs./A on medium soil and 12 lbs./A on fine-textured soils, up to the maximum label rate. Lightly incorporate with a rotary hoe if rainfall does not occur within 5-7 days; (2) Apply a postemergence tank mix of Beacon at 0.38 oz./A or Exceed at 1 packet per 4 acres plus Accent SP at 0.33 oz./A plus 1 qt. of crop oil concentrate plus 1 gal./A of 28% nitrogen, or the equivalent amount of ammonium sulfate, when grasses are 2-3 inches tall and the corn is at least 4 inches tall; and (3) Cultivate 14-21 days after the postemergence application.

Notes: (1) In the event of escape of annual weeds following a preplant

Preplant Surface-Applied

A. Fall Application: :

- 1. Apply after September 30 in ND, SD, MN, WI, and north of Route 30 in IA.
- 2. Apply after October 15 north of Route 91 in NE and south of Route 30 in IA.
- 3. Apply after October 31 north of Route 136 in IL.

In all locations, apply to crop stubble after harvest when the sustained soil temperature at a 4-inch depth is less than 55°F and falling. In minimum-till or no-tillage systems on soils having greater than 2.5% organic matter, use 10-15 lbs./A on *medium-textured* soils and 12-15 lbs./A on *fine-textured* soils. Do not apply to frozen ground. A tillage operation may precede the application. A fall and/or a spring tillage may follow application, but do not exceed an incorporation depth greater than 2-3 inches. Minimize furrow and ridge formation in the tillage operations. **Note:** If a spring application is made, the total rate of the fall plus spring applications must not exceed the maximum total rate for soybeans, or illegal residues may result.

- B.** Use on medium- and fine-textured soils with minimum-tillage or no-tillage systems in CO, CT, DE, IA, IL, IN, KS, KY, MA, MD, ME, MI, MN, MO, MT, ND, NE, NH, NY, OH, PA, RI, SD, TN, VA, VT, WI, WV, and WY. Apply 2/3 of the recommended rate of Dual IIG 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 IIG granules. Injury may occur from movement of Dual IIG into the planter slit if the slit is not properly closed during planting.

Preplant Incorporated: Using the appropriate rate from Table 2, broadcast Dual IIG 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 IIG 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 IIG into the planter slit if the slit is not properly closed during planting.

Table 2: Dual IIG – 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 IIG 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 IIG may be used up to 15 lbs./A on soils having an organic matter content between 6% and 20%.

Note: Do not apply more than the equivalent of 15 lbs. of Dual IIG per acre during any one year, or illegal residues may result. This includes both Dual IIG and Dual EC formulations (1 pt. of a Dual EC formulation is equivalent to 4 lbs. of Dual IIG).

POTATOES

Apply Dual IIG either incorporated or preemergence 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 IIG at 6-12 lbs./A to the soil and incorporate

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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 IIG within the top 1-2 inches of soil. Do not damage potato seed pieces or sprouts with incorporation equipment.

Preemergence: Apply Dual IIG 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 15 lbs./A of Dual IIG alone may be used where soil organic matter is between 6% and 20%.

Precautions: (1) Do not use on muck or peat soils. (2) If cool, wet soil conditions occur after application, Dual IIG 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, CA.

Note: To avoid illegal residues, potatoes treated with Dual IIG should not be harvested within 60 days after the at-planting to drag-off application.

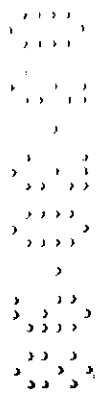
Rotational Crops

Do not rotate to food or feed crops other than those listed below.

(1) If crop treated with Dual IIG is lost, any crop on this label may be replanted immediately. Do not make a second broadcast application of Dual IIG. 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. (3) Any crop on this label in addition to cotton, cabbage, peppers, pod crops, safflowers, grain sorghum*, 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.

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

Important Note: To avoid injury to rotational alfalfa or clover, do not apply more than 3 lbs. a.i. of metolachlor (12 lbs. of Dual IIG) either preplant surface, preplant incorporated, preemergence, or postplant incorporated.



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

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

Harmful if absorbed through skin or inhaled. Causes moderate eye irritation. Avoid contact with eyes or clothing. Avoid breathing dust. This product may cause skin sensitization reactions in some people.

Statement of Practical Treatment

If in eyes: Flush with plenty of water. Call a physician if irritation persists.

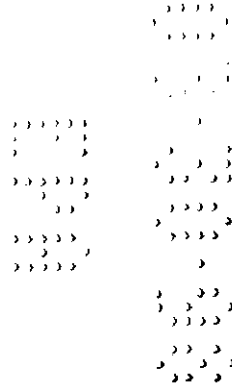
If inhaled: Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

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

Personal Protective Equipment

Applicators and other handlers must wear:

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



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NCP (DRAFT)

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	Fall application
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	adm. amendments
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	fall application
	geographic limitations
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	change to Novartis
Revised	August, 1997 - fall
	application changes
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	Latest EPA label +
	RED changes
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	changes - variable
	rate formulas

[QUARK\DUALIIG]N-DUALIIG-50-LB-F - ccg - 3/17/98

