



## OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION

WASHINGTON, D.C. 20460

December 12, 2023

Katy DeGroot  
Regulatory Consultant  
UPL NA, Inc.  
c/o Pyxis Regulatory Consulting Inc.  
4110 136th St. Ct. NW  
Gig Harbor, WA 98332

Subject: Label Amendment - Registration Review Mitigation for Propanil & Bensulfuron Methyl  
Product Name: DUET DF RICE HERBICIDE  
EPA Registration Number: 70506-362  
Application Dates: May 14, 2021 & September 29, 2023  
Decision Numbers: 575786 & 594682

Dear Katy DeGroot:

The Agency, in accordance with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, has completed reviewing all the information submitted with your application to support the Registration Review of the above referenced product in connection with the Propanil & Bensulfuron Methyl Interim Decisions, and has concluded that your submission is acceptable. The label referred to above, submitted in connection with registration under FIFRA, as amended, is acceptable.

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under the Federal Insecticide, Fungicide, and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance Assurance.

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling. You must submit one copy of the final printed labeling before you release the product for shipment with the new labeling. In accordance with 40 CFR 152.130(c), you may distribute or sell this product under the previously approved labeling for 12 months from the date of this letter. After 12 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. "To distribute or sell" is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3.

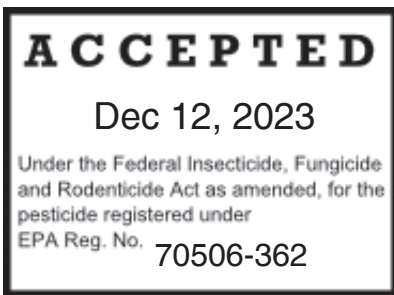
If you have any questions about this letter, please contact Caleb Carr via email at [carr.caleb@epa.gov](mailto:carr.caleb@epa.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read "Linda Arrington", with a long horizontal flourish extending to the right.

Linda Arrington, Branch Chief  
Risk Management and Implementation Branch 4  
Pesticide Re-Evaluation Division  
Office of Pesticide Programs

ENCLOSURE: Stamped label



PROPANIL	GROUP	7	HERBICIDE
BENSULFURON-METHYL	GROUP	2	HERBICIDE

# DUET® DF

## Rice Herbicide For Postemergence Control of Broadleaf, Grass, and Sedge Weeds in Rice Fields

**Active Ingredient:**

Propanil: 3', 4' – Dichloropropionanilide.....	80.00%
Bensulfuron Methyl: Methyl 2-[[[[[4, 6-dimethoxy-2-pyrimidinyl) amino] carbonyl]amino]sulfonyl]methyl]benzoate.....	0.62%
<b>OTHER INGREDIENTS:</b> .....	<b>19.38%</b>
<b>TOTAL</b> .....	<b>100.00%</b>

This product contains 0.8 lbs. of propanil and 0.0062 lb of bensulfuron methyl per pound of formulated product.

EPA Registration No. 70506-362

EPA Establishment No. 62171-MS-01; 34704-MS-1; 37429-GA-1; 46193-GTM-1; 68848-BRA-1; 5905-IA-1; 5905-GA-1; 1812-GA-1

**KEEP OUT OF REACH OF CHILDREN**

**WARNING - AVISO**

*Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)*

<b>FIRST AID</b>	
<b>If on Skin or Clothing:</b>	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.
<b>If in Eyes:</b>	Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
<b>If Swallowed:</b>	Call a poison control center or doctor immediately for treatment advice. Have a person sip a glass of water, if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
<b>If Inhaled:</b>	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth to mouth if possible. Call a poison control center or doctor for treatment advice.
<b>HAVE THE PRODUCT CONTAINER OR LABEL WITH YOU WHEN CALLING A POISON CONTROL CENTER OR DOCTOR, OR GOING FOR TREATMENT.</b>	
<b>FOR CHEMICAL SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT CALL CHEMTREC @ (800) 424-9300</b>	

**FOR 24-HOUR EMERGENCY MEDICAL ASSISTANCE, CALL Rocky Mountain Poison  
Control Center: (866) 673-6671**

**AGRICULTURAL CHEMICAL  
DO NOT SHIP OR STORE WITH FOOD, FEEDS,  
DRUGS, OR CLOTHING.**

**Manufactured for:**

UPL NA Inc.

630 Freedom Business Center, Suite 402

King of Prussia, PA 19406 – 1-800-438-6071

**NET CONTENTS: 50 Lbs.**

**PRECAUTIONARY STATEMENTS**

**HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

Harmful if swallowed, absorbed through skin or inhaled. Causes substantial but temporary eye irritation. Avoid breathing spray mist. Avoid contact with skin, eyes, or clothing.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Some materials that are chemical-resistant to this product are made of any waterproof material, including barrier laminate, butyl rubber 14 mils, nitrile rubber  $\geq 14$  mils, neoprene rubber  $\geq 14$  mils, natural rubber  $\geq 14$  mils, polyethylene, polyvinyl chloride  $\geq 14$  mils, and Viton  $\geq 14$  mils.

**Mixers, loaders, and other handlers exposed to the concentrate must wear:**

- Coverall over short-sleeved shirt and long pants,
- Waterproof gloves,
- Chemical resistant footwear plus socks,
- Chemical resistant headgear for overhead exposure, and
- Chemical-resistant apron
- Protective eyewear
- Pilot must wear: long-sleeved shirt and long pants, and shoes plus socks.

**Applicators and other handlers exposed to the dilute must wear:**

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

See Engineering Controls for additional requirements and options.

**USER SAFETY REQUIREMENTS:**

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

Discard clothing or other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

**ENGINEERING CONTROL STATEMENTS:**

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

under the WPS.

Human flagging is prohibited. Flagging to support aerial application is limited to use of the Global Positioning System (GPS) or mechanical flaggers.

Pilots must use an enclosed cockpit that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(6)].

#### **USER SAFETY RECOMMENDATIONS**

##### **Users should:**

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

#### **ENVIRONMENTAL HAZARDS**

This pesticide is toxic to fish, aquatic invertebrates, and birds. For terrestrial uses, 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 washwaters or rinsate. This product is toxic to shrimp. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water intended for irrigation or domestic purposes. Do not apply when weather conditions favor drift from target area.

Groundwater Advisory: Propanil, 3,4-DCA (a major propanil degradate), and bensulfuron-methyl are known to leach through soil into groundwater under certain conditions as a result of label use. This chemical may leach into groundwater if used in areas where soils are permeable, particularly where the water table is shallow.

This chemical has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical prior to flooding may result in shallow groundwater contamination due to cracks in the subsoil of the rice paddy.

This product may contaminate water through runoff following rainfall events and by seepage through levees. This product has a high potential for runoff. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours. Levees should be constructed with adequate time prior to chemical application so that they are compacted to reduce seepage and to hold a 3-6 inch flood.

Surface Water Advisory: This product may impact surface water quality due to runoff of rain water. This is especially true for poorly draining soils with shallow ground water. This product is classified as having high potential for reaching surface water via runoff for several months or more after application. A level, well-maintained vegetative buffer strip between area to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential loading of this product from runoff water and sediment. Runoff of this product will be greatly reduced by avoiding applications when rainfall or irrigation is expected to occur within 48 hours.

NON-TARGET ORGANISM ADVISORY: This product is toxic to plants and may adversely impact the forage and habitat of non-target organisms, including pollinators, in areas adjacent to

the treated area. Protect the forage and habitat of non-target organisms by following label directions intended to minimizing spray drift.

### **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 and about personal protective equipment (PPE) and restricted-entry interval (REI). 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.

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

- Coveralls
- Waterproof gloves
- Protective eyewear

### **STORAGE AND DISPOSAL**

Do not contaminate water, food, or feed by storage and disposal. Open dumping is prohibited.

**PESTICIDE STORAGE:** Do not store this product near fertilizers, seeds, insecticides, or fungicides. Damaged or leaking containers, which contain product that cannot be used immediately, should be transferred to suitable sound containers and properly marked.

Keep containers closed when not in use.

Any spilled material should be swept up and transferred to a new or waste container for disposal as indicated under "Pesticide Disposal".

For safety and prevention of unauthorized use, all pesticides should be stored in locked facilities. To prevent accidental misuse, different pesticides should be stored in separate areas with enough distance between to provide clear identification.

**PESTICIDE DISPOSAL:** Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. Wastes resulting from the use of this product must be disposed of at an approved waste disposal facility. If these wastes cannot be disposed of by the use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

### **CONTAINER HANDLING :**

**Nonrefillable Container:** Do not reuse or refill this container. Offer for recycling, if available.

**Paper Bags:** Empty entire contents of bag into applicator equipment. Dispose of empty bags in a sanitary landfill or by incineration, or by burning if allowed by State and local authorities. If burned, stay out of smoke.

**Fiber Drums:** Empty entire contents of liner, including product residues that may have adhered to liner, into application equipment. Loosen and remove residues by shaking and tapping bottom and sides of liner. Dispose of liner and any drums that have become contaminated in a sanitary landfill or by incineration if allowed by State and local authorities.

### GENERAL PRECAUTIONS AND RESTRICTIONS

**DO NOT** plant or transplant crops in the treated area for at least 60 days following an application of this product.

**DO NOT** apply more than 7.5 lbs of **DUET® DF** (6.0 lbs of propanil/0.046 lbs of bensulfuron methyl) per acre per application.

**DO NOT** apply more than 10.0 lbs of **DUET DF** (8.0 lbs of propanil/0.062 lbs of bensulfuron methyl) per acre per year.

**DO NOT** apply this product through any type of irrigation system.

**DO NOT** apply more than 10 lbs. of **DUET DF** (8.0 lbs of propanil/0.062 lbs of bensulfuron methyl) per growing season.

**DO NOT** apply **DUET DF** within 14 days before or after carbamate or organophosphate insecticide applications. Serious injury to rice may occur.

**DO NOT** apply this product (directly or indirectly) to any crop except rice but **DO NOT** use on wild rice (*Zizania* spp.).

**DO NOT** use on lawns, walks, driveways, tennis courts or similar areas.

**DO NOT** graze treated fields or feed treated forage within 80 days of the last application.

**DO NOT** harvest within 60 days of application.

Water drained from the treated rice fields must not be used to irrigate other crops or be released within 1/2 mile of a potable water intake in flowing water (e.g., river, stream, etc.) or within 1/2 mile of a potable water intake in a standing body of water such as a lake, pond, or reservoir.

Application to fields where catfish farming is practiced and draining water from treated fields into areas where catfish farming is practiced is prohibited during 12 months following treatment.

### GENERAL INFORMATION

#### WHERE TO USE

**UPL NA Inc.'s DUET DF** is used for postemergence control of broadleaf, grass, and sedge weeds in RICE fields. Do not apply when weather conditions favor drift from area to be treated.

#### WEEDS CONTROLLED

Annual arrowhead	<i>Sagittaria</i> spp.
Barnyardgrass (watergrass)	<i>Echinochloa crus-galli</i>
Blunt spikerush	<i>Eleocharis obtuse</i>
Brachiaria (signalgrass)	<i>Brachiaria platyphylla</i>
Cocklebur	<i>Tanithium</i> spp.
Coffeeweed	<i>Sesbania herbacea</i>
Crabgrass	<i>Digitaria</i> spp.
Croton	<i>Croton</i> spp.
Curly indigo	<i>Aeschynomene virginica</i>

Dayflower	<i>Commelina communis</i>
Ducksalad	<i>Heteranthera limosa</i>
Eclipta	<i>Eclipta prostrata</i>
Eisen waterhyssop	<i>Bacopa eisenii</i>
Falsepimpernel	<i>Lindernia dubia</i>
Foxtail	<i>Setaria</i> spp.
Goosegrass	<i>Eleusine indica</i>
Gooseweed	<i>Sphenoclea zeylandica</i>
Gulf cockspur	<i>Echinochloa crus-gavonis</i>
Hemp sesbania	<i>Sesbania exaltata</i>
Mexicanweed	<i>Caperonia castanifolia</i>
Millet (Texas)	<i>Urochloa texana</i>
Morningglory	<i>Ipomoea</i> spp.
Mud plantain	<i>Heteranthera reinformis</i>
Paragrass	<i>Urochloa mutica</i>
Pennsylvania smartweed	<i>Polygonum Pensylvanicum</i>
Pickrelweed	<i>Pontederia cordata</i>
Pigweed	<i>Amaranthus</i> spp.
Purple ammannia	<i>Ammannia coccinea</i>
Redstem	<i>Ammannia auriculata</i>
Rice flatsedge	<i>Cyperusiria</i>
Roughseed bulrush	<i>Scirpus mucronatus</i>
Smallflower umbrella plant	<i>Cyperus difformis</i>
Sourdock	<i>Rumex arcticus</i>
Southern naiad	<i>Najas guadalupensis</i>
Spearhead	<i>Phacelia hastata</i>
Texasweed	<i>Caperonia palustris</i>
Water plantain	<i>Alisma subcordatum</i>
Waterwort	<i>Elatinaceae</i> spp.
Wiregrass	<i>Aristida</i> spp.
Yellow nutsedge	<i>Cyperus esculentus</i>

(DUET DF will not control Bermudagrass, cattail, Johnsongrass, red rice and sprangletop).

**NOTE FOR CALIFORNIA USERS:** Resistant biotypes are known to exist in California, including California Arrowhead, purple ammannia, redstem, ricefield bulrush and Smallflower umbrella plant. **DUET DF** may not control these biotypes. Accurate records should be kept of the pesticides applied to individual fields to obtain information regarding the spread and dispersal of the resistant biotypes. Consult your Ag dealer, consultant, applicator, and/or your State Agricultural Extension Service for specific alternative herbicide recommendations available in your area.

Several important factors should be taken into account to achieve a high efficiency of selective weed control with **DUET DF**. These include uniform application, growth stage, water management and weather conditions. To assure uniform application, mix the prescribed amount of **DUET DF** with a sufficient volume of water to provide thorough coverage of target area. For aerial applications use approximately 10 gallons of water or for surface (ground) applications 20-30 gallons of water per acre at sufficient spray pressure. Agitate tank mixes thoroughly and continuously. Avoid over and under application.



Growth stage of weeds is very important. Best results for selective weed control are obtained when most grasses have reached the 1 to 3-leaf stage.

A static flood should be placed on treated fields approximately 48 hours following application for optimum weed control results. See “Application Timing” for additional information concerning flooding.

Proper field preparation is essential to ascertain a relatively clod free and level surface and to obtain uniform flood levels and growth. Fields may be flushed prior to treatment to produce uniform and vigorous grass germination and growth. Drain water from fields prior to applying **DUET DF**. Higher rates are recommended to control larger grasses or exposed weeds when rice fields are not completely drained. Inspect rice fields regularly to select the correct application time.

#### **WEATHER CONDITIONS:**

**Temperature:** Temperatures at and before application affect product activity in controlling target weeds. Applications should be made when daily maximum temperatures are between 75°F and 100°F. Control decreases with temperatures below 75°F and increases with temperatures above 75°F.

**Application Timing:** **DUET DF** normally requires 8 hours of DIRECT sunlight after application for absorption into target weeds; however, many atmospheric and environmental conditions can affect absorption into the target weeds. It is highly recommended that application of **DUET DF** be planned so that the applied product remains in contact with the leaf surfaces for at least 48 hours prior to rainfall or flooding. Historically, morning applications of Propanil products, including **DUET DF**, have produced better results in weed control.

**Relative Humidity:** **DUET DF** is a contact herbicide; therefore, herbicidal activity is affected by humidity. High humidity and dew aid in weed control by allowing the product to remain in solution longer on the leaf surface. Low humidity decreases plant activity and thus reduces product absorption. During periods of very low humidity, higher spray volumes, 12-15 gallons per acre, should be used when applied aerially.

**Soil Moisture:** Under dry conditions grass and broadleaf weeds are less susceptible to control. Higher rates of product, 4 to 6 pounds per acre, should be used to achieve control.

#### **WEED RESISTANCE MANAGEMENT**

For resistance management, **DUET DF** contains both a Group 2 and a Group 7 herbicide. Any weed population may contain or develop plants naturally resistant to **DUET DF** and other Group 2 and Group 7 herbicides. Weed species with acquired resistance to Group 2 and Group 7 herbicides may eventually dominate the weed population if Group 2 and Group 7 herbicides are used repeatedly in the same field or in successive years as the primary method of control for targeted species. This may result in partial or total loss of control of those species by **DUET DF** or other Group 2 and Group 7 herbicides. Users should scout before and after application.

Suspected herbicide-resistant weeds may be identified by these indicators:

- Failure to control a weed species normally controlled by the herbicide at the dose applied especially if control is achieved on adjacent weeds;
- A spreading patch of non-controlled plants of a particular weed species; and

- Surviving plants mixed with controlled individuals of the same species.

To delay herbicide resistance take one or more of the following steps:

- Rotate the use of **DUET DF** or other Group 2 and Group 7 herbicides within a growing season sequence or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group if such use is permitted; where information on resistance in target weed species is available, use the less resistance-prone partner at a rate that will control the target weed(s) equally as well as the more resistance-prone partner. Consult your local extension service or certified crop advisor if you are unsure as to which active ingredient is currently less prone to resistance.
- Adopt an integrated weed-management program for herbicide use that includes scouting and uses historical information related to herbicide use and crop rotation, and that considers tillage (or other mechanical control methods), cultural (e.g., higher crop seeding rates; precision fertilizer application method and timing to favor the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Scout after herbicide application to monitor weed populations for early signs of resistance development. Indicators of possible herbicide resistance include: (1) failure to control a weed species normally controlled by the herbicide at the dose Page 8 of 18 applied, especially if control is achieved on adjacent weeds; (2) a spreading patch of non-controlled plants of a particular weed species; (3) surviving plants mixed with controlled individuals of the same species. If resistance is suspected, prevent weed seed production in the affected area by an alternative herbicide from a different group or by a mechanical method such as hoeing or tillage. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- If a weed pest population continues to progress after treatment with this product, discontinue use of this product, and switch to another management strategy or herbicide with a different mode of action, if available.
- Contact your local extension specialist or certified crop advisors for additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- Users should report lack of performance to registrant or their representative.

For further information or to report suspected resistance, contact UPL NA Inc. representative.

### **MANDATORY SPRAY DRIFT MANAGEMENT**

#### **Aerial Applications:**

- Do not release spray at height greater than 10 ft above the ground or vegetative canopy, unless a greater application height is necessary for pilot safety.
- For application prior to the emergence of crops and target weeds, applicators are required to use a coarse or coarser droplet size (ASABE S572.1).
- For all other application, applicators are required to use a medium or coarser droplet size (ASABE S572.1).
- The boom length must not exceed 65% of the wingspan for airplanes or 75% of the rotor blade diameter for helicopters.
- Application must use ½ swath displacement upwind edge of the field.
- Nozzles must be oriented, so the spray is directed toward the back of the aircraft.
- Do not apply when wind speeds exceed 10 miles per hour at the application site.
- Do not apply during temperature inversions.

### **Ground Boom Applications:**

- Apply with the nozzle height recommended by the manufacturer, but no more than 3 feet above the ground or crop canopy.
- For application prior to the emergence of crops and target weeds, applicators are required to use a coarse or coarser droplet size (ASABE S572.1).
- For all other application, applicators are required to use a medium or coarser droplet size (ASABE S572.1).
- Do not apply when wind speeds exceed 10 miles per hour at the application site.
- Do not apply during temperature inversions.

### **SPRAY DRIFT ADVISORIES**

THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT. BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

### **IMPORTANCE OF DROPLET SIZE**

An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

### **Controlling Droplet Size – Ground Boom**

- **Volume:** Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
- **Pressure:** Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.
- **Spray nozzles:** Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

### **Controlling Droplet Size – Aircraft**

- **Adjust nozzles:** Follow nozzle manufacturer's recommendations for setting up nozzles. Generally, to reduce fine droplets, nozzles should be oriented parallel with the airflow in flight.

### **BOOM HEIGHT -- Ground Boom**

Use the lowest boom height that is compatible with the spray nozzles that will provide uniform coverage. For ground equipment, the boom should remain level with the crop and have minimal bounce.

### **RELEASE HEIGHT – Aircraft**

Higher release heights increase the potential for spray drift. When applying aurally to crops, do not release spray at a height greater than 10 feet above the crop canopy, unless a greater application height is necessary for pilot safety.

### **SHIELDED SPRAYERS**

Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.

## **TEMPERATURE AND HUMIDITY**

When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

## **TEMPERATURE INVERSIONS**

Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing. Avoid applications during temperature inversions.

## **WIND**

Drift potential generally increases with wind speed. **AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS.** Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

## **INFORMATION ON DROPLET SIZE:**

The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applications of **DUET DF** must conform to the conditions set forth in the current propanil regulations (3CCR 6462). Apply as a medium or coarser spray (ASAE standard 572). **Aerial Applications:** Each operating nozzle shall produce a droplet size, in accordance with the manufacturer's specifications, not less than 600 microns volume median diameter (Dv0.5) with 10 percent of the diameter by volume (Dv0.1) not less than 200 microns. **Ground Applications:** Each operating nozzle shall produce a droplet size, in accordance with manufacturer's specifications, not less than 500 microns volume median diameter (Dv0.5) with 10 percent of the diameter by volume (Dv0.1) not less than 200 microns.

Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

## **SENSITIVE AREAS**

Sensitive areas include, but are not limited to, residential areas, bodies of water, known habitat for threatened or endangered species, and non-target crops.

## **EMERGENCY RELEASE PROVISIONS**

Water holding (discharge) intervals for flood water following Propanil application in all states:

For delayed flood (water-seeded) rice grown south of Interstate Highway-10 from the Texas/Louisiana border to Houston and east of State Highway 35 from Houston to Port Lavaca - Flood water must be held for 10 days after application, unless excessive rainfall completely submerges the rice crop and forces premature release. For Texan rice grown in areas north or west of these boundaries, the water holding interval will be 7 days.

For delayed flood (water-seeded) rice in Southern Louisiana south of Highway 14 – Flood water must be held for 15 days after propanil application unless excessive rainfall completely submerges the rice crop and forces premature release. Delayed flood (water-seeded) rice in Louisiana, north of the Highway 14 boundary, is subject to the 7-day water holding interval provisions.

For rice in California and all other parts of the US not mentioned above – Flood water must be held for 7 days after application, unless excessive rainfall completely submerges the rice crop and forces premature release.

### **WINDBLOWN SOIL PARTICLES**

**DUET DF** has the potential to move off-site due to wind erosion. Soils that are subject to wind erosion usually have a high silt and/or fine to very fine sand fractions and low organic matter content. Other factors which can affect the movement of windblown soil include the intensity and direction of prevailing winds, vegetative cover, site slope, rainfall, and drainage patterns. Avoid applying **DUET DF** if prevailing local conditions may be expected to result in off-site movement.

### **ADJUVANTS AND APPLICATION AIDS:**

When **DUET DF** is used alone (not in combination with any other postemergent rice herbicide), a low viscosity crop oil concentrate or surfactant may be used to improve wetting of foliage and increase weed control. Use of a crop oil concentrate is recommended when application is made during cool weather conditions or unstable weather conditions that may produce rain. Under adverse weather conditions, the addition of a crop oil concentrate when tank mixing **DUET DF** and other rice herbicides for application should be considered. Consult product labels for adjuvant recommendations. The use of a suitable crop oil concentrate or surfactant does not significantly increase injury to rice (leaftip burn).

Consult Extension Service for detailed application rates.

### **BROADCAST RATE**

Apply 3.75 pounds of **DUET DF** (3.0 lbs of propanil/0.023 lbs of bensulfuron methyl) per acre when most grasses have reached the 1 to 3-leaf stage. Use 5.0 to 6.25 pounds of **DUET DF** (4.0 to 5.0 lbs of propanil/0.031 to 0.040 lbs of bensulfuron methyl) per acre when the grasses are large (4 to 5 leaf stage) or when unseasonably cool weather conditions prevail, grass and broadleaf weeds are stressed due to dry conditions or in cases where rice fields have not been drained completely and where weeds are large enough.

Barnyardgrass may be controlled up to 30 to 45 days after planting, before rice plants have reached the fully tillered growth stage.

**NOTE:** **DUET DF** applied to rice after the 4-leaf stage may cause visible injury under some climatic conditions. Rice plants usually outgrow such injury.

**IN CALIFORNIA:** Use **DUET DF** only where rice fields are completely drained or a minimal amount of water remains. If a higher water level is desired, reflood field after 12 hours and before 7 days after treatment. This will discourage new weed infestations.

### **SPRAY MIXTURE PREPARATION**

#### ***Wet Spray Application***

Thoroughly mix **DUET DF** with clean water (water that is free of sediment and agricultural chemicals) in the spray tank. Do not use water from paddies. Only approved drift control agents may be used with **DUET DF**. Do not use any other additives except as directed by this label.

To ensure uniform mixing and application, agitate the mixture before application. If the mixture is not sprayed immediately after agitation, reagate it before application. Always apply **DUET DF** spray preparations within 24 hours of product mixing, or the product may degrade.

Do not store **DUET DF** in nurse tanks or any other tanks used to store or transport clean water. Install one-way valves (anti-siphoning devices) on lines and hoses of mixing/loading equipment to prevent contamination of nurse tanks or other clean water sources.

Mixing and application equipment exposed to **DUET DF** cannot be used for anything other than rice applications until it has been cleaned according to the procedures in the Sprayer Cleanup section of this label.

#### ***Additional Mixing Instructions (wet spray)***

1. Fill the tank 1/4 to 1/3 full of clean water.
2. While agitating, add the required amount of **DUET DF**.
3. Continue agitation until the **DUET DF** is fully dispersed, at least 5 minutes.
4. Once the **DUET DF** is fully dispersed, maintain agitation and continue filling the tank with water. The **DUET DF** should be thoroughly mixed with water before adding any other material.
5. As the tank is filling, add the required tank mix partner (other labeled rice herbicides, adjuvants, drift control agents, etc.).
6. If the mixture is not continuously agitated, settling may occur. If settling occurs, thoroughly re-agitate before using.
7. Apply **DUET DF** spray preparations within 24 hours of product mixing, or the product may degrade.
8. If **DUET DF** and a tank mix partner are to be applied in multiple loads, pre-slurry the **DUET DF** in clean water prior to adding to the tank. This will prevent the tank mix partner from interfering with the dissolution of the **DUET DF**.

#### **SPRAYER CLEANUP**

Before using equipment exposed to **DUET DF** to treat another crop, clean the sprayer and any other equipment (loading hoses, batch tanks, etc.) using the following procedure:

1. Steam-clean tank using a nonchlorine-based detergent, taking care to remove all physical residues.
2. Thoroughly rinse sprayer, tanks, boom, and hoses with clean water (free of sediment and agricultural chemicals).
3. Fill the tank one-half full with clean water and add Nutrasol at 32 oz per 100 gal of water. Fill the tank to capacity with clean water. Flush the nozzles, boom, and hoses, and agitate (and recirculate, if possible) the sprayer for 15 minutes. Drain the equipment, taking care to flush the boom and hoses thoroughly.
4. Rinse tanks, hoses and nozzles with clean water to remove Nutrasol.
5. Fill the tank one-half full with clean water and add 1 gal of 21% ammonia or 7 gal of 3% ammonia per 100 gal of water. Fill the tank to capacity with clean water. Flush the nozzles, boom, and hoses and agitate (recirculate, if possible) the sprayer for 15 minutes. Drain the equipment, taking care to flush the boom and hoses thoroughly.
6. Remove nozzles, screens, and strainers, and clean them separately.
7. Rinse tanks, booms, and hoses with clean water.
8. Repeat steps 5 and 7 an additional 3 times.
9. Rinse tanks, booms, and hoses to remove all traces of ammonia.
10. Dispose of the rinsate on site or at an approved waste disposal facility.

**NOTE:** When applying multiple loads of **DUET DF** several days in a row, the following procedure must be performed at the end of each day: partially fill the tank with fresh water, flush the boom and hoses, and allow to sit overnight.

**Attention:** Do not use chlorine bleach with ammonia. All traces of liquid fertilizer containing ammonia, ammonium nitrate or ammonium sulphate must be rinsed from the mixing and application equipment using water before adding chlorine bleach solution. Failure to do so will release a gas with a musty chlorine odor that can cause eye, nose, and throat and lung irritation. Do not clean equipment in an enclosed area.

Perform cleanup procedures on batch tanks and any other mixing equipment separately from aircraft hoppers. Take care to clean loading hoses and any other equipment or surfaces exposed to **DUET DF**.

### **CONDITIONS OF SALE AND WARRANTY**

**UPL NA Inc. and SELLER OFFER THIS PRODUCT AND THE BUYER AND USER ACCEPTS THIS PRODUCT UNDER THE FOLLOWING AGREED CONDITIONS OF SALE AND WARRANTY.**

The directions for use of this product are believed to be reliable and must be followed carefully. However, it is impossible to take into account all variables and to eliminate all risks associated with its use. Injury or damage may result because of conditions that are beyond the control of UPL NA Inc. or the Seller. UPL NA Inc. warrants only that this product conforms to the chemical description on the label and is believed to be reasonably fit for the purposes referred to in the Directions for Use when used as directed under normal conditions. To the extent consistent with applicable law UPL NA Inc. MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY. To the extent consistent with applicable law, in no case shall UPL NA Inc. or the Seller be liable for consequential, special, or indirect damages resulting from the use or handling of this product. Any variation or exception from this warranty must be in writing and signed by an authorized UPL NA Inc. representative.

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