

# Harvade®-5F

## Harvest Growth Regulant For Cotton

**Net  
Contents:**

Active Ingredient: (% by weight)  
dimethipin (CAS No. 55290-64-7)  
(2,3-dihydro-5,6-dimethyl-1,4-dithiin-1,1,4,4-tetraoxide) ..... 48.0%\*  
Inert Ingredients: ..... 52.0%  
Total: ..... 100.0%

\*Contains 4.9 pounds of active ingredient per gallon.

\*Contains 587 grams of active ingredient per liter.

## KEEP OUT OF REACH OF CHILDREN CAUTION

### FIRST AID

- |                                      |   |
|--------------------------------------|---|
| <b>IF SWALLOWED</b>                  | <ul style="list-style-type: none"><li>• Call a poison control center or doctor immediately for treatment advice.</li><li>• Have person sip a glass of water if able to swallow.</li><li>• Do not induce vomiting unless told to do so by the poison control center or doctor.</li><li>• Do not give anything by mouth to an unconscious person.</li></ul> |
| <b>IF ON SKIN OR<br/>ON CLOTHING</b> | <ul style="list-style-type: none"><li>• Take off contaminated clothing.</li><li>• Rinse skin immediately with plenty of water for 15 to 20 minutes.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>  |
| <b>IF INHALED</b>                    | <ul style="list-style-type: none"><li>• Move person to fresh air.</li><li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.</li><li>• Call a poison control center or doctor for further treatment advice.</li></ul>   |

**EMERGENCY ASSISTANCE:** Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

<b>EMERGENCY PHONE</b>	<b>800-292-5898</b>
<b>SAFETY DATA AND INFORMATION</b>	<b>203-573-3303</b>
<b>TRANSPORTATION EMERGENCY (CHEMTREC)</b>	<b>800-424-9300</b>

EPA REG. NO. 400-155

EPA EST. NO.

020CM/042103

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**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

**CAUTION**

Harmful if swallowed or inhaled. Do not breathe vapors or spray mist. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling. This product may cause allergic reactions in some individuals.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for Category E on an EPA chemical resistance category selection chart.

**Applicators and Other Handlers Must Wear:** Long-sleeved shirt and long pants; chemical-resistant gloves such as barrier laminate, or nitrile rubber, or neoprene rubber, or viton; shoes plus socks.

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

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.

**ENVIRONMENTAL HAZARDS**

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 by disposal of equipment washwaters. Do not apply when weather conditions favor drift from the treated area.

**DIRECTIONS FOR USE**

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read all label directions carefully before use.

Do not apply this product through any type of irrigation system.

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 48 hours**.

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 such as barrier laminate, or nitrile rubber, or neoprene rubber, or viton; shoes plus socks.

**GENERAL INFORMATION**

HARVADE®-5F is a plant growth regulant that effects certain plant processes that lead to defoliation and lint maturation in cotton. Because HARVADE-5F must enter the plant through the leaves for optimum activity, it must be applied in a manner that will allow maximum penetration through the leaf surface. Complete coverage of the entire plant is essential for optimum effectiveness. HARVADE-5F MUST BE USED WITH A MINIMUM OF ONE PINT PER ACRE OF CROP OIL CONCENTRATE SPRAY ADJUVANT.

HARVADE-5F also may improve the harvest operation by desiccating most mature morningglory species. Desiccation/defoliation of other weed species such as sicklepod, croton, teaweed and trumpet creeper has been observed.

**MIXING INSTRUCTIONS**

**ALWAYS SHAKE OR STIR WELL BEFORE USE.** Fill the spray tank with 2/3 of the required amount of water. Add the desired amount of HARVADE-5F, the selected crop oil concentrate and remaining required amount of water. The HARVADE-5F and crop oil concentrate will suspend easily with minimum agitation. **To assure that container content is emptied - TRIPLE RINSE (OR EQUIVALENT) INTO SPRAY TANK. PRESSURE RINSE IS PREFERRED.**

**CROP OIL CONCENTRATE REQUIRED WITH HARVADE-5F**

A petroleum-based crop oil concentrate (83% oil, 17% surfactant) such as those listed below **must be added to the spray mixture at 1 to 2 pints per acre:** Agridex<sup>1</sup>, Chem-Oil<sup>2</sup>, Herbimax<sup>3</sup>, Peptoil<sup>4</sup>, Prime Oil<sup>5</sup>, Super Oil<sup>6</sup>, Surf-Oil<sup>7</sup> or Agra-Oil<sup>8</sup>. These are trademarks of <sup>1</sup>Helena Chemical Co., <sup>2</sup>Coastal Chemical, <sup>3</sup>United AgProducts, <sup>4</sup>Drexel Chemical Co., <sup>5</sup>Agro Distribution LLC, <sup>6</sup>Universal Crop Protection Alliance, <sup>7</sup>Jimmy Sanders, Inc., and <sup>8</sup>Chem Nut, Inc. The commercial crop oil concentrate chosen must be cleared for application to growing crops. NOTE: USE 2 PINTS OF CROP OIL CONCENTRATE PER ACRE **WHEN THE WEATHER IS COOL**.

**COMPATIBILITY**

HARVADE-5F is compatible with most commonly used cotton desiccants, defoliants, and insecticides. However, do not mix HARVADE-5F with cacodylic acid products, because they are antagonistic to HARVADE-5F activity. Consult your supplier or Chemtura for details.

**USE PRECAUTIONS**

1. Do not plant rotational crops **within 6 months** after application.
2. Keep HARVADE-5F drift from non-target areas. Do not apply when weather conditions favor drift from treated areas.
3. a. Do not apply HARVADE-5F directly to, or permit mist to drift onto, citrus, broccoli, almonds, grapes, peppers, tomatoes, lettuce, alfalfa, sugarbeets or wheat. These crops may sustain significant injury if contacted with HARVADE-5F.  
b. Do not apply HARVADE-5F to, or permit mist to drift onto, soil that will subsequently be seeded to peppers, tomatoes, lettuce,

broccoli, alfalfa or sugarbeets. Significant crop injury may occur from such an application.

- c. Do not apply HARVADE-5F to, or permit mist to drift onto, irrigation water that will subsequently be applied to peppers, tomatoes or lettuce.

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## FOR DEFOLIATION OF RAIN-BELT COTTON

For use in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Missouri, North Carolina, South Carolina, Tennessee, Virginia, eastern Texas (including the Rio Grande Valley) and eastern Oklahoma.

### APPLICATION EQUIPMENT

Nearly all spray application equipment is suitable for applying HARVADE-5F if fine spray droplets can be deposited uniformly over the crop canopy. If aerial equipment is used, it should be fitted with a fixed boom set at 45 to 90° relative to the trailing edge of the wing and flown 10 to 12 feet above the crop canopy.

### TIMING OF APPLICATION FOR RAIN-BELT COTTON

Apply 7 to 14 days prior to anticipated harvest. Optimum defoliation will be obtained when HARVADE-5F is applied to mature cotton plants; i.e. when 70% or more of the bolls are open, when the last boll to be harvested is no more than four nodes above the last cracked boll showing fiber (4NACB), when last boll to be harvested is hard to cut through and seed coat is light brown, or when there is no active growth and lower leaves have purple tinge.

### RATE OF APPLICATION FOR RAIN-BELT COTTON

One gallon of HARVADE-5F will treat 16 acres of cotton, when applied at the 8 fl. oz. per acre rate.

**Aerial Application:** Mix 8 to 10 fl. oz. of HARVADE-5F and one to two pints of crop oil concentrate with sufficient water to make up a minimum 5 gallons of spray solution per acre. Use the higher rate of HARVADE-5F when the crop is more vigorous and robust. If cotton is rank or conditions favor regrowth, see APPLICATION NOTES.

**Ground Application:** Mix 8 to 10 fl. oz. of HARVADE-5F and one to two pints of crop oil concentrate with sufficient water to make up 10 to 20 gallons of spray solution per acre. Use the higher rate of HARVADE-5F when the crop is more vigorous and robust. If cotton is rank or conditions favor regrowth, see APPLICATION NOTES.

### APPLICATION NOTES FOR RAIN-BELT COTTON

Partial defoliation from the first application of HARVADE-5F may result from one or more of the following situations:

- Rank cotton foliage is dense enough to prevent spray droplets from reaching the bottom leaves.
- Plants are actively growing, with new growth and fruiting evident at the top.
- Less than 70% of the bolls are open.
- Cotton is drought stressed. (Under this condition, applications should be made before mid morning or at late afternoon).
- Night temperatures are below 60° F for 3 to 4 nights either before or after application.
- Rainfall occurs within 6 hours after application.

Under these conditions a second application of HARVADE-5F at 4 to 6 fl. oz./A may be required 5 to 7 days after the initial application. **Do not use more than a total of 14 fl. oz. of HARVADE-5F per acre per year on your cotton crop.**

### TANK MIX COMBINATIONS FOR RAIN-BELT COTTON

Before using any tank mix combination, carefully read and follow the directions, precautions and restrictions found in each product label. The most restrictive of label limitations and precautions must be followed. Use 1 to 2 pints of crop oil concentrate per acre with all combinations.

#### 1. HARVADE-5F plus a thidiazuron product (such as DROPP® 50WP or FREEFALL™)

Under conditions that promote excessive regrowth, a tank mix of

HARVADE-5F at 6.5 to 8.0 fl. oz./A with one pint of crop oil plus a thidiazuron product at 0.05 to 0.1 lb. active ingredient/A provides excellent regrowth control. Use the lower rate of both products when the night temperature is above 60° to 65° F; use the higher rates during periods of low nighttime temperatures (less than 60 to 65° F).

#### 2. HARVADE-5F plus a phosphate defoliant (such as DEF® or FOLEX®)

If cotton is rank or actively growing. HARVADE-5F at 6.5 to 8.0 fl. oz./A may be applied with 8 to 16 fl. oz./A of a phosphate defoliant to enhance defoliation. Use the lower rate of both products when the night temperature is above 70° F; Use the higher rates when the night temperature falls below 70° F.

#### 3. HARVADE-5F plus an ethephon product

(such as PREP®, FINISH®, SUPER BOLL®, PLUCK®, or ETHEPHON 6) To enhance boll opening HARVADE-5F may be applied at the labeled rate with ethephon at the rate of 1 to 2 pounds active ingredient/A (maximum rate). Apply this tank mixture when the bolls are 60 to 70% open.

#### 4. HARVADE-5F plus a paraquat product (such as STARFIRE®)

On rain-belt cotton if a high percentage of cotton leaves are still actively growing, 4 to 6 fl. oz./A of paraquat may be added to the labeled rate of HARVADE-5F for more complete defoliation.

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## FOR WEED CONTROL IN RAIN-BELT COTTON: POST-DIRECTED TREATMENT ONLY

### GENERAL INFORMATION

To control young weeds such as sicklepod and morningglory, HARVADE-5F may be tank-mixed with compatible registered post-emergence herbicides for application to cotton as a directed spray from early post-emergence through layby. Good weed control has been reported for HARVADE-5F combinations with MSMA, prometryn (such as CAPAROL®), linuron (such as LINEX®) and fluometuron (such as COTORAN®).

Before using any tank mix combination, carefully read and follow the directions, precautions and restrictions found in each product label. The most restrictive of label limitations and precautions must be followed.

### APPLICATION EQUIPMENT

**Ground Application Only:** The spray mixture should contact only the bottom portions of the crop, no higher than the woody areas of the cotton stems. DIRECT CONTACT OF THE SPRAY MIXTURE WITH COTTON LEAVES AND TENDER STEMS WILL RESULT IN CROP INJURY. Use leaf lifters, spray shields or hooded sprayers on the application equipment, to prevent or to reduce spray contact with the crop. Good coverage of the weeds is necessary for best results.

### TIMING OF APPLICATION FOR POST-DIRECTED WEED CONTROL

**Apply the tank mix combinations from early post-emergence through layby; that is, when the young weeds are less than 4 inches tall, and the cotton is at least 10 inches tall. If the cotton is less than 10 inches tall, the tank mix combination should be applied with a hooded sprayer.**

It is recommended that a preemergence or a post-emergence herbicide program be used in early season, to promote development of a height differential between the cotton crop and the weeds, prior to the use of a post-directed application of HARVADE-5F.

IF IT BECOMES NECESSARY TO REPLANT YOUR COTTON CROP during the same cropping season after a post-directed application of HARVADE-5F, thoroughly till the soil prior to replanting.

### RATE OF APPLICATION FOR POST-DIRECTED WEED CONTROL

When applied as DIRECTED BROADCAST SPRAY, use 6 to 14 fl. oz. of HARVADE-5F (plus at least one pint of crop oil concentrate) per acre, in tank mix combination with an appropriate post-directed herbicide partner at its labeled rate. Use the higher rate of HARVADE-5F if the weeds are larger or if their population is dense. Use sufficient water to

provide thorough coverage of the weeds; a minimum of 10 gallons of spray solution per acre is recommended.

When applied as a DIRECTED BAND APPLICATION, calculate the amount of HARVADE-5F (and tank mix partner herbicide) to be applied per acre as follows:

band width in inches	x	broadcast rate	=	amount needed
row spacing in inches		per acre		per acre of field

**Note:** A minimum of 3.5 fl. oz. per treated acre of HARVADE-5F in the band is recommended.

**Do not use more than a total of 14 fl. oz. of HARVADE-5F per acre per year on your cotton crop for combined post-directed and defoliation applications.**

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## FOR DEFOLIATION OF STRIPPER AND OTHER IRRIGATED COTTON

For use in New Mexico, and the High Plains of western Texas, Oklahoma and Kansas.

### APPLICATION EQUIPMENT

Nearly all spray application equipment is suitable for applying HARVADE-5F if fine spray droplets can be deposited uniformly over the crop canopy. If aerial equipment is used, it should be fitted with a fixed boom set at 45 to 90° relative to the trailing edge of the wing and flown 10 to 12 feet above the crop canopy.

### TIMING OF APPLICATION FOR STRIPPER AND OTHER IRRIGATED COTTON

Optimum defoliation will be obtained when HARVADE-5F is applied to mature cotton. It may be used alone or tank mixed with other registered cotton harvest aids.

Under growing conditions for stripper cotton, HARVADE-5F and HARVADE-5F tank mixes will initiate the defoliation process if applied when the last bolls to be harvested are mature. This normally occurs 14 to 21 days before harvest. Application of a paraquat product (such as CYCLONE®) at its labeled rate, 7 to 10 days after HARVADE-5F is necessary to complete the defoliation process.

### RATE OF APPLICATION FOR STRIPPER AND OTHER IRRIGATED COTTON

One gallon of HARVADE-5F will treat 16 acres of cotton, when applied at the 8 fl. oz. per acre rate. **Do not use more than a total of 14 fl. oz. of HARVADE-5F per acre per year on your cotton crop.**

**Aerial Application:** Mix 8 fl. oz. of HARVADE-5F plus one to two pints of crop oil concentrate designated above in a minimum of 2 gallons of spray solution per acre. Use a paraquat product at its label rate, 7 to 10 days after HARVADE-5F to complete the defoliation process.

**Ground Application:** Mix 8 fl. oz. of HARVADE-5F plus one to two pints of crop oil concentrate designated above in 10 to 20 gallons of spray solution per acre. Use a paraquat product at its label rate, 7 to 10 days after HARVADE-5F to complete the defoliation process.

### TANK MIX COMBINATIONS FOR STRIPPER AND OTHER IRRIGATED COTTON

Before using any tank mix combination, carefully read and follow the directions, precautions and restrictions found in each product label. The most restrictive of label limitations and precautions must be followed. Use 1 to 2 pints of crop oil concentrate per acre with all combinations.

**1. HARVADE-5F plus a phosphate defoliant (such as DEF or FOLEX)**  
To initiate defoliation on cotton that may have been water-stressed at some time during the growing season, HARVADE-5F may be applied at 8 fl. oz./A with 8 fl. oz./A of a phosphate defoliant. Use a paraquat product at its label rate, 7 to 10 days after the HARVADE-5F/phosphate defoliant application to complete the defoliation process.

**2. HARVADE-5F plus a formulated sodium chlorate product**  
To provide good defoliant initiation if cotton has been stressed over

an extended period of time or has any new growth, HARVADE-5F at 8 fl. oz./A may be applied with 3 lb. a.i./A of sodium chlorate (example: 5 pints/A of a 5 lb./gal formulated product or 4 pints/A of a 6 lb./gal product). Use a paraquat product at its label rate, 7 to 10 days after the HARVADE-5F/sodium chlorate application to complete the defoliation process.

### 3. HARVADE-5F plus an ethephon product (such as PREP, FINISH, SUPER BOLL, or ETHEPHON 6)

To enhance harvest initiation and boll opening, HARVADE-5F at 8 fl. oz./A may be applied with an ethephon product at the rate of 1 to 2 pounds active ingredient/A (maximum rate). Use a paraquat product at its label rate, 7 to 10 days after the HARVADE/ethephon application to complete the defoliation process.

### 4. HARVADE-5F plus a thidiazuron product (such as DROPP 50WP or FREEFALL)

Under conditions that promote excessive regrowth, HARVADE-5F at 8 fl. oz./A may be used with a thidiazuron product at 0.05 to 0.01 lb. active ingredient/A. Use a paraquat product at its label rate, 7 to 10 days after the HARVADE-5F/thidiazuron application to complete the defoliation process.

**5. HARVADE-5F plus a glyphosate product (such as ROUNDUP®)**  
If perennial weeds such as johnsongrass are prevalent, HARVADE-5F is compatible with glyphosate. Refer to the glyphosate product label for further application information.

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## FOR DEFOLIATION OF COTTON IN CALIFORNIA

### GENERAL INFORMATION

HARVADE-5F is an excellent cotton defoliant to use in tank mix combination with other harvest aid products. Application to Acala SJ-2 and related varieties is not recommended.

### APPLICATION EQUIPMENT

Nearly all spray application equipment is suitable for applying HARVADE-5F if fine spray droplets can be deposited uniformly over the crop canopy. If aerial equipment is used, it should be fitted with a fixed boom set at 45 to 90° relative to the trailing edge of the wing and flown 10 to 12 feet above the crop canopy.

### TIMING OF APPLICATION IN CALIFORNIA

Optimum defoliation will be obtained when HARVADE-5F is applied to mature cotton. In California, it is most frequently tank mixed with other registered cotton harvest aids.

Apply to mature plants, when 70% or more of the bolls are open (4NACB, when the last boll to be harvested is no more than four nodes above the last cracked boll showing fiber).

Under California conditions, if harvest is desired within 14 to 21 days of the HARVADE-5F application, a follow-up treatment with an approved crop desiccant may be necessary. Apply the desiccant according to its label directions.

### RATE OF APPLICATION IN CALIFORNIA

One gallon of HARVADE-5F will treat 16 acres of cotton, when applied at the 8 fl. oz. per acre rate.

**Aerial Application:** Mix 8 fl. oz. of HARVADE-5F with the desired amount of tank mix partner product, and add 1 to 2 pints of crop oil concentrate, in a minimum of 10 gallons of spray solution per acre.

**Ground Application:** Mix 8 fl. oz. of HARVADE-5F with the desired amount of tank mix partner product, and add 1 to 2 pints of crop oil concentrate, in a minimum of 15 to 30 gallons of spray solution per acre.

### TANK MIX COMBINATIONS FOR USE IN CALIFORNIA

Before using any tank mix combination, carefully read and follow the directions, precautions and restrictions found in each product label. The most restrictive of label limitations and precautions must be followed.



USE 1 TO 2 PINTS OF CROP OIL CONCENTRATE PER ACRE WITH ALL HARVADE-5F COMBINATIONS.

Use each product in a tank mix in accordance with its label Directions for Use under California conditions.

To achieve optimum defoliation under local conditions, HARVADE-5F may be tank mixed with one of the following tank mix partners, registered for use on cotton in California:

- DEF, FOLEX, or other phosphate defoliant product,
- sodium chlorate products,
- GINSTAR®, or
- DROPP, FREEFALL or other thidiazuron product.

When additional crop desiccation or weed control is desired, other registered harvest aid products such as paraquat or glyphosate may be tank mixed with HARVADE-5F.

Do not mix HARVADE-5F with cacodylic acid products, because they are antagonistic to HARVADE-5F activity.

**ALWAYS SHAKE OR STIR THIS PRODUCT WELL BEFORE USE**

### STORAGE AND DISPOSAL

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

**PESTICIDE STORAGE:** Store in original container only. After partial use, replace lid and close tightly. Store in a secure place that is temperate, dry and out of direct sunlight. Keep from freezing. Do not store below 40° F. ALWAYS SHAKE OR STIR WELL BEFORE USE.

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

**CONTAINER DISPOSAL:**

**Plastic Containers:** Triple rinse (or equivalent). Pressure rinse is preferred. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

**IMPORTANT NOTICE**—Seller warrants that this product conforms to its chemical description and is reasonably fit for the purposes stated on the label when used in accordance with the directions and instructions specified on the label under normal conditions of use, **but neither this warranty nor any other warranty of merchantability or fitness for a particular purpose, express or implied, extends to the use of this product, contrary to label instructions, or under abnormal conditions, or under conditions not reasonably foreseeable to seller, and buyer assumes the risk of any such use.**

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