

## **Cotton Stalk Destruction – What's New for 2018**

By Corrie Bowen  
County Extension Agent  
Wharton County

Cotton stalk destruction is a topic of research that has been evaluated for a good 20 to 25 years. Herbicides have been applied to conventional and Roundup Ready Cotton, focusing on the traditional active ingredients such as 2,4-D and dicamba. The gold standard has been applying 1 quart/acre of a 4lb/gallon a.i. 2,4-D amine product immediately afterwards through two weeks after shredding stalks. This practice has yielded better than 90% control for decades.

With an increase in adoption of the dicamba and/or 2,4-D tolerant cotton varieties in 2017 and 2018 and with harvest upon us, chemical selection for cotton stalk destruction is a current topic of discussion. For Enlist, (2,4-D tolerant) cotton, 2,4-D is no longer an option to chemically destroy cotton stalks.

### **Stalk Destruction Options for Enlist Cotton**

For cotton growers with Enlist (2,4-D tolerant) cotton, they will now have the choice of using either dichlorprop or dicamba to control cotton stalks. I received word on July 25th from TDA that a 24(c) Special Local Need label has been approved for a dichlorprop-containing product called Duplosan by NuFarm. ( see attached file). This product will be equally effective on cotton varieties with the XtendFlex or Glytol LibertyLink traits. Data compiled by AgriLife Extension shows that this product will be more effective than dicamba for controlling Enlist cotton. The Duplosan label calls for a use rate of 32-48 fl oz/acre. Make notice that when using Duplosan for cotton stalk destruction, Duplosan should be applied to cotton stalks with some leaf regrowth. Applications of Duplosan made to freshly mowed stalks may be less effective. Please note that Duplosan is an ester formulation, so special care will need to be taken if susceptible plants are nearby as volatilization is likely. Also note that this product is a state limited use pesticide, thus you must be a licensed pesticide applicator or be working under the direct supervision of a licensed applicator to purchase or apply this product. What does Duplosan cost per acre? I did a little research, getting quotes from only two local distributors. Approximate cost is \$39.60 per gallon. With the labeled use rates, this equates to \$9.90 to \$14.85 per acre for Duplosan.

### **Stalk Destruction Options for Xtendflex Cotton Varieties**

For Xtendflex (dicamba tolerant) cotton varieties, the old gold standard of 2,4-D amine is still a valid option for cotton stalk destruction, costing generally less than \$5.00 per acre for 2,4-D amine. To obtain optimum results, cotton stalks should be shredded (6 to 8 inch height) and the spray application made soon after shredding. Best results are achieved if the herbicide is applied the same day as the shredding operation. The first application should be at the rate of one pound of active ingredient per acre (for example, 1 quart of a 4 lb/gallon formulation). Generally, a second application of 0.5 to 1.0 pound active ingredient per acre will be necessary to control live stalks and emerged cotton seedlings.

To achieve optimum effectiveness, some growers have mounted spray booms directly on their flail shredders and banding the herbicide during the shredding operation, and achieving excellent results. Thorough coverage is essential, and should be in the range of 5 to 10 gallons of water per acre. Also, the addition of surfactant at the rate of 0.5 percent v/v (2 quarts per 100 gallons of water) is recommended. In a 2010 study conducted at the Texas AgriLife Research and Extension Center, there was essentially no difference in killing re-growing cotton plants with 2,4-D between treating shredded stalks or those left standing. We also know from previous research that waiting 21 days after shredding cotton stalks has not been as effective with 2,4-D.

### **2,4-D Application by Ground Application allowable September 1, 2018**

The Texas Department of Agriculture has granted the suspension of a rule regarding the application dates of 2,4-D in Wharton County – Section 7.53(oo)(1) and (2) of the special provisions for Wharton County of the Texas Pesticide Laws and Regulations. The suspension allows for the ground application of 2,4-D and 2,4-D containing herbicides by permit on the west side of the Colorado River in Wharton County beginning on Saturday, September 1, 2018. Ground applications of 2,4-D on the east side of the Colorado River in Wharton County are already permissible under rule 7.53(oo)(1). All other applicable rules for Wharton County continue in effect. Pesticide applicators are urged to pay special attention to 7.53(oo)(4) “In no case shall 2,4-D be used to treat any area that is nearer than two miles to any susceptible crop”. Pay close attention that this rule suspension granted by TDA only allows the application of 2,4-D by ground application only beginning September 1st. The aerial application of 2,4-D in Wharton county continues to be prohibited until September 15th on the east side of the Colorado River and until October 1st on the West side of the Colorado River. Also note in rule 7.50 (b) (3) that the use of any turbine or blower-type ground application equipment to apply regulated herbicides is prohibited.

Also, in a regulated county such as Wharton County, no person shall spray regulated herbicides (2,4-D, dicamba, MCPA, or quinclorac) when the wind velocity exceeds 10 miles per hour or as specified on the product label, if the label is more restrictive. Regulated Herbicide Spray Permit applications are available at the Wharton Co. Extension Office, or by logging-on at <http://texasagriculture.gov/Portals/0/forms/PEST/Applicator/spraypermitg820.pdf>

TDA Pesticide license holders are required to submit a regulated herbicide spray permit when 2,4-D, dicamba, MCPA, or quinclorac will be sprayed in a regulated county. The submission of the regulated spray permit pertains to 2,4-D, but also when spraying dicamba, MCPA, or quinclorac in Wharton County. Completed Regulated Herbicide Spray Permit applications can be faxed to the TDA Regional Office in Houston at (888) 223-5606.



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# Special Local Need

SLN No. TX-180005

## Duplosan™ Herbicide

EPA Reg. No. 228-742

For Post-harvest destruction / removal of all cotton including 2,4-D  
and Dicamba tolerant varieties

**FOR DISTRIBUTION AND USE ONLY WITHIN THE STATE OF TEXAS**

This SLN label expires on 12-31-2023 and must not be used or distributed after this date

### DIRECTIONS FOR USE

IT IS A VIOLATION OF FEDERAL LAW TO USE THIS PRODUCT IN ANY MANNER INCONSISTENT WITH ITS LABELING. THIS LABELING MUST BE IN THE POSSESSION OF THE USER AT THE TIME OF APPLICATION. READ THIS SLN LABELING AND THE ENTIRE LABEL AFFIXED TO THE PRODUCT CONTAINER BEFORE APPLYING. FOLLOW ALL APPLICABLE DIRECTIONS, RESTRICTIONS AND PRECAUTIONS ON THIS SLN LABELING AND THE LABEL AFFIXED TO THE PRODUCT CONTAINER.

<b>USE FOR:</b>
Post-harvest destruction / removal of all cotton including 2,4-D and Dicamba tolerant varieties.
<b>SPRAY MIXTURE PREPARATION:</b>
Unless otherwise specified in the use specific instructions in this table, add one-half the required amount of water to the spray tank, then add this product with agitation, then add any tank mix partners and finally, add the balance of the water with continued agitation. This material forms an emulsion in water. Emulsions tend to separate on standing. Provide continuous agitation to prevent separation and to form a uniform mixture.
<b>RESTRICTIONS &amp; LIMITATIONS:</b>
<b>DO NOT</b> plant any crop other than those listed on this label within 30 days to fields treated with Duplosan® Herbicide. <b>DO NOT</b> exceed 1.5 lbs ae / A / application (3 pints of Duplosan® Herbicide) <b>DO NOT</b> make more than 2 applications / year. <b>DO NOT</b> harvest cotton treated with Duplosan® Herbicide.
<b>POST HARVEST COTTON DESTRUCTION:</b>
Mix 32 – 48 fl. oz. (2 – 3 pints) of Duplosan® Herbicide (1 – 1.5 lbs dichloprop-p acid equivalent) per acre treated. For best results, apply Duplosan 2 weeks after final cotton harvest. Some leaf regrowth on the mowed or standing stalks will increase product uptake and performance. Applications of Duplosan may commence immediately after harvest to freshly shredded stalks or standing stalks, but this may result in less consistent control. Cotton stalks should not be shredded within 2 weeks after application due to reduced translocation to the root and reduced efficacy. A second application after the initial treatment may be required for complete kill. Add crop oil concentrate at 1% v/v.

### NOTICE

Read the "WARRANTY DISCLAIMER" and "LIMITATION OF LIABILITY" in the label booklet for this product before using this product. Those terms apply to this supplemental labeling and if those terms are not acceptable, return the product unopened at once.

Manufactured for Nufarm Americas Inc.  
11901 S. Austin Ave, Alsip, IL 60803

DICHLORPROP-P GROUP 4 HERBICIDE

# Duplosan™

## HERBICIDE

CONTROLS PERENNIAL WEEDS, WOODY PLANTS, AND BRUSH  
CONTAINS THE SINGLE ISOMER FORM OF DICHLORPROP-p  
as the L.V. Ester.

**ACTIVE INGREDIENT:**

2-Ethylhexyl Ester of Dichlorprop-p\* ..... 68.3%

**OTHER INGREDIENTS\*\*:** ..... 31.7%

**TOTAL:** ..... 100.0%

Isomer Specific Method, Equivalent to:

\*Dichlorprop-p acid.....46.20%, 4.0 lbs./gal.

\*\*Contains Petroleum Distillates

**KEEP OUT OF REACH  
OF CHILDREN  
CAUTION**

SEE INSIDE BOOKLET FOR ADDITIONAL PRECAUTIONARY  
STATEMENTS, AND DIRECTIONS FOR USE

For Chemical Spill, Leak, Fire, or Exposure,  
Call CHEMTREC (800) 424-9300

For Medical Emergencies Only, Call (877) 325-1840

**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>• <b>DO NOT</b> give any liquid to the person.</li> <li>• <b>DO NOT</b> induce vomiting unless told to do so by the poison control center or doctor.</li> <li>• <b>DO NOT</b> give anything by mouth to an unconscious person.</li> </ul>
<b>IF ON SKIN OR 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 IN EYES</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15 to 20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</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>

**HOT LINE NUMBER**

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-877-325-1840 for emergency medical treatment information.

**NOTE TO PHYSICIAN**

Contains petroleum distillates. Vomiting may pose an aspiration pneumonia hazard. No specific antidote is available. Probable mucosal damage may contraindicate the use of gastric lavage. All treatments should be based on observed signs and symptoms of distress in the patient. Overexposure to materials other than this product may have occurred. If large amounts, greater than 1 ml/kg body weight have been ingested, the stomach should be evacuated by gastric intubation with the aid of a cuffed endotracheal tube to prevent aspiration of petroleum distillates. After removal of stomach contents, wash stomach by instilling 30 to 50 grams of activated charcoal in 3 to 4 ounces of water through the stomach tube and again remove stomach contents. Avoid oily laxatives.

EPA Reg. No. 228-742  
EPA Est. No. 228-IL-001

Manufactured for:  
**Nufarm Americas Inc.**  
11901 S. Austin Ave.  
Alsip, IL 60803



**Net Contents**  
**2.5 Gal.**  
**(9.46 L)**  
**Nonrefillable Container**

**15390000**

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

**CAUTION**

Harmful if swallowed or absorbed through skin. Avoid contact with skin. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

**All mixers, loaders, applicators, and other handlers must wear:**

- Long-sleeved shirt and long pants,
- Shoes plus socks,
- Chemical-resistant gloves made of barrier laminate, butyl rubber  $\geq$  14 Mils, nitrile rubber  $\geq$  14 Mils, neoprene rubber  $\geq$  14 Mils, polyvinyl chloride (PVC)  $\geq$  14 Mils, Viton.
- Chemical-resistant apron when mixing or loading, cleaning up spills or equipment.

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.

**Engineering Controls Statement**

When handlers use closed systems or enclosed cabs 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 (personal protective equipment) 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/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. If pesticide gets on skin, wash immediately with soap and water.
- 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.

**PHYSICAL AND CHEMICAL HAZARDS**

Do not mix or allow contact with oxidizing or reducing agents. Hazardous chemical reaction may occur.

**ENVIRONMENTAL HAZARDS**

This pesticide is toxic to fish and aquatic vertebrates and may adversely affect non-target plants. Do not apply directly to water, to areas where surface water is present. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment wash waters or rinsate.

This product has properties and characteristics associated with chemicals detected in groundwater. The use of this product in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Application around a cistern or well may result in contamination of drinking water or groundwater.

**DIRECTIONS FOR USE**

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

**READ ENTIRE LABEL BEFORE USING THIS PRODUCT. USE STRICTLY IN ACCORDANCE WITH LABEL DIRECTIONS.**

**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.

Use of this product in certain portions of California, Oregon, and Washington is subject to the January 22, 2004 Order for injunctive relief in *Washington Toxics Coalition, et al. v. EPA*, C01-0132C, (W.D. WA). For further information, please refer to <http://www.epa.gov/essp/>.

**PRODUCT INFORMATION**

This product is formulated as an emulsifiable concentrate containing the equivalent of 4 lbs per gallon of Dichlorprop-p acid. For woody plants and brush control, this product is formulated to be tank mixed with WEEDONE® LV4 Herbicide (or equivalent 4 lb/gal 2,4-D ester formulation), RELEGATE® Herbicide (or equivalent 4 lb/gal Triclopyr ester formulation), or CLASH® or DIABLO® Herbicide (or equivalent 4 lb/gal Dicamba formulation).



## USE RESTRICTIONS

See tables below for specific use site restrictions and limitations.

- **DO NOT** apply this product through any type of irrigation system.
- **DO NOT** contaminate irrigation ditches or water used for domestic purpose.
- **DO NOT** use this product on or near desirable plants, including within the dripline of roots of desirable trees and shrubs since injury may result.
- **DO NOT** permit this product to drift onto susceptible field crop plantings such as soybeans, cotton, tomatoes, grapes, fruit trees, vegetables, or ornamental plantings. Read and follow all directions below for management of spray drift.
- **DO NOT** use the same spray equipment for applying other materials to susceptible crops as injury may occur.

## SPRAY DRIFT MANAGEMENT

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

### GROUND APPLICATION

#### Information on Droplet Size

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. 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 sections).

#### Controlling Droplet Size

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of Nozzles** - Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Examples of nozzles designed to produce coarse sprays for ground applications are the Radiar Sprayer; Delavan Raindrops, Raindrop Flood, or Flooding Spray nozzles; Spray Systems, Drift Guard DG TeeJets, Turbo TeeJets, or Turbo FloodJet nozzles or large volume flat fan nozzles used with low pressure. Nozzles that produce a narrow angle spray pattern will generally have larger droplets.

#### Boom Height

Making applications with the boom at the lowest height that produces a uniform spray pattern will reduce exposure of droplets to evaporation and wind.

#### Swath Adjustment

When applications are made with a crosswind toward sensitive areas, the application should leave a buffer to avoid off-site movement.

#### Wind

Drift potential is lowest between wind speeds of 3 to 10 mph. Do not apply this product at sustained wind speeds greater than 15 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided below 3 mph due to variable wind direction and high inversion potential.

**Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

#### Temperature and Humidity

When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

#### Temperature Inversions

Do not make applications during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified 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.

#### Sensitive Areas

The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, nontarget crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

#### APPROVED DRIFT REDUCING AGENTS MAY BE USED





## RESISTANCE MANAGEMENT

Duplosan Herbicide contains Dichlorprop-p, a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to Dichlorprop-p and other Group 4 herbicides. The resistant biotypes may dominate the weed population if this herbicide is used repeatedly in the same area.

Additional integrated weed management programs include 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.

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

- Rotate the use of Dichlorprop-p herbicide or other Group 4 herbicides within a growing season or among growing seasons with different herbicide groups that control the same weeds.
- 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 weed control 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 that considers mechanical control methods, cultural (e.g., timing to favor the desirable plants and not the weeds), biological (weed-competitive 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 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. Prevent movement of resistant weed seeds to other areas by cleaning equipment.
- 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 sales representative, weed control advisor, or local extension specialist for additional herbicide resistance-management and/or integrated weed-management recommendations for specific types of plants and weed biotypes.

For Further Information:

- Contact Nufarm Americas Inc representatives at 1-800-345-3330
- Contact your local extension specialist or certified weed control advisor.
- Visit the Herbicide Resistance Action Committee (HRAC) at <http://www.hracglobal.com>

## SPRAY EQUIPMENT

### PROCEDURE FOR CLEANING SPRAY EQUIPMENT

The steps listed below are suggested for thorough cleaning of spray equipment following applications of this product.

1. Hose down thoroughly the inside as well as outside surfaces of equipment while filling the spray tank half full of water. Flush by operating sprayer until the system is purged of the rinse water.
2. Fill tank with water while adding 1 quart of household ammonia for every 25 gallons of water. Operate the pump to circulate the ammonia solution through the sprayer system for 15 to 20 minutes and discharge a small amount of the ammonia solution through the boom and nozzles. Let the solution stand for several hours, preferably overnight.
3. Flush the solution out of the spray tank through the boom.
4. Remove the nozzles and screens and flush the system with two full tanks of water. The steps listed below are suggested for thorough cleaning of spray equipment used to apply this product as a tank mix with wettable powders (WP), emulsifiable concentrates (EC), or other types of water-dispersible formulations. Duplosan tank mixes with water-dispersible formulations require the use of a water/detergent rinse.
5. Complete step 1.
6. Fill tank with water while adding 2 pounds of detergent for every 40 gallons of water. Operate the pump to circulate the detergent solution through the sprayer system for 5 to 10 minutes and discharge a small amount of the solution through the boom and nozzles. Let the solution stand for several hours, preferably overnight.
7. Flush the detergent solution out of the spray tank through the boom.
8. Repeat step 1, and follow with steps 2, 3, and 4.



## TANK MIXTURES

This product may be tank-mixed with products listed provided the tank-mixed product is registered for use on the sites listed on this label. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

This product may be applied in combination with labeled rates of other herbicides provided:

- The tank mix product(s) are labeled for the timing and method of application for the use site to be treated; and,
- Tank mixing is not prohibited by the label of the tank mix product(s).

**NOTE:** The following compatibility test (jar test) should be conducted prior to mixing ingredients in the spray tank when tank mixing this product with other materials:

1. Use a clear glass quart jar with lid and mix the tank mix ingredients in the required order and their relative proportions.
2. Invert the jar containing the mixture several times and observe the mixture for approximately 1/2 hour.
3. If the mixture balls-up, forms flakes, sludges, jells, oily films or layers, or other precipitates, it is not compatible and the tank mix combination should not be used.

**Mixing Order for Tank Mixes:** Add one-half of the needed water to the mixing tank and begin agitation. Add the tank mix partners in the order indicated below, allowing time for complete dispersion and mixing after the addition of each product.

1. Water soluble herbicide (if used)
2. Premix of oil, emulsifier, this product and other oil-soluble herbicide (if used); see below

Add the remaining water. During the final filling of the tank, a drift control and deposition aid cleared for application to growing crops may be added, as well as an agricultural surfactant if a water dilution rather than an oil-water emulsion spray is used. To ensure spray uniformity, maintain continuous agitation of the spray mixture during mixing, final filling and throughout application.

**Premixing:** Prepare a premix of oil, emulsifier (if oil-water emulsion), and this product plus other oil-soluble herbicides if used (for example 2,4-D ester). **Note: DO NOT** allow water or mixtures containing water to get into the premix or this product since a thick "invert" (water in oil) emulsion may form that will be difficult to break. An emulsion may also be formed if the premix or this product is put into the mixing tank prior to the addition of water.

### Tank Mixing Directions:

- Read carefully and follow all applicable use directions, limitations and precautions in the respective product labels.
- **DO NOT** exceed specified application rates. If products containing the same active ingredient are tank mixed, **DO NOT** exceed the maximum allowable active ingredient use rates.
- When using spray equipment where the product formulations will be mixed in undiluted form (such as direct injection), special care should be taken to ensure tank mix compatibility.

## WOODY PLANT, BRUSH, AND PERENNIAL WEED CONTROL

### WOODY PLANTS & BRUSH

**Including:** Fencerows; Hedgerows; Field edges; Roadsides; Ditches; Rights-of-way for utilities, power lines, and railroads; Airports; and Industrial sites.

#### USE FOR:

Control / Removal of Alder, Ash, Aspen, Birch, Blackberry, Black cherry, Blackjack oak, Black locust, Box elder, Brambles, Buckbrush, Ceanothus, Chamise, Coffeeberry, Currant, Dewberry, Dogwood, Elderberry, Elm, Fir, Gooseberry, Greenbrier, Gum, Hemlock, Honeysuckle, Kudzuvine, Locust, Manzanita, Maple\*, Multiflora rose, Oak, Osage orange, Palmetto, Persimmon\*, Pine, Pokeweed, Poison ivy, Poison oak, Poplar, Privet, Raspberry, Red elder, Salmonberry, Sand sagebrush, Sassafras, Serviceberry, Shinnery oak, Snowberry, Spicebush, Spruce, Sumac, Sweetgum, Sycamore, Virginia creeper, Wild cherry, Wild rose, Wild grape, Willow, Winged elm, Yerba santa, and many other woody plant and brush species.

\* Stump or basal treatment

#### SPRAY MIXTURE PREPARATION:

Unless otherwise specified in the use specific instructions in this table; add one-half the required amount of diluent (water, kerosene, diesel or fuel oil) to the spray tank, then add this product with agitation, then add tank mix partners and finally, the balance of diluent with continued agitation. This material forms an emulsion in water. Emulsions tend to separate on standing. Provide continuous agitation to prevent separation and to ensure a uniform mixture. If this material is to be used in straight oil mixtures, do not let water get into it or the finished mixture.

(continued)



## WOODY PLANT, BRUSH, AND PERENNIAL WEED CONTROL *(continued)*

<b>WOODY PLANTS &amp; BRUSH</b> <i>(continued)</i>	
<b>RESTRICTIONS &amp; LIMITATIONS:</b>	
<b>Broadcast applications:</b>	<p><b>DO NOT</b> exceed 0.75 lb ae / A / application (1.5 pints of product).  <b>DO NOT</b> make more than 2 applications / year.            Allow a minimum of 30 days between first and second application.</p>
<b>Spot applications:</b>	<p>A spot application is defined as a treatment area not greater than 1,000 square feet per acre.  <b>DO NOT</b> exceed 2.0 lb ae / A / application (2.0 quarts of product).  <b>DO NOT</b> make more than 2 applications / year.            Allow a minimum of 30 days between first and second application.</p>
<b>REMARKS:</b>	
<p>Avoid application when the bark / foliage is wet due to precipitation as poor control may result. Applications to non-cropland areas are not applicable to treatment of commercial timber or other plants being grown for sale or other commercial use, or for commercial seed production, or for research purpose.</p>	
<b>FOLIAGE STEM TREATMENT:</b>	
<p><b>Broadcast application:</b> Use this product as a first spray on large areas of thick brush comprised of mixed species. Apply to both stems and foliage from the time foliage is completely matured until the plants start to go dormant. All leaves, stems and suckers must be completely wet to the ground line for effective control. Some regrowth may be anticipated on the more resistant species, such as oak, maple, ash and persimmon.</p> <p><b>TANK MIX WITH 2,4-D:</b> Mix 24 fl. oz. (1.5 pints) of this product (0.75 lbs Dichlorprop-p acid equivalent) plus 48 fl. oz. (3.0 pints) of WEEDONE LV4 (or equivalent 4 LB ae / gallon 2,4-D ester formulation) (1.5 lbs 2,4-D acid equivalent) in 100 gallons of water. Use 100 to 300 gallons of spray mixture per acre, depending on the height and thickness of the brush. You may use up to 5.0 gallons of oil per 100 gallons of spray mixture. Mix thoroughly before spraying.</p>	
<p><b>Spot application:</b> Use this product for spot spraying up to 1000 square feet / A with a mechanically powered hand-gun sprayer or backpack sprayer. Wet brush, stems, and foliage thoroughly.</p> <p><b>TANK MIX WITH 2,4-D:</b> Mix 1 – 2 fl. oz of this product plus 3 – 4 fl. oz. of WEEDONE LV4 (or equivalent 4 LB ae / gallon 2,4-D ester formulation) with 5 gallons of water. Use up to 15 gallons per 1000 square feet.</p>	
<b>BASAL BARK TREATMENT:</b>	
<p><b>Spot application:</b> Use this product for basal bark treatment on scattered brush or as a second spray application on species resistant to first foliage application. Thoroughly wet the base and root collar of all stems until the spray accumulates around the root collar at the ground line. This spray may be applied during any season.</p> <p><b>TANK MIX WITH 2,4-D:</b> Mix 0.5 gallons of this product (2.0 lbs Dichlorprop-p acid equivalent) plus 1.0 gallons of WEEDONE LV4 (or equivalent 4 LB ae / gallon 2,4-D ester formulation) (4.0 lbs 2,4-D acid equivalent) in 100 gallons of oil. Apply with a low volume sprayer or power equipment. Application rate will depend on species present, season applied and volume of spray used. Use a coarse spray to avoid drift. Do not make more than 1 basal spray or cut surface application using this mixture per year.</p>	
<b>MODIFIED BASAL TREATMENT:</b>	
<p><b>Spot application:</b> Drench the base of plants, then wet the lower 4/5 of remaining stems and leaves thoroughly to runoff. Apply treatment when brush is in full foliage. This method can be applied where susceptible species have been controlled by prior sprays and more resistant species, such as maple and oak, remain. Soaking the base of the plant and wetting all stems to runoff is absolutely necessary for complete control.</p> <p><b>TANK MIX WITH 2,4-D:</b> Mix 1.0 gallon of this product (4.0 lbs Dichlorprop-p acid equivalent) plus 2.0 gallons of WEEDONE LV4 (or equivalent 4 LB ae / gallon 2,4-D ester formulation) (8.0 lbs 2,4-D acid equivalent) with 100 gallons of water. Do not make more than 1 basal spray or cut surface application with this mixture per year.</p>	

*(continued)*



## WOODY PLANT, BRUSH, AND PERENNIAL WEED CONTROL *(continued)*

### WOODY PLANTS & BRUSH *(continued)*

#### DORMANT STEM TREATMENT:

Dormant stem treatments of this product, tank mixed with 2,4-D and triclopyr, may be used to control susceptible woody plants and vines with < 2 inch diameter stems. Plants with > 2 inch diameter stems may not be controlled and resprouting may occur. This application method works best in dense areas with small diameter brush. Dormant stem treatments of this product may also be used as a chemical side-trim to control lateral branches of larger trees that encroach onto roadside, utility, or other rights-of-way. For root suckering species such as sumac, sassafras and locust, also spray the ground under the plant to cover small root suckers which may not be visible above the soil surface. The combination of this product and triclopyr is especially effective for improved control of black cherry. In western states, apply anytime after woody plants are dormant. In other areas, apply anytime within 10 weeks of bud break, generally February through April.

**TANK MIX WITH 2,4-D and Triclopyr:** Mix 28 fl. oz. (1.75 pints) of this product plus 3.5 pints of WEEDONE LV4 (or equivalent 4 LB ae / gallon 2,4-D ester formulation) plus 6 to 12 pints of RELEGATE (or equivalent 4 LB ae / gallon triclopyr ester product) with 2 to 3 gallons of crop oil concentrate or other recommended oil. Add this mixture to enough water to make 100 gallons of spray solution. Use continuous agitation to maintain mix. Apply in a minimum spray volume of 70 gallons per acre with Radiarc, OC or equivalent nozzles, or handgun to ensure uniform stem coverage.

**Broadcast Application:** Do not exceed a total spray volume of 85 gallons per acre.

**Spot Treatments:** Do not exceed a total spray volume of 100 gallons per acre.

When tank mixing, refer to individual product labels for precautionary statements, restrictions, specified rates, approved uses, and a list of weeds, vines and woody plants controlled.

## STORAGE AND DISPOSAL

**DO NOT** contaminate water, food or feed by storage or disposal.

**PESTICIDE STORAGE:** Store in a cool place, **DO NOT** store in direct sunlight. Protect from freezing temperatures.

**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 [HANDLING]:

**NOTE:** This product is available in multiple containers. Refer to the Net Contents section of this products labeling for the applicable "Nonrefillable" or "Refillable" designation. Follow the container disposal [handling] instructions below that apply to your container type / size.

#### Nonrefillable Containers 5 Gallons or Less

**Nonrefillable container. DO NOT** reuse or refill this container. Offer for recycling if available. Triple rinse container (or equivalent) promptly after emptying. **Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned stay out of smoke.

#### Nonrefillable containers larger than 5 gallons

**Nonrefillable container. DO NOT** reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying. Offer for recycling if available. If recycling or reconditioning is not available, puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities.

**Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse as follows:** Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

#### Refillable containers larger than 5 gallons

**Refillable container.** Refill this container with pesticide only. **DO NOT** reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. For final disposal, offer for recycling if available. If recycling or reconditioning is not available, puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities.





### **WARRANTY DISCLAIMER**

The directions for use of this product must be followed carefully. **TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, (1) THE GOODS DELIVERED TO YOU ARE FURNISHED "AS IS" BY MANUFACTURER OR SELLER AND (2) MANUFACTURER AND SELLER MAKE NO WARRANTIES, GUARANTEES, OR REPRESENTATIONS OF ANY KIND TO BUYER OR USER, EITHER EXPRESS OR IMPLIED, OR BY USAGE OF TRADE, STATUTORY OR OTHERWISE, WITH REGARD TO THE PRODUCT SOLD, INCLUDING, BUT NOT LIMITED TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, USE, OR ELIGIBILITY OF THE PRODUCT FOR ANY PARTICULAR TRADE USAGE.** UNINTENDED CONSEQUENCES, INCLUDING BUT NOT LIMITED TO INEFFECTIVENESS, MAY RESULT BECAUSE OF SUCH FACTORS AS THE PRESENCE OR ABSENCE OF OTHER MATERIALS USED IN COMBINATION WITH THE GOODS, OR THE MANNER OF USE OR APPLICATION, INCLUDING WEATHER, ALL OF WHICH ARE BEYOND THE CONTROL OF MANUFACTURER OR SELLER AND ASSUMED BY BUYER OR USER. THIS WRITING CONTAINS ALL OF THE REPRESENTATIONS AND AGREEMENTS BETWEEN BUYER, MANUFACTURER AND SELLER, AND NO PERSON OR AGENT OF MANUFACTURER OR SELLER HAS ANY AUTHORITY TO MAKE ANY REPRESENTATION OR WARRANTY OR AGREEMENT RELATING IN ANY WAY TO THESE GOODS.

### **LIMITATION OF LIABILITY**

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, IN NO EVENT SHALL MANUFACTURER OR SELLER BE LIABLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, OR FOR DAMAGES IN THEIR NATURE OF PENALTIES RELATING TO THE GOODS SOLD, INCLUDING USE, APPLICATION, HANDLING, AND DISPOSAL. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, MANUFACTURER OR SELLER SHALL NOT BE LIABLE TO BUYER OR USER BY WAY OF INDEMNIFICATION TO BUYER OR TO CUSTOMERS OF BUYER, IF ANY, OR FOR ANY DAMAGES OR SUMS OF MONEY, CLAIMS OR DEMANDS WHATSOEVER, RESULTING FROM OR BY REASON OF, OR ARISING OUT OF THE MISUSE, OR FAILURE TO FOLLOW LABEL WARNINGS OR INSTRUCTIONS FOR USE, OF THE GOODS SOLD BY MANUFACTURER OR SELLER TO BUYER. ALL SUCH RISKS SHALL BE ASSUMED BY THE BUYER, USER, OR ITS CUSTOMERS. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BUYER'S OR USER'S EXCLUSIVE REMEDY, AND MANUFACTURER'S OR SELLER'S TOTAL LIABILITY SHALL BE FOR DAMAGES NOT EXCEEDING THE COST OF THE PRODUCT.

**If you do not agree with or do not accept any of directions for use, the warranty disclaimers, or limitations on liability, do not use the product, and return it unopened to the Seller, and the purchase price will be refunded.**

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# Duplosan™

## HERBICIDE

CONTROLS PERENNIAL WEEDS, WOODY PLANTS, AND BRUSH  
CONTAINS THE SINGLE ISOMER FORM OF DICHLORPROP-P  
as the L.V. Ester.

DICHLORPROP-P GROUP 4 HERBICIDE

**ACTIVE INGREDIENT:**  
2-Ethylhexyl Ester of Dichlorprop-p\* ..... 68.3%  
**OTHER INGREDIENTS\*\*:** ..... 31.7%  
**TOTAL:** ..... 100.0%

Isomer Specific Method, Equivalent to:  
\*Dichlorprop-p acid ..... 46.20%, 4.0 lbs./gal.  
\*\*Contains Petroleum Distillates

PULL HERE TO OPEN

## KEEP OUT OF REACH OF CHILDREN CAUTION

SEE INSIDE BOOKLET FOR ADDITIONAL PRECAUTIONARY STATEMENTS, AND DIRECTIONS FOR USE

For Chemical Spill, Leak, Fire, or Exposure, Call CHEMTREC (800) 424-9300. For Medical Emergencies Only, Call (877) 325-1840.

### PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS CAUTION

Harmful if swallowed or absorbed through skin. Avoid contact with skin. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Wear protective eyewear. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

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>• <b>DO NOT</b> give any liquid to the person.</li> <li>• <b>DO NOT</b> induce vomiting unless told to do so by the poison control center or doctor.</li> <li>• <b>DO NOT</b> give anything by mouth to an unconscious person.</li> </ul>
<b>IF ON SKIN OR 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 IN EYES</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15 to 20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</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>

### HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-877-325-1840 for emergency medical treatment information.

### NOTE TO PHYSICIAN

Contains petroleum distillates. Vomiting may pose an aspiration pneumonia hazard. No specific antidote is available. Probable mucosal damage may contraindicate the use of gastric lavage. All treatments should be based on observed signs and symptoms of distress in the patient. Overexposure to materials other than this product may have occurred. If large amounts, greater than 1 ml/kg body weight have been ingested, the stomach should be evacuated by gastric intubation with the aid of a cuffed endotracheal tube to prevent aspiration of petroleum distillates. After removal of stomach contents, wash stomach by instilling 30 to 50 grams of activated charcoal in 3 to 4 ounces of water through the stomach tube and again remove stomach contents. Avoid oily laxatives.

EPA Reg. No. 228-742  
EPA Est. No. 228-IL-001

Manufactured for Nufarm Americas Inc.  
11901 S. Austin Avenue | Alsip, IL 60803

## STORAGE AND DISPOSAL

**DO NOT** contaminate water, food or feed by storage or disposal. **PESTICIDE STORAGE:** Store in a cool place, **DO NOT** store in direct sunlight. Protect from freezing temperatures. **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 [HANDLING]: NOTE:** This product is available in multiple containers. Refer to the Net Contents section of this products labeling for the applicable "Nonrefillable" or "Refillable" designation. Follow the container disposal [handling] instructions below that apply to your container type / size. **Nonrefillable Containers 5 Gallons or Less: Nonrefillable container. DO NOT** reuse or refill this container. Offer for recycling if available. Triple rinse container (or equivalent) promptly after emptying. **Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned stay out of smoke. **Nonrefillable containers larger than 5 gallons: Nonrefillable container. DO NOT** reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying. Offer for recycling if available. If recycling or reconditioning is not available, puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. **Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. **Refillable containers larger than 5 gallons: Refillable container.** Refill this container with pesticide only. **DO NOT** reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. For final disposal, offer for recycling if available. If recycling or reconditioning is not available, puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities.

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