

100-1169

9-26-2005

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

OFFICE OF
PREVENTION, PESTICIDES
TOXIC SUBSTANCES

SEP 26 2005

AND

Mr. Jerry Wells
Syngenta Crop Protection, Inc
P. O. Box 18300
Greensboro, NC 27419-8300

Dear Mr. Wells:

Subject: Touchdown Total Herbicide (Add Canola and Other Changes)
EPA Registration No. 100-1169
Application Dated July 1, 2005

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act as amended is acceptable, provided you make the following changes to your Conditions of Sale and Limitation of Warranty and Liability, before you release the product for shipment.

1. Revise the last sentence of the second paragraph to read "**To the fullest extent permitted by law, all such risks shall be assumed by Buyer and User...**"
2. Revise the second sentence of the third paragraph to read "...not reasonably foreseeable to or beyond the control of the Seller or Syngenta, and **to the fullest extent permitted by law, Buyer and User assume the risk of any such use.**"
3. Revise the second sentence of the fourth paragraph to read "**TO THE FULLEST EXTENT PERMITTED BY LAW, THE EXCLUSIVE...**"

Submit one copy of your final printed labeling incorporating the above changes before you release the product for shipment.

Sincerely,

Vickie K. Williams for
James A. Tompkins
Product Manager 25
Herbicide Branch
Registration Division (7505C)

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GROUP 9 HERBICIDE

Touchdown Total™
IQ® Technology
Herbicide

Nonselective Foliar Systemic Herbicide for Weed Control



Active Ingredient:	
*Glyphosate: N-(phosphonomethyl) glycine	36.5%
Other Ingredients:	63.5%
Total:	100.0%

*Contains 500 grams per liter or 4.17 pounds per U.S. gallon of glyphosate acid.

KEEP OUT OF REACH OF CHILDREN.

CAUTION

See additional precautionary statements and directions for use inside booklet.

EPA Reg. No. 100-1169

EPA Est. 100-LA-001 [2.5, 30, 120 gal.]
EPA Est. [Bulk]

ACCEPTED
with COMMENTS
In EPA Label Review

SEP 26 2005

Under the Federal Insecticide,
Fungicide, and Rodenticide Act,
as amended, for the pesticide
registered under EPA Reg. No.
100-1169

FIRST AID	
If in eyes:	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 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.
If inhaled:	<ul style="list-style-type: none"> • 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 further treatment advice.
If on skin or clothing:	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If swallowed:	<ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice. • Have 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.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
HOT LINE NUMBER For 24 Hour Medical Emergency Assistance (Human or Animal) Or Chemical Emergency Assistance (Spill, Leak, Fire or Accident), Call 1-800-888-8372	

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Harmful if inhaled. Avoid breathing spray mist. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

Personal Protective Equipment (PPE)

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

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Applicators and other handlers must wear:

- Long sleeved shirt and long pants
- Chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride
- Socks and shoes

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

Engineering Control Statement

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.
- 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

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash waters.

Physical and Chemical Hazards

Do not store, mix or apply this product or spray solutions of this product in unlined steel (except stainless steel), galvanized steel containers, or sprayer tanks. This product or spray solutions of this product will react with these containers and tanks and produce hydrogen gas which may form a highly combustible mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by spark, open flame, lighted cigarette, welder torch, or other ignition source.

Spray solutions of this product should be mixed, stored and applied using only stainless steel, fiberglass, plastic, or plastic-lined steel containers.

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CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product should be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of SYNGENTA CROP PROTECTION, Inc. or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold SYNGENTA and Seller harmless for any claims relating to such factors.

SYNGENTA warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or SYNGENTA, and Buyer and User assume the risk of any such use. SYNGENTA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

In no event shall SYNGENTA or Seller be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF SYNGENTA AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF SYNGENTA OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

SYNGENTA and Seller offer this product, and Buyer and User accept it, subject to the foregoing Conditions of Sale and Limitations of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of SYNGENTA.

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DIRECTIONS FOR USE

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

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

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 made of any waterproof material such as polyethylene or polyvinyl chloride
- Shoes plus socks

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are **NOT** within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Keep people and pets off treated areas until spray solution has dried.

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STORAGE AND DISPOSAL

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

Pesticide Storage

Keep container closed to prevent spills and contamination.

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

Triple rinse (or equivalent). 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.

For Recyclable/Refillable Containers

Before refilling, inspect thoroughly for damage such as cracks, punctures, bulges, dents, abrasions, and damaged or worn threads on closure devices. After filling and before transporting, check for leaks. Do not refill or transport damaged or leaking container.

Container Disposal

Reseal container and offer for reconditioning, or triple rinse (or equivalent) and offer for recycling or reconditioning, or clean in accordance with manufacturer's instructions.

CONTAINER IS NOT SAFE FOR FOOD, FEED, OR DRINKING WATER!

GENERAL INFORMATION

Touchdown Total is a nonselective foliar systemic herbicide used to control a broad spectrum of emerged grass and broadleaf weeds, both annual and perennial, in:

- alfalfa, clover, and other legumes
- berries, fruits, nuts, and vines
- canola, including glyphosate-tolerant
- Christmas trees
- conservation compliance/conservation reserve program (CRP)

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- corn, including glyphosate tolerant
- cotton, including glyphosate tolerant
- fallowland and postharvest
- farmsteads
- grasses and grass seed production
- herbs
- pastures
- peanuts
- small grains
- sorghum
- soybeans, including glyphosate-tolerant
- sugarcane
- sunflower
- vegetables

Touchdown Total is formulated as a liquid concentrate which contains 4.17 pounds acid equivalent per gallon.

GENERAL USE PRECAUTIONS

- Touchdown Total requires actively growing green plant tissue to function. Application to drought-stressed weeds or weeds with little green foliage (i.e. mowed, cut, or hailed on weeds); weeds covered with dust; weeds damaged by insects or diseases may result in reduced weed control.
- Touchdown Total does not provide soil residual control of weeds. Weeds emerging after application will require retreatment.
- Heavy rainfall or irrigation shortly after application may require retreatment.
- Tillage or mowing within 3 days following application may reduce weed control.
- Do not apply this product through any type of irrigation system.
- DO NOT spray if conditions of thermal inversion exist, or if wind direction and speed may cause spray to drift onto adjacent nontarget areas. Drift minimization is the responsibility of the applicator. Consult with local and State agricultural authorities for information regarding avoiding or minimizing spray drift.
- Touchdown Total is not volatile and cannot move as a vapor after application onto nontarget vegetation.
- It is recommended that the spray system be thoroughly cleaned with water and a commercial tank cleaner after each use.

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- Spray solutions of Touchdown Total should be mixed, stored, and applied using only plastic, plastic-lined steel, stainless steel, or fiberglass containers. Concentrate should not be stored in galvanized steel, carbon steel, or unlined steel containers.
- There are no rotational crop restrictions following application of this product.
- Severe damage or destruction may be caused by contact of Touchdown Total to any vegetation (including leaves, green stems, exposed non-woody roots, or fruit) of crops, trees, and other desirable plants to which treatment is not intended, except as specified for glyphosate-tolerant crops.
- In crop areas, do not exceed a total of 5.8 qts./A. In noncrop areas, do not exceed a total of 7.6 qts./A.
- Do not exceed 0.7 qt./A by air unless otherwise specified on this label.
- For broadcast postemergence treatments, do not harvest or feed treated vegetation for 8 weeks following application, unless otherwise specified.
- The maximum use rates stated throughout this product's labeling apply to this product combined with the use of all other herbicides containing glyphosate or sulfosate as the active ingredient, whether applied as mixtures or separately. Calculate the application rates and ensure that the total use of this and other glyphosate or sulfosate containing products does not exceed maximum use rate.

GLYPHOSATE RESISTANT WEED MANAGEMENT

Some naturally occurring weed biotypes resistant to glyphosate may exist through normal genetic variability in any weed population. The repeated use of herbicides with the same mode of action is known to lead under certain conditions to a selection of resistant weeds. Certain agronomic practices reduce the likelihood that resistant weed populations will develop and integrated strategies are known to manage such problem weeds.

Glyphosate is the active ingredient in the herbicide Touchdown Total. The primary mode of action of glyphosate involves inactivation of the target enzyme 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS). This enzyme is involved in the synthesis of several essential amino acids that are the building blocks for proteins needed for plant growth and development. In susceptible weeds glyphosate binds tightly to EPSPS rendering the enzyme inactive. With the inactivation of EPSPS, the plant is unable to produce certain essential amino acids resulting in plant death. Initial studies on the mechanistic basis of resistance to glyphosate in various weed species have to date, revealed EPSPS target site resistance, and involvement of differences in translocation as important. Other mechanisms by which plants can become resistant to herbicides include differences in uptake, metabolism and sequestration. Within the USA specific biotypes of horseweed/marestail, *Conyza canadensis* and rigid ryegrass,

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Lolium rigidum have become resistant to glyphosate. The first incident reported to the Herbicide Resistance Action Committee (HRAC) of glyphosate resistance was in 1998 on rigid ryegrass. Horseweed resistance was subsequently confirmed in 2000.

Following is a list of Best Weed Management practices to be considered in glyphosate-based programs.

Diversify glyphosate-dependent weed control programs with alternative herbicides or cultural practices.

- a. In Roundup Ready® (RR™) corn and RR soybean systems do not use more than two applications of a glyphosate based herbicide over a two year period. Diversify with alternative herbicides/cultural practices.
- b. In RR cotton up to three glyphosate applications may be used in crop per year if employing in-crop cultivation/residual herbicide.
- c. Use alternative burndown and/or residual herbicides for RR crops likely to require more than one application of glyphosate.
- d. To manage RR resistant volunteers rotate RR crops with conventional crops.
- e. Use full label rates of glyphosate and tank mix partners. Minimize weed escapes.
- f. Monitor treated weed populations for any loss of field efficacy.
- g. Contact your local extension specialist, certified crop advisor, and/or manufacturer for herbicide resistance management and/or integrated weed management recommendations for specific crops and resistant weed biotypes.

Since the occurrence of resistant weeds is difficult to detect prior to use, Syngenta Crop Protection accepts no liability for any losses that may result from the failure of Touchdown Total to control resistant weeds.

APPLICATION AND MIXING DIRECTIONS

TIMING

Touchdown Total should be applied to actively growing emerged-weeds. Annual weeds of 6 inches or less in height are typically the easiest to control. Generally, more effective control of perennial weeds is achieved at the flowering or seedhead stage. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for specific application timing.

When annual weeds have been mowed or grazed, wait for 3-4 inches of new growth to appear prior to application. When perennial weeds have been mowed or grazed, allow new growth to reach recommended stage prior to application.

Visible effects on annual weeds occur within 2-4 days after application; effects on perennial weeds may take 7 days or longer. Extremely cool or cloudy weather following treatment may slow activity.

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RATES

Follow recommended rates for Touchdown Total listed in the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections. Use the higher label rates when weeds are dense or large. Also, use higher application volumes and pressures when weed vegetation is dense.

SPRAY ADDITIVES

Ammonium Sulfate (AMS) – Control of annual and perennial weeds with Touchdown Total may be improved by adding dry ammonium sulfate at 1.0 to 2% by weight or 8.5-17.0 lbs./100 gals. of water. Liquid formulations of AMS may be used at an equivalent rate. Do not reduce use rates of Touchdown Total when using AMS.

Drift Control Agents – Drift control agents may be used with Touchdown Total.

TANK MIXES WITH RESIDUAL HERBICIDES

Refer to crop sections for recommended tank mixes. Tank mixes of Touchdown Total with other pesticides, fertilizers, or any other additives except as specified on this label or other approved Syngenta supplemental labeling may result in tank mix incompatibility or unsatisfactory performance. It is recommended that the compatibility of any tank mix combination be tested on a small scale such as a jar test before actual tank mixing.

Always refer to labels of other pesticide products for mixing directions and precautions which may differ from those outlined here. Use in accordance with the most restrictive of label limitations and precautions. No label dosage rates should be exceeded. This product cannot be mixed with any product containing a label prohibition against such mixing.

Tank Mixing Recommendations:

1. Fill spray tank ½ full with clean water.
2. Begin tank agitation and continue throughout mixing and spraying.
3. Add AMS (if used).
4. Add dry formulations (WP, DF, etc.) to tank.
5. Add liquid formulations (SC, EC, L, etc.) to tank.
6. Add Touchdown Total.
7. Fill remainder of spray tank.

APPLICATION EQUIPMENT AND TECHNIQUES

- Avoid drift. Applications should not be made in low level inversion conditions, when winds are gusty or under any other conditions which favor drift. Inversions are characterized by stable air and increasing temperatures with height above the ground. The applicator may detect the presence of an inversion by producing

smoke and observing a smoke layer. Drift may cause damage to any vegetation contacted to which treatment is not intended.

- Compatibility with drift control additives may vary. It is recommended that the combination be tested on a small scale such as a jar test. Read and follow manufacturer's directions for use. A reduction in weed control may occur when drift control agents are used.
- All equipment must be properly maintained and washed to remove product residues after use.

BROADCAST APPLICATIONS

Ground

Applications should be made in 3-40 gals. of water per acre.

When foliage is dense, spray volume should be increased to ensure coverage of the target weeds. Flat-fan nozzles will result in the most effective application of Touchdown Total. Spray boom and nozzle heights must be adjusted to provide coverage of target weed. Flood nozzles may result in reduced weed control due to inadequate coverage.

Air

Applications should be made in 3-15 gals. of water per acre.

Spray should be released at the lowest height consistent with effective weed control and flight safety. Applications more than 10 ft. above the canopy should be avoided.

Use the largest droplet size consistent with good weed control. Formation of very small droplets may be minimized by appropriate nozzle selection, by orienting nozzles away from the air stream as much as possible, and by avoiding inappropriate spray boom pressure. Solid stream or low shear nozzles may be utilized to reduce small droplet formation. These nozzles direct the fluid parallel to the existing airflow to reduce shear effects. Other techniques may include reducing the fan angle of flat fan nozzles if used, or reducing the deflector plate angle if deflector type nozzles are used. Ensure the spray is released at an appropriate distance below the airfoil.

For best results, each specific aerial application vehicle used should be quantifiably pattern tested for aerial application of Touchdown Total initially and every year thereafter. To minimize drift, it is suggested aerial application equipment produce the following minimum spray deposition characteristics:

- Volume Median Diameter (VMD) > 400 microns
- Volume Diameter (VD) {0.9} > 200 microns

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Prolonged exposure of Touchdown Total to uncoated steel surfaces may result in corrosion and possible failure of the part. The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38413 may prevent corrosion. To prevent corrosion of exposed parts, thoroughly wash aircraft after each day of spraying to remove residues of Touchdown Total accumulated during spraying or from spills. Landing gear are most susceptible.

For aerial application in California, refer to the Federal Supplemental Label for aerial application for specific instructions, restrictions, and requirements. For aerial application, consult with State or local authorities regarding any additional requirements for aerial treatments. Banvel tank mixtures may not be applied by air in California.

Avoid direct application to any body of water.

SHIELDED/HOODED APPLICATION

Use shielded/hooded sprayers to control weeds between rows while protecting the crop from the herbicide. Keep shields/hoods as close to the ground as possible and avoid ground speed in excess of 5 mph. Use appropriate nozzles, spacing, and pressure to achieve coverage without allowing spray to touch or drift onto the crop. Maintain equipment in good operating condition to prevent leakage or dripping onto the crop. Refer to state extension service recommendations and equipment manufacturers' guidelines for more information on proper operation of shielded/hooded sprayers.

SPOT TREATMENTS

For annual weeds less than 6 inches, use a 0.4 to 0.7% v/v solution. For annual weeds over 6 inches, use a 0.7 to 1.1% v/v solution. Use a 0.7 to 1.5% v/v solution for most perennials (see Table 3 for specific rates and timing). When using motorized spot spray equipment (rider bar), use a 2.2% v/v solution. See Spot Spray Dilution Table below for rates of Touchdown Total/volume of finished spray solution. Spray the solution on actively growing weeds until uniformly wet but not to the point of runoff. Retreat 14-21 days later if regrowth occurs.

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Touchdown Total Spot Spray Dilution Table

Solution Strength	To Make This Volume			
	1 gallon	10 gallons	25 gallons	100 gallons
0.4%	0.5 fl. oz.	5 fl. oz.	12 fl. oz.	3 pts.
0.7%	0.9 fl. oz.	9 fl. oz.	1.4 pts.	5.6 pts.
0.9%	1.2 fl. oz.	12 fl. oz.	1.9 pts.	3.8 qts.
1.1%	1.4 fl. oz.	14 fl. oz.	2.2 pts.	4.4 qts.
1.5%	1.9 fl. oz.	1.2 pts.	3 pts.	1.5 gals.
2.2%	2.8 fl. oz.	1.8 pts.	4.4 pts.	2.2 gals.

WIPER APPLICATION

Touchdown Total may be applied using a wiper or "wick" applicator (e.g. rope, sponge, or porous plastic applicators) for selective control or suppression of annual and perennial weeds which become taller than the crop or desirable vegetation. Mix 3 quarts of Touchdown Total in 2 gals. of water unless directed otherwise in this label (See **General Use Precautions** for Berries, Fruits, Nuts, and Vines). Precautions should be taken to avoid contact with crops or desirable vegetation. Equipment should be operated at speeds of 5 mph or less. Use slower speeds where weeds are dense. For improved control, make two applications in opposite directions.

CDA EQUIPMENT

For control of annual weeds with hand held equipment, apply a 20% solution of Touchdown Total at a flow rate of 2 fl. oz. per minute and a walking speed of 1.5 mph (1 qt./A). For perennial weeds, use a 20 to 30% solution of Touchdown Total at a flow rate of 2 oz. per minute and a walking speed of 0.75 mph (2 to 3 qts./A). For vehicle mounted equipment, apply in 3 to 15 gals. of water per acre. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for application rates and timing.

Precautions should be taken to avoid contact with crops or desirable vegetation.

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CROP USE DIRECTIONS

This section is organized alphabetically by crop categories. There may be several crops listed in a crop category.

ALFALFA, CLOVER, AND OTHER LEGUMES

Touchdown Total may be used on the legume crops listed below:

Alfalfa	Lespedeza	Trefoil
Clover	Lupine	Velvetbean
Kudzu	Sainfoin	Vetch

Method of Application: Before, during, or after planting but before crop emergence; renovation; spot spray (alfalfa and clover only); wiper/wick (alfalfa and clover only); preharvest (alfalfa only); and postharvest.

Preplant/Preemergence, Dormant, or Renovation

Deep tillage following treatment of weeds with Touchdown Total or a sequential application of Touchdown Total may be required to control well established perennials.

Preharvest (Alfalfa Only)

Use this treatment to eliminate or destroy declining alfalfa stands. Up to 3.0 pts. per acre of Touchdown Total may be applied as a broadcast spray with ground or aerial equipment at least 36 hours before harvest. Applications may be made any time of the year when the alfalfa crop is in the bud to flower stage of growth. Deep tillage following preharvest treatment or a postharvest application of Touchdown Total may be required to provide control of well established perennials.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES, and APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

General Use Precautions for Alfalfa, Clover, and Other Legumes

- Spot and wiper/wick application must be made at least 14 days before grazing or harvest of forage and hay.
- Preharvest and renovation applications can be made with no more than 1.5 pts./A at least 36 hours before grazing or harvest of forage or hay.
- Do not apply a preharvest treatment on alfalfa grown for seed as a reduction in germination or vigor may occur.

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Tank Mixtures for Preplant/Preemergence, Dormant, or Renovation Use for Alfalfa, Clover, and Other Legumes

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Buctril®	Karmex®	Prowl®	Velpar®
Dual MAGNUM	Kerb®	Pursuit®	
Eptam®	Lexone®/Sencor®	Trifluralin	

Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

BERRIES, FRUITS, NUTS, AND VINES

Touchdown Total may be used on both bearing and nonbearing crops listed below.

Almond	Lemon
Apple	Lime
Apricot	Loganberry
Atemoya	Longan
Avocado	Loquat
Banana	Lychee
Barbados cherry (Acerola)	Macadamia
Beechnut	Mandarin
Blackberry	Mango
Blueberry	Mangosteen
Boysenberry	Marmaladebox (genip)
Breadfruit	Mayhaw
Brazil nut	Nectarine
Butternut	Olallieberry
Calamondin	Olive (postdirected only)
Canistel	Orange (all)
Carambola	Oriental pear
Cashew	Papaya
Cherimoya	Passion fruit
Cherry (sweet, sour, tart)	Peach
Chestnut	Pear
Chinquapin	Pecan
Chironja	Persimmon

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| Citron (postdirected only) | Pineapple |
| Citrus hybrids | Pistachio |
| Cocoa bean | Plantain |
| Coconut | Plum |
| Coffee | Plumcot |
| Crabapple | Pomegranate |
| Cranberry | Prune (all) |
| Currant | Pummelo |
| Date | Quince |
| Dewberry | Rambutan |
| Durian | Raspberry (black, red) |
| Elderberry | Sapodilla |
| Fig | Sapote (black, mamey, white) |
| Filbert (Hazelnut) | Satsuma mandarin |
| Gooseberry | Soursop |
| Grapefruit | Sugar apple |
| Grapes (all) | Tamarind |
| Guava | Tangelo |
| Hickory nut | Tangerine |
| Huckleberry | Tangor |
| Jaboticaba | Tea |
| Jackfruit | Walnut (black, English) |
| Kiwi fruit | Youngberry |
| Kumquat | |

Method of Application: Preplant; preemergence; directed spray (except cranberry); middles (between rows of trees); strips (in rows of trees); perennial grass suppression (chemical mowing); post harvest (cranberry); and wiper/wick applicator equipment.

General Use

Applications may be made with boom equipment; shielded sprayers; CDA; hand-held and high-volume wands; lances; orchard guns; or wiper/wick application equipment, except as directed in the **GENERAL USE PRECAUTIONS FOR BERRIES, FRUITS, NUTS, AND VINES** section. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES, and APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for application rates and timing.

Multiple applications may be necessary to control certain perennial weeds. For residual weed control, tank mix Touchdown Total with residual herbicides as prescribed in the **TANK MIXTURES FOR BERRIES, FRUITS, NUTS, AND VINES** section, or make multiple applications.

General Use Precautions for Berries, Fruits, Nuts, and Vines

- Do not allow the spray, spray drift, or mist to contact foliage, fruit, shoots, branches, canes, suckers, open wounds, or green parts of crops. Contact with any crop part other than mature brown woody bark can result in severe crop injury.
- Avoid contact with stumps as injury to adjacent trees may occur from root grafting.
- Do not apply in a tank mix in Puerto Rico.
- For **PEACHES** grown in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee, apply Touchdown Total with a shielded applicator which prevents contact with foliage, suckers, or bark of trees. Apply no later than 90 days after first bloom to avoid severe damage. Avoid application to peach trees with recent mechanical injury or pruning wounds. Apply only near trees which have been planted in the orchard for two or more years. **SEVERE INJURY WILL OCCUR IF ANY PORTION OF THE PEACH TREE IS CONTACTED WITH SPRAY OR SPRAY DRIFT.**
- For **APRICOTS, NECTARINES, PEACHES, PLUMS, and PRUNES** grown in Arizona, California, Colorado, Idaho, Kansas, Kentucky, New Jersey, North Dakota, Oklahoma, Oregon, Texas, Utah, and Washington, **any** application equipment listed for these crops may be used.
- For **APRICOTS, NECTARINES, PEACHES, PLUMS, and PRUNES** grown in all other states not previously listed, use only wiper/wick application equipment.
- For **GRAPES** grown in the Great Lakes and Northeast regions, apply Touchdown Total prior to the end of bloom stage to avoid injury, or apply with shielded equipment.
- For **COFFEE and BANANA**, delay application 3 months after transplanting to allow the new plants to become established.
- For all other crops in this section, allow a minimum of 3 days between application and transplanting.
- For **BLACKBERRY, BLUEBERRY, BOYSENBERRY, CRANBERRY, CURRANT, DEWBERRY, ELDERBERRY, GOOSEBERRY, HUCKLEBERRY, LOGANBERRY, OLALLIEBERRY, RASPBERRY, AND YOUNGBERRY**, mix 3 qts. of Touchdown Total in 4 gals. of water for wiper/wick applications.
- Allow at least **17** days from the last application to harvest of **stone fruit or olives**. For olive groves, apply only as a directed spray.
- Allow at least **3** days from last application to harvest of **nuts**.

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- Allow at least **30** days from last application to harvest of **cranberries**.
- Allow at least **28** days from last application to harvest of **coffee**.
- Allow at least **1** day from the last application to harvest of **banana, citrus, guava, papaya, plantain, or pome fruit (except mayhaw)**.
- Allow at least **14** days from last application to harvest of **acerola, atemoya, avocado, breadfruit, canistel, carambola, cherimoya, cocoa beans, coconuts, dates, figs, genip, grapes, jaboticaba, jackfruit, longan, lychee, mango, mayhaw, passion fruit, persimmon, pomegranate, sapodilla, sapote, small berries, soursop, sugar apple, tamarind, and tea**.

Post-Harvest Cranberry

Application of Touchdown Total may be made following harvest of cranberries to control troublesome annual and perennial weeds. Do not apply directly to cranberry vines. Vines that are sprayed will be injured and may die. Apply Touchdown Total in a 0.4 to 0.7% solution if using hand-held equipment after the vines are dormant. Use properly calibrated precision application equipment; wiper wisk, spot sprayer which protects the cranberry plant from Touchdown Total spray. Do not treat more than 10% of the bog.

Tank Mixtures With Residual Herbicides and 2,4-D for Berries, Fruits, Nuts, and Vines

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 3.6 qts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations or weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Devrinol®	Krovar®	Sim-Trol®
Direx®	Princep® 4L	Sinbar®
Goal®	Princep Caliber 90®	Solicam®
Karmex	Prowl	Surflan®
Kerb	Simazine	2,4-D

Refer to the individual product labels for precautionary statements, restrictions, recommended rates, approved crops, and a list of weeds controlled.

Tank Mixture With Goal Herbicide in Row Middles

Apply Touchdown Total at 12 to 24 fl. oz./A in a tank mix with 3 to 12 oz. of Goal 2XL

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herbicide for the control of annual weeds that are a maximum of 6 inches in height or diameter including annual sowthistle; crabgrass; common cheeseweed; common groundsel; common lambsquarters; common purslane (suppression); common ryegrass; filaree (suppression); hairy fleabane; horseweed/marestail; junglerice; London rocket; redroot pigweed; shepherdspurse; and stinging nettle. For control of common cheeseweed up to 3 inches in diameter, apply 12 to 24 fl oz./A of Touchdown Total with 3 to 12 oz./A of Goal.

Refer to the Goal label for precautionary statements, restrictions, and approved crops.

Hard to Control Weed Recommendations in Citrus (Florida and Texas Only)

To control or suppress the perennial weeds listed in the following table, apply the recommended rate of Touchdown Total in 3 to 30 gals. of water per acre. Use 10 to 30 gals. per acre if weed foliage is dense. Apply when weeds are actively growing. Refer to the **PERENNIAL WEED CONTROL** section, Table 3, for application timing. If weeds have been mowed or grazed, allow new growth to reach recommended growth stage prior to application.

Weed Species	Rate of Touchdown Total (Quarts per Acre)			
	0.7	1.4	2.2	3.6
Bermudagrass	B	B	PC	C
Guineagrass Texas and Florida Ridge	B NR	C B	C C	C C
Paragrass	B	C	C	C
Torpedograss	NR	S	PC	C

B = Burndown
C = Control
NR = Not Recommended
PC = Partial Control
S = Suppression

For goatweed, apply 1.4 to 2.2 qts. of Touchdown Total per acre. Apply in 20 to 30 gals. of water per acre when plants are actively growing. Use the 1.4 qts. rate on plants less than 8 inches tall and 2.2 qts. on plants greater than 8 inches tall. When plants are greater than 8 inches tall, the addition of Krovar™ I or Karmex™ may improve control. If using a tank mix, refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Perennial Grass Suppression (Chemical Mowing) of Orchard Floors

For best results, mow to an even height and apply Touchdown Total 3 or 4 days later.

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Do not add AMS to the spray solution. Application must be made 1-3 weeks ahead of seedhead emergence.

Bahiagrass

Touchdown Total can be used to inhibit seedhead emergence and suppress vegetative growth for approximately 40-50 days with a single application. By using a sequential application, suppression of vegetative growth and inhibition of seedhead emergence can be extended to 120 days. Apply Touchdown Total at 20-30 days after complete green-up or after mowing to 4 inches tall. When a single application is planned, use 3 to 6 fl. oz. of Touchdown Total per acre in 10 to 20 gals. of water. When a sequential application is planned, use 3 to 6 fl. oz./A for the first application followed by another application of 1.5 to 4 fl. oz./A 40 to 50 days later.

Bermudagrass

For Suppression Only:

East of the Rocky Mountains – Apply 4 to 12 fl. oz. of Touchdown Total in 3 to 20 gals. of water per acre. Make the application 2 weeks after complete green-up or after 3 to 4 inches of regrowth following mowing. Use 2 to 6 fl. oz./A if a lesser degree of suppression is desired. A sequential application can be used when regrowth occurs.

West of the Rocky Mountains – Apply 4 to 12 fl. oz. of Touchdown Total in 3 to 20 gallons of water per acre. Make the application 2 weeks after complete green-up or after 3 to 4 inches of regrowth following mowing. A sequential application of 4 to 7 fl. oz. can be used when regrowth occurs.

For Partial Control and Burndown:

Touchdown Total can be used for burndown and partial control of bermudagrass at 1.4 to 2.9 pts. in 3 to 20 gals. of water per acre. Use 1.4 pts. east of the Rocky Mountains and 2.9 pts. west of the Rocky Mountains.

Use this treatment only if reduction of the bermudagrass stand can be tolerated. Allow at least 14 to 21 days for complete burndown.

Cool Season Grass Covers (Fine Fescue, Kentucky Bluegrass, Orchardgrass, Quackgrass, Tall Fescue)

For suppression of orchardgrass, fine fescue, tall fescue, and quackgrass, apply 3 to 6 fl. oz. of Touchdown Total in 10 to 20 gals. of water per acre. See **SPRAY ADDITIVES** section for rates.

For suppression of Kentucky bluegrass, use 2 to 4 fl. oz. of Touchdown Total.

CANOLA (NOT GLYPHOSATE-TOLERANT)

Method of Application: Before, during, or after planting, but before crop emergence.

Follow directions listed in the **APPLICATION AND MIXING DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Canola

- Up to 48 fl. oz./A of Touchdown Total may be applied per year as broadcast sprays with ground or aerial equipment.
- Avoid contact with canola foliage.

CANOLA, GLYPHOSATE-TOLERANT (INCLUDING ROUNDUP READY CANOLA)

Do not use this product on canola containing the Roundup Ready Gene planted in the following states: Alabama, Delaware, Florida, Georgia, Kentucky, Maryland, New Jersey, North Carolina, Tennessee, Virginia, and West Virginia.

Method of Application: Before, during, or after planting; and postemergence in canola varieties that have been genetically modified to be tolerant to glyphosate based herbicides.

Follow directions listed in the **APPLICATION AND MIXING DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Glyphosate-Tolerant Canola

- Up to 48 fl. oz./A of Touchdown Total may be applied per year as broadcast preplant or preemergence sprays with ground or aerial equipment.
- Up to 24 fl. oz./A of Touchdown Total may be applied postemergence per cropping season from crop emergence until the 6-leaf stage. Applications made later during bolting or flowering may result in crop injury and yield loss.

- A single postemergence application of this product may be made over glyphosate-tolerant canola up to the 6-leaf stage at a rate of 10-17 fl. oz./A. Avoid spray overlaps which may result in temporary yellowing of the canola, delayed flowering, or growth reduction. Similar symptoms may occur if rates above 10 fl. oz./A are applied after the 4-leaf stage of the canola.
- Split (sequential) postemergence applications may be made by applying 12 fl. oz./A at the 1-3 leaf stage of glyphosate-tolerant canola, followed by a second application of 12 fl. oz./A at a minimum split of 10 days, but the second application must not be later than the 6-leaf stage. No more than two postemergence over-the-top applications may be made from crop emergence to the 6-leaf stage of the glyphosate-tolerant canola.
- The last application must be made at least 60 days before harvest of canola.

CHRISTMAS TREES

Method of Application: Postdirected spray; site preparation; and spot spray.

Touchdown Total may be used prior to planting Christmas trees; or as a postdirected spray and spot treatment around established Christmas trees.

Follow the directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES, and APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for application rates and timing.

General Use Precautions for Christmas Trees

- Avoid contact of spray, drift, or mist with foliage or green bark of established Christmas trees.
- This product is not recommended for broadcast applications over the top of Christmas trees.

CONSERVATION COMPLIANCE/CONSERVATION RESERVE PROGRAM (CRP)

Method of Application: Rotating out of CRP, site preparation (sequential herbicide applications), dormant beneficial plant management; postemergence; and wiper/wick.

- **Site Preparation:** Prior to application, removal of excessive vegetation by grazing, mowing, burning, etc. may improve control. When annual weeds have been mowed or grazed, wait for 3-4 inches of new growth before application. When perennial weeds have been mowed or grazed, allow regrowth to reach recommended stage (see **PERENNIAL WEED CONTROL** section, Table 3, for rates and timing).

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Sequential applications of Touchdown Total and Gramoxone® Max herbicides are effective in controlling established CRP grasses. Refer to the Gramoxone Max herbicide label for recommended rates and tank mixes.

Touchdown Total/Gramoxone Max Herbicide Sequential Program (Spring Application)

Weed Species	Program A	Program B
Fescue Orchardgrass Ryegrass	Gramoxone Max at 1.7 to 2.7 pts./A followed 7-10 days later with Gramoxone Max at 2.0 to 2.7 pts./A	Touchdown Total at 1.4 to 3.0 pts./A followed 10-14 days later with Gramoxone Max at 2 to 2.7 pts./A

- Dormant Beneficial Plant Applications: Apply 9 to 12 oz./A in early spring before desirable species, such as crested and tall wheatgrass, break dormancy. Late fall applications can be made after desirable grasses have reached dormancy. If perennial grasses are not dormant at time of application, stunting can occur.
- Touchdown Total may be tank mixed with other herbicides registered for this use such as atrazine, dicamba, and 2,4-D.
- There are no rotational crop restrictions following application of Touchdown Total. Read and follow crop rotation label restrictions for all tank mix products.

CORN (FIELD CORN, POPCORN, SEED CORN, AND SWEET CORN – NOT GLYPHOSATE-TOLERANT)

Method of Application: Before, during, or after planting but before crop emergence; hooded sprayers; spot spray; preharvest; and postharvest.

Follow the directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Corn

- Crop plants contacted by Touchdown Total will be injured or killed.
- Spot application must be made prior to corn silking.
- For hooded sprayer applications, do not exceed 24 fl. oz./A per application; nor 2.2 qts./A per year.
- Do not graze or feed corn forage or fodder following hooded sprayer applications.

- Preharvest application must be made at least 7 days before harvest.
- Apply no more than 24 fl. oz./A by air; and 2.2 qts./A by ground preharvest.

Tank Mixtures for Corn

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

UAN may be used as a carrier at 10 to 70 gals./A with 2,4-D, dicamba, or any residual herbicides on the following list. Use 1.5 to 3.0 pts./A of Touchdown Total when UAN is used as a carrier. For use with 2,4-D and dicamba on annual and perennial weeds, consult Tables 3 and 4. Reduced weed control may occur on certain weeds as a result of UAN foliar burn which can reduce uptake of Touchdown Total.

Touchdown Total can be tank mixed with the following products:

Aim™	Degree Xtra™	Lightning™
Ambush®	Distinct™	Linex®
Atrazine	Dicamba	Lorox®
Axiom™	Dual MAGNUM®	Lumax™
Balance®	Dual II MAGNUM®	Marksman®
Basis®	Extrazine® II	Micro-Tech®
Bicep Lite II MAGNUM®	Frontier®	Prowl
Bicep MAGNUM®	Fultime™	Simazine
Bicep II MAGNUM®	Guardsman®	Surpass® EC
Broadstrike®	Harness®	Surpass 100
Bullet®	Harness Xtra	Topnotch®
Callisto™	Hornet™	Warrior®
Clarity®	Lariat®	2,4-D
Degree™	Lasso®	

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Hooded Sprayers

Touchdown Total may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the front and rear flaps touch the ground to completely enclose the spray solution.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop. Do not apply Touchdown Total when the leaves of the crop are growing in direct contact with weeds to be treated.

Application Requirements:

- The spray hoods must be operated on the ground or skimming across the ground.
- Corn must be at least 12 inches tall, measured without extending leaves.
- Leave at least an 8 inch untreated strip over the drill row.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

Gramoxone Max herbicide may be considered for Hooded Sprayer applications in corn. Use Gramoxone Max at 0.75 to 1.3 pts./A for control of actively growing weeds. Read and follow directions for this use on the Gramoxone Max herbicide label.

Preharvest

Touchdown Total may be applied as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total should be applied at 35% grain moisture or less. Ensure corn has reached physiological maturity (black layer formed) and that maximum kernel fill is complete. Do not apply a preharvest treatment on corn grown for seed as a reduction in germination or vigor may occur.

CORN, GLYPHOSATE-TOLERANT (INCLUDING AGRISURE™ GT AND ROUNDUP READY CORN)

Method of Application: Before, during, or after planting; and postemergence in corn varieties which have been genetically modified to be tolerant to glyphosate based herbicides.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES, and APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS**

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CONTROLLED section for application rates and timing.

General Use Precautions for Glyphosate-Tolerant Corn

- Applications of Touchdown Total to corn hybrids which are not glyphosate tolerant will result in severe crop injury and reduced yields.
- Maximum amount of Touchdown Total which may be applied from all applications is 5.75 qts./A.
- Maximum preplant/preemergence rate is 3.6 qts./A.
- Maximum amount of Touchdown Total applied over-the-top of the crop from all applications is 70 fl. oz./A.
- Make postemergence applications from emergence through the V8 stage or until corn reaches 30 inches, whichever comes first with no more than 35 fl. oz./A for any single application. Applications of Touchdown Total at a maximum rate of 35 fl. oz./A may be made to corn from 30 to 48 inches in height using ground equipment and drop nozzles only.
- Avoid application of spray into whorls of corn plants.
- Allow a minimum of 50 days between postemergence application and harvest of forage.
- Make preharvest applications at least 7 days before harvest with no more than 24 fl. oz./A.

Tank Mixtures

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

UAN may be used as a carrier at 10-70 gals./A with 2,4-D, dicamba, or any residual herbicides on the following list. Use 1.5 to 3.0 pts./A of Touchdown Total when UAN is used as a carrier. For use with 2,4-D and dicamba on annual and perennial weeds,

consult Tables 3 and 4. Reduced weed control may occur on certain weeds as a result of UAN foliar burn which can reduce uptake of Touchdown Total.

Touchdown Total can be tank mixed with the following products:

Aim	Distinct	Linex
Ambush	Dicamba	Lorox
Atrazine	Dual Magnum	Lumax
Axiom	Dual II Magnum	Marksman
Balance	Extrazine II	Micro-Tech
Basis	Frontier	Prowl
Bicep Lite II MAGNUM	Fultime	Simazine
Bicep MAGNUM	Guardsman	Surpass EC
Bicep II MAGNUM	Harness	Surpass 100
Broadstrike	Harness Xtra	Topnotch
Bullet	Lariat	Warrior
Callisto	Hornet	2,4-D
Clarity	Karate	
Degree	Lasso	
Degree Xtra	Lightning	

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Postemergence

Annual Weeds

Touchdown Total will control annual broadleaf weeds and grasses when applied as directed. Apply Touchdown Total at a minimum of 24 fl. oz./A from emergence through the V8 (8 leaves with collars) or until the corn height reaches 30 inches, whichever comes first.

When corn height is from 30 to 48 inches drop nozzles are required. Refer to Table 1 for specific rate information. Touchdown Total alone will not provide residual control. To control new weed flushes, repeat applications may be required.

Perennial Weeds

Touchdown Total will control or suppress perennial weeds with one or more applications. Successful control of perennial weeds is affected by proper timing of application. Refer to Table 3 for specific rate and timing information.

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Tank Mixtures (Postemergence)

Touchdown Total can be tank mixed with the following products:

Ambush	Harness
Atrazine	Harness Xtra
Bicep MAGNUM	Karate
Bicep Lite II MAGNUM	Marksman
Bicep II MAGNUM	Surpass EC
Clarity	Surpass 100
Dicamba	Topnotch
Dual II MAGNUM	Warrior
Fultime	2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Preharvest

Touchdown Total may be applied as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total should be applied at 35% grain moisture or less. Ensure corn has reached physiological maturity (black layer formed) and that maximum kernel fill is complete.

COTTON (NOT GLYPHOSATE-TOLERANT)

Method of Application: Before, during, or after planting, but before crop emergence; hooded sprayer; recirculating sprayer; spot spray; wiper/wick applicators; preharvest; and postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section, for application rates and timing.

General Use Precautions for Cotton

- Spot applications must be made prior to boll opening.
- Preharvest, hooded, and wiper/wick applications must be made at least 7 days before harvest.
- Do not apply more than 24 fl. oz./A by air; nor more than 48 fl. oz./A by ground for preharvest.
- Do not feed or graze treated cotton forage or hay following preharvest application.

Tank Mixtures for Cotton (Preplant/Preemergence)

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

Touchdown Total can be tank mixed with the following products:

Caparol®	Direx	Staple®
Clarity	Dual MAGNUM	Valor®
Command®	Dual II MAGNUM	Zorial®
Cotoran®	Karmex	2-4,D
Cotton-Pro®	Meturon®	
Cy-Pro®	Prowl	

Refer to individual product labels for precautionary statements, restrictions, rates and a list of weeds controlled.

Hooded Sprays

Touchdown Total may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the front and rear flaps touch the ground to completely enclose the spray solution.

Apply in 10-20 gals. of water per acre and do not exceed 30 psi spray pressure. Refer to **WEEDS CONTROLLED** section for application rates and timing.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop.

Application Requirements:

- Spray hoods must be operated on the ground or skimming across the ground.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.

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- Use low drift nozzles

Tank Mixtures (Hooded)

Touchdown Total can be applied in a tank mix with most cotton herbicides which are labeled for hooded, shielded, or postdirected applications. Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Preharvest

Development of immature bolls will be inhibited and yield potential will be affected when applications are made too early. Apply after bolls to be harvested are mature. Do not apply a preharvest treatment on cotton grown for seed as a reduction in germination or vigor may occur.

For **defoliation, desiccation, or regrowth control** of cotton, apply 24 fl. oz./A to 48 fl. oz./A. Apply in 3 to 30 gals. of water per acre by ground or in 3 to 15 gals. of water per acre by air.

Refer to the **WEEDS CONTROLLED** section for application rates and timing.

Touchdown Total can be tank mixed with the following products for improved defoliation or boll opening.

DEF®
Dropp®
Folex®
Prep™

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Cotton, Glyphosate-Tolerant (Including Roundup Ready Cotton)

Method of Application: Before, during, or after planting; postemergence; postdirected; hooded; and preharvest in cotton varieties which have been genetically modified to be tolerant to glyphosate based herbicides.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES, and APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Glyphosate-Tolerant Cotton

- Applications of Touchdown Total to cotton varieties which are not glyphosate

tolerant will result in severe crop injury and reduced yields.

- Maximum preplant/preemergence rate is 3.6 qts./A.
- Make postemergence applications from ground cracking until the 4-leaf stage of cotton at a maximum of 48 fl. oz./A per season with no more than 24 fl. oz./A for any single application.
- Apply no more than 48 fl. oz./season by precision, postdirected, or hooded application methods between the 5-leaf stage and lay-by. Apply no more than 24 fl. oz./A for any single application by these methods.
- Apply a maximum of 2.9 qts./A by postemergence and directed/hooded applications from cracking to lay-by.
- Do not apply more than 24 fl. oz./A by air; nor more than 48 fl. oz./A by ground for preharvest.
- Preharvest applications must be made at least 7 days before harvest.
- Drift control agents may be used.

Tank Mixtures (Preplant/Preemergence)

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

Touchdown Total can be tank mixed with the following products:

Caparol	Direx	Staple
Clarity	Dual MAGNUM	Valor
Command	Dual II MAGNUM	Zorial
Cotoran	Karmex	2-4,D
Cotton-Pro	Meturon	
Cy-Pro	Prowl	

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Postemergence

Make postemergence applications from ground cracking until the 4-leaf (node) stage of development (until the fifth true leaf reaches the size of a quarter) at a maximum single application rate of 24 fl. oz./A with no more than 48 fl. oz./A per season. Sequential over the top applications of Touchdown Total must be at least 10 days apart and cotton must have at least two nodes of incremental growth between applications.

Postdirected or Hooded Applications

Touchdown Total may be used through precision postdirected or hooded sprayers through the lay-by stage of cotton. Applications that contact the cotton leaves may result in boll loss, delayed maturity, and/or loss of yield. Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop.

Apply in 10 to 20 gallons of water per acre and do not exceed 30 psi spray pressure. Refer to **WEEDS CONTROLLED** section for application rates and timing.

Application Requirements:

- Postdirected applications should be used that directs the spray towards the base of the cotton plant. For best results, apply to weeds less than 3 inches tall being careful to minimize contact of the spray with cotton leaves.
- Spray hoods must be operated on the ground or skimming across the ground.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

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Tank Mixtures (Postdirected or Hooded)

Touchdown Total can be applied in a tank mix with most cotton herbicides which are labeled for hooded, shielded, or postdirected applications. Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Tank Mixtures with Dual MAGNUM

Touchdown Total can be applied with Dual MAGNUM from cotton emergence through the 4-leaf (node) stage of development (until the 5th true leaf reaches the size of a quarter). Do not use additional AMS or adjuvants. Do not use this mixture if cotton plants are under any type of stress including, but not limited to drought, insect, disease, or mechanicals. Occasionally following application, cotton leaves may exhibit necrotic spotting which will not affect normal plant development.

For use in the following states: AL, AR, AZ, CA, FL, GA, KS, KY, LA, MD, MO, MS, NC, NM, OK, SC, TN, TX, and VA.

Refer to the Dual MAGNUM label for precautions and restrictions.

Salvage Treatment

Touchdown Total may be used after the four leaf stage of development and should only be used where weeds threaten to cause a loss of crop. A rate of 24 fl. oz./A may be applied either as a postemergence spray to the crop or a postdirected spray.

SALVAGE TREATMENTS WILL RESULT IN SIGNIFICANT BOLL LOSS, DELAYED MATURITY, AND/OR YIELD LOSS.

Preharvest

Development of immature bolls will be inhibited and yield potential will be affected when applications are made too early. Apply after bolls to be harvested are mature. No enhancement of harvest aids will occur on glyphosate tolerant cotton. Refer to the **WEEDS CONTROLLED** section for application rates and timing.

FALLOWLAND AND POSTHARVEST USE

Method of Application: Chemical fallow; fallow beds; stale seedbeds; aid to tillage; and postharvest.

Touchdown Total may be applied by ground or air during the fallow period prior to planting or emergence of any crop listed on this label. There are no rotational crop restrictions following application of this product.

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Chemical Fallow - Ecofallow

Touchdown Total may be used in place of tillage to control annual weeds or volunteer wheat in fallow fields. Repeat applications may be necessary to control weeds emerging after application. Refer to Table 1 for use rates and timing. Broadcast or spot treatments of Touchdown Total will control or suppress perennial weeds. Refer to Table 3 for use rates and timing. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES, and APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label.

Tank mixes with 2,4-D or dicamba may be used for additional control of annual weeds listed in Table 2. Tank mixing with atrazine may provide residual control.

Postharvest Chemical Fallow for Cereals

Touchdown Total may be applied after harvest to control newly emerged weeds, volunteer cereals, or weeds which were present at harvest. Allow sufficient time after harvest for weed regrowth to occur before making application. Refer to Table 1 for use rates and annual weeds controlled. Higher rates may be required for control of large weeds which were present at the time of harvest. Repeat applications may be necessary for fall germinating weeds. Broadcast or spot treatments of Touchdown Total will control or suppress perennial weeds. Refer to Table 3 for use rates and timing. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES, and APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label.

Tank mixes with 2,4-D or dicamba may be used for additional control of weeds listed in Table 2. A postharvest tank mix with atrazine may be used if the field will be planted to corn or sorghum or laid fallow the following season. A tank mix with atrazine may be applied for residual control of certain annual weeds such as common lambsquarters, kochia, mustards, pigweeds, and volunteer wheat. Tank mixing with atrazine may result in reduced performance.

Aid to Tillage

Touchdown Total may be used in conjunction with tillage operations in fallow systems to control cheat, downy brome, foxtails, tansy mustard, and volunteer cereals. Apply 4 to 9 oz./A of Touchdown Total in 3 to 10 gals. of water/A. Apply before weeds exceed 6 inches in height. Application must be followed by tillage no later than 15 days after treatment or before weed regrowth. Allow at least one day after application before tillage. Tank mixes with residual herbicides may reduce performance. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES, and APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label.

Fallow Beds/Stale Seedbeds

Touchdown Total may be used to control weeds in fallow or stale seedbeds, including preplant/preemergence of any crop. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES, and APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label. Refer to **WEEDS CONTROLLED** section for application rates and timing. Touchdown Total can be tank mixed with 2,4-D, dicamba, or Goal herbicide for improved control of certain weeds.

Tank Mixture with Goal Herbicide

Apply Touchdown Total at 6 to 12 oz. with Goal herbicide at 2 to 3 oz./A for control of chickweed, common cheeseweed, and common groundsel that are less than 3 inches in height or diameter. Apply Touchdown Total at 12 to 17 fl. oz. with Goal at 2 to 3 oz./A for control of common cheeseweed, common groundsel, and horseweed/marestail that are a maximum of 6 inches in height and length; or chickweed, London rocket, and shepherdspurse that are a maximum of 12 inches in height or length.

Postharvest Use

Touchdown Total may be applied after harvest of any crop to control newly emerged weeds, volunteer crops, or weeds which were present at harvest. Refer to **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for use rates. Repeat applications may be necessary to control weeds emerging after application. Use the higher rate on heavy or sodded infestations.

General Use Precautions for Fallowland and Postharvest Use

- Allow sufficient time for weed regrowth to occur after harvest before making applications.
- Avoid application after plants have been exposed to a severe frost.
- Refer to the individual labels of all products used in a tank mix for precautionary statements, recropping intervals, restrictions, and a list of weeds controlled.
- Touchdown Total will not control volunteer glyphosate-tolerant crops.
- There are no rotational crop restrictions following application of this product.

FARMSTEADS (NONCROP)

Method of Application: General nonselective weed control, trim-and-edge, chemical mowing, cut stumps, and habitat management.

Applications can be made in noncrop areas on the farm such as:

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- | | |
|------------------------|--------------------|
| Barrier strips | Farmyards |
| Ditchbanks | Fence rows |
| Dry ditches and canals | Fuel storage areas |
| Equipment areas | Rights-of-way |
| Farm buildings | Shelterbelts |
| Farm roads | Soil bank land |

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES, and APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections for rates and timing.

Tank Mixtures for Farmsteads

Refer to the **ANNUAL WEEDS CONTROLLED** section, Table 1, for application rates and timing. For annual weeds, use 0.7 to 2.9 qts./A of this product when weeds are less than 6 inches tall and 1.1 to 2.9 qts./A when weeds are greater than 6 inches tall.

Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. For perennial weeds, apply 1.5 to 3.6 qts./A in these tank mixes. For tank mixtures with these products through backpack sprayers, handguns, or other high-volume spray-to-wet applications, see the **APPLICATION EQUIPMENT AND TECHNIQUES** section of this label for recommended rates.

Touchdown Total can be tank mixed with the following products:

- | | |
|--------------------|----------|
| Banvel® | Simazine |
| Djrex | Surflan |
| Diuron | 2,4-D |
| Princep Caliber 90 | |

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Chemical Mowing

Touchdown Total will suppress perennial grasses listed in this section to serve as a substitute for mowing. Apply Touchdown Total at a rate of 3 to 6 fl. oz./A . Use 3 to 4 fl. oz. of this product per acre when treating Kentucky bluegrass. Apply treatments in 10 to 20 gals. of spray solution per acre. Chemical mowing applications may be made along farm ditches and other parts of farmsteads.

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Use only in areas where some temporary injury or discoloration of perennial grasses can be tolerated.

Cut Stumps

- | | |
|-------------|------------|
| Alder | Salt-cedar |
| Eucalyptus | Sweetgum |
| Madrone | Tan oak |
| Oak | Willow |
| Reed, giant | |

Touchdown Total will control regrowth of cut stumps and resprouts of many types of woody brush and tree species, some of which are listed. Apply Touchdown Total using suitable equipment to ensure coverage of the entire cambium. Cut trees or resprouts close to the soil surface. Apply a 50 to 100% solution of Touchdown Total completely covering the freshly-cut surface immediately after cutting. Application delay may result in reduced performance. For best results, applications should be made during periods of active growth and full leaf expansion.

Habitat Management - Habitat Restoration and Maintenance

Touchdown Total may be used to control exotic and other undesirable vegetation in habitat management areas. Applications can be made to allow recovery of native plant species, prior to planting desirable native species, and for similar broad spectrum vegetation control requirements in habitat management areas. Spot treatments can be made to selectively remove unwanted plants for habitat maintenance and enhancement. Touchdown Total can be tank mixed with the following products:

- | | |
|--------------------|----------|
| Banvel | Simazine |
| Direx | Surflan |
| Diuron | 2,4-D |
| Princep Caliber 90 | |

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Wildlife Food Plots

Touchdown Total may be used for site preparation for control of annual and perennial weeds prior to planting wildlife food plots. Any wildlife food species may be planted or native species may be allowed to repopulate the area after applying Touchdown Total. If tillage is needed to prepare a seedbed, wait 7 days after application before tillage.

General Use Precautions for Farmsteads

- Avoid contact with the foliage of ornamentals or other desirable plants.
- Repeat applications may be necessary.
- Avoid making cut stump applications as injury to adjacent trees may occur from root grafting.

GRASS SEED PRODUCTION

Method of Application: Before, during, or after planting, but before crop emergence; renovation; site preparation; shielded/hooded sprayers; wiper/wick applicators; spot treatments; creating rows in annual ryegrass.

Apply to turf or forage grass areas grown for seed production. Applications **MUST** be made prior to the emergence of the crop to avoid crop injury. For maximum control of existing vegetation, delay planting to determine if any regrowth from escaped underground plant parts occurs. Where repeat treatments are necessary, sufficient regrowth must be attained prior to application. For warm-season grasses, such as bermudagrass, summer or fall applications provide best control.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

General Use Precautions

- Do not disturb soil or underground plant parts before treatment. Tillage or renovation techniques such as vertical mowing, coring, or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts.
- Do not feed or graze treated areas for 8 weeks following application.
- Vegetation contacted by Touchdown Total will be injured or killed.
- For spot treatments, apply prior to heading of grasses.

Shielded/Hooded Sprayers

Use Instructions: Apply 0.7 to 2.2 qts. of Touchdown Total in 10 to 20 gals. of water per acre to control weeds in the rows. Uniform planting in straight rows aids in shielded/hooded applications. Best results are obtained when the grass seed crop is small enough to easily pass by or through the protective shields/hoods.

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Wiper/Wick Applicators

Applicators should be adjusted so that the wiper contact point is at least 2 inches above the desirable vegetation. Weeds should be a minimum of 6 inches above the desirable vegetation. Better results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations, or when height of weeds varies so that not all weeds are contacted. In these instances, repeat treatments may be necessary. Better results may be obtained if 2 applications are made in opposite directions.

GRASSES

Touchdown Total can be used in the production of grasses listed below:

Bahiagrass
Bermudagrass
Bluegrass
Bromegrass
Fescue

Orchardgrass
Ryegrass
Timothy
Wheatgrass

Method of Application: Before, during, or after planting but before emergence; renovation; spot spray; and wiper/wick.

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

General Use Precautions for Grasses

- Remove domestic livestock and wait 8 weeks before grazing or harvesting for forage and hay following preplant, preemergence, or pasture renovation applications.
- If using spot or wiper/wick application, remove domestic livestock before application and wait 14 days before grazing or harvesting for forage or hay.

Tank Mixtures for Grasses Preplant/Preemergence, Dormant, or Renovation

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

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2,4-D
Dicamba

Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

HERBS (PEPPERMINT, SPEARMINT)

Method of Application: Spot spray

Touchdown Total may be applied as a spot spray in peppermint and spearmint. Apply spray-to-wet with hand-held equipment, such as backpack and knapsack sprayers, pump-up pressure sprayers, handguns, handwands, or any other hand-held or motorized spray equipment used to direct the spray solution on to a limited area.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES, and APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

General Use Precautions -

- Apply at least 7 days before harvest.
- Plants contacted by Touchdown Total will be injured or killed.

PASTURES

Touchdown Total can be used on pastures of the following types:

Alfalfa	Fescue
Bahiagrass	Orchardgrass
Bermudagrass	Ryegrass
Bluegrass	Timothy
Bromegrass	Wheatgrass
Clover	

Method of Application: Before, during, or after planting but before emergence; renovation; spot spray; and wiper/wick.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES, and APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections for rates and timing.

For best results, remove domesticated livestock 14 days before treatment. Allow 2-6 inches of new growth prior to treatment.

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To aid in renovation of pastures, Touchdown Total may be applied at 8 to 46 oz./A to dormant pastures. Applications of Touchdown Total to green, nondormant plant tissue of desirable species will cause stunting, plant injury, or plant death.

General Use Precautions for Pastures

- Remove domestic livestock and wait 8 weeks before grazing or harvesting for forage and hay following preplant, preemergence, or pasture renovation applications.
- If using spot or wiper/wick application, remove domestic livestock before application and wait 14 days before grazing or harvesting for forage or hay.

Tank Mixtures for Pastures

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

2,4-D
Dicamba

Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

PEANUTS

Method of Application: Before, during, or after planting, but before crop emergence.

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

SMALL GRAINS

Touchdown Total may be used on the small grain crops listed below:

Barley	Rye
Buckwheat	Teosinte
Millet (pearl, proso)	Triticale
Oats	Wheat (all)
Rice	Wild rice

Method of Application: Before, during, or after planting, but before crop emergence; as a spot spray (except rice); preharvest (wheat, feed barley); postharvest; and wiper/wick (wheat only).

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES, and APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Small Grains

- Apply at least 7 days before harvest at no more than 24 fl. oz./A preharvest in wheat and feed barley.
- For wiper/wick applications in wheat, allow at least 35 days between application and harvest.
- Crop plants contacted by Touchdown Total will be injured or killed.
- Avoid treating rice fields or levees when the field contains flood water.

Tank Mixtures for Preplant/Preemergence Use for Small Grains

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds. Under certain conditions, the mixture of Touchdown Total with one or more herbicide tank mix combinations may result in a reduction of activity.

Dicamba
2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

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Preharvest (Wheat and Feed Barley Only)

Touchdown Total may be applied as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total should be applied after the hard dough stage of grain (30% or less grain moisture). Cool, wet, and/or cloudy weather conditions following application may slow down the activity of this product. Do not apply a preharvest treatment on grain grown for seed as a reduction in germination or vigor may occur.

Red Rice Control Prior to Planting Rice

Prior to application, flush fields to promote uniform germination of red rice. Apply Touchdown Total at 36 to 48 fl. oz./A on red rice with at least 2 leaves and which is no more than 4 inches tall. Red rice with less than 2 developed leaves at the time of application may be only partially controlled.

Do not reflood rice fields for 8 days following application.

SORGHUM (MILO)

Method of Application: Before, during, or after planting, but before crop emergence; spot spray; wiper/wick; hooded sprayers; preharvest; and postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES, and APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Sorghum

- Contact with sorghum foliage may result in crop injury.
- Spot applications must be made before heading of milo.
- Wiper and wick applications must be made 40 days before harvest. Do not feed or graze wiper/wick treated milo fodder. Do not ensile wiper/wick treated foliage.
- Apply no more than 2.2 qts./A per season by hooded applications.
- Do not feed or graze sorghum forage and fodder after hooded applications.
- Preharvest applications must be made at least 7 days prior to harvest with a maximum of 1.4 qts./A.

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Tank Mixtures for Sorghum (Preplant/Preemergence)

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

Touchdown Total can be tank mixed with the following products:

Atrazine	Dicamba	Karate
Bicep Lite II	Dual II MAGNUM	Prowl
Bicep Lite II MAGNUM	Frontier	Warrior
Bicep II MAGNUM	Guardsman	

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Hooded Sprays

Touchdown Total may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the front and rear flaps touch the ground to completely enclose the spray solution.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop. Do not apply Touchdown Total when the leaves of the crop are growing in direct contact with weeds to be treated.

Application Requirements:

- The spray hoods must be operated on the ground or skimming across the ground. Treat before tillers extend between the drill rows as spray contacting these tillers may kill the main plant.
- Sorghum must be at least 12 inches tall, measured without extending leaves.
- Leave at least an 8 inch untreated strip over the drill row.
- Maximum allowable application speed is 5 mph.

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- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

Gramoxone Max Herbicide may be considered for hooded sprayer applications in sorghum. Use Gramoxone Max at 0.75 to 1.25 pts./A for control of actively growing weeds. Read and follow directions for this use on the Gramoxone Max Herbicide label.

Preharvest (Except California)

For weed control and desiccation of sorghum, apply 24 to 48 fl. oz./A. Apply in 3 to 30 gallons of water per acre by ground or in 3 to 15 gallons of water per acre by air.

Apply after most of the heads have matured. Apply when grain moisture is 30% or less. Development of immature heads will be interrupted and yield potential will be affected when applications are made too early. Do not apply a preharvest treatment on sorghum grown for seed as a reduction in germination or vigor may occur.

SOYBEANS (NOT GLYPHOSATE-TOLERANT)

Method of Application: Before, during, or after planting, but before crop emergence; spot spray; wiper/wick; preharvest; postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES, and APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Soybeans

- Soybeans, except glyphosate-tolerant varieties, will be injured or killed when contacted with Touchdown Total.
- Spot application must be made prior to initial pod set.
- Wiper/wick application must be made at least 7 days before harvest.
- Make preharvest applications at least 7 days before harvest of soybeans with no more than 4.3 qts./A by ground; and no more than 24 fl. oz./A by air.
- Allow at least 25 days before grazing or harvesting for livestock feed following harvest aid application.

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Tank Mixtures for Soybeans (Preplant/Preemergence)

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

For use with 2,4-D on perennial weeds, consult Table 3.

Touchdown Total can be tank mixed with the following products:

Authority™	FirstRate™	Linex	Scepter®
Authority Broadleaf	Flexstar®	Lorox	Sencor
Broadstrike	Frontier	Lorox Plus	Squadron®
Canopy®	Fusilade®	Partner®	Steel™
Canopy XL	Fusion®	Preview®	Turbo®
Command®	Gemini®	Prowl	Warrior
Cover™	Karate	Pursuit	2,4-D
Dual MAGNUM	Lasso	Pursuit Plus	2,4-DB
Dual II MAGNUM	Lexone	Reflex®	

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Preharvest

Touchdown Total may be applied preharvest as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total provides weed control when applied preharvest to soybeans and may aid in crop dry down. Apply to mature soybeans when pods have lost their color. Do not apply a preharvest treatment to soybeans grown for seed as a reduction in germination or vigor may occur.

SOYBEANS, GLYPHOSATE-TOLERANT (INCLUDING ROUNDUP READY SOYBEANS)

Method of Application: Before, during, or after planting; postemergence; and preharvest in soybean varieties which have been genetically modified to be tolerant to glyphosate based herbicides.

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Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Glyphosate-Tolerant Soybeans

- Applications of Touchdown Total prior to soybean emergence should not exceed a total of 3.6 qts./A.
- Make postemergence applications from cracking throughout flowering of soybeans at a maximum of 2.2 qts. per season with no more than 48 fl. oz./A for any single application.
- Make preharvest applications at least 14 days before harvest with no more than 24 fl. oz./A.
- All Touchdown Total applications for a soybean crop should not exceed a total of 5.8 qts./year.
- Do not graze or harvest for forage or hay.
- Drift control agents may be used.

Preplant/Preemergence

Touchdown Total may be used as a broadcast spray to control emerged annual and perennial weeds. Apply before, during, or after planting of soybeans. Touchdown Total can be tank mixed with the following products:

Authority	Dual II MAGNUM	Lexone	Reflex
Authority Broadleaf	FirstRate	Linex	Scepter
Boundary	Flexstar	Lorox	Sencor
Broadstrike	Frontier	Lorox Plus	Squadron
Canopy	Fusilade	Partner	Steel
Canopy XL	Fusion	Preview	Turbo
Command	Gemini	Prowl	Warrior
Cover	Karate	Pursuit	2,4-D
Dual MAGNUM	Lasso	Pursuit Plus	2,4-DB

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

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Postemergence

Annual Weeds

Apply Touchdown Total at 12 to 48 fl. oz./A from cracking through full flowering of soybean plants to control annual weeds. For best results, make the first application of Touchdown Total at 24 fl. oz./A within 30 days after planting on weeds up to 6 inches tall. Refer to Table 1 for specific rate information. Touchdown Total will not provide residual control. To control new weed flushes, repeat applications may be required.

Perennial Weeds

Apply Touchdown Total at 24 to 48 fl. oz./A to actively growing perennial grasses, sedges, and broadleaf weeds. Applications in crop on glyphosate-tolerant soybeans normally occur before perennial weeds reach the most desirable growth stage for control. Treatments made prior to the timing designated in Table 3 may require retreatment. Best control will be obtained when perennial broadleaf weeds are treated in the early bud to flowering stage and when perennial grasses are in the boot to seedhead stage. Refer to Table 3 for additional rate and timing information.

Tank Mixtures

Touchdown Total may be tank mixed with one or more of the following products:

Basagran®
Bravo®
Classic®
FirstRate
Flexstar
Fusilade
Fusion
Karate
Pinnacle®
Pursuit

Quadris®
Raptor™
Reflex
Reliance™ STS®
Scepter
Synchrony® STS®
Tilt®
Warrior

Use a minimum of 12 to 17 fl. oz./A Touchdown Total in mixture with postemergent tank mix herbicides on 3 inch tall weeds. Use a minimum of 17 to 24 fl. oz./A Touchdown Total in mixture with postemergent tank mix herbicides on 3-6 inch tall weeds. Under certain conditions, the mixture of Touchdown Total with one or more of the above mentioned herbicides may result in a reduction of activity. Tank mixes can result in increased crop injury as compared to either product used alone. Refer to individual product labels for precautionary statements, restrictions, rates, and list of weeds controlled.

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Preharvest

Touchdown Total may be applied preharvest as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total provides weed control when applied preharvest to soybeans. Apply to mature soybeans when pods have lost their color.

SUGARCANE

Method of Application: Before, during, or after planting, but before emergence of plant cane; spot spray; hooded sprayers; postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Sugarcane

- Do not apply to vegetation in or around ditches, canals, or ponds containing water.
- Do not feed or graze treated sugarcane foliage following spot spray application.
- Avoid contact with sugarcane foliage, as severe damage or destruction may result.

Tank Mixtures for Preplant/Preemergence Use for Sugarcane

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Atrazine	Lexone/Sencor
Banvel	Prowl
Clarity	Trifluralin
Karmex	2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Hooded Sprays

Touchdown Total may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the front and rear flaps touch the ground to completely enclose the

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spray solution.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop.

Application Requirements:

- The spray hoods must be operated on the ground or skimming across the ground.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

Sugarcane Ripening

To hasten ripening and extend the period of high sucrose levels in sugarcane see the following recommended use rates and application timing for each state listed.

LA – Apply 4.5-6 fl. oz./A 3–5 weeks before harvest of **ratoon cane only**.

TX – Apply 4.5-6 fl. oz./A 3–5 weeks before harvest of **ratoon cane only**.

FL – Apply 4.5-6 fl. oz./A 3–5 weeks before harvest of **last ratoon cane only**.

HI – Apply 4.5-6 fl. oz./A 4–10 weeks before harvest.

PR – Apply 4.5-6 fl. oz./A 3–5 weeks before harvest of **ratoon cane only**.

Use of this product may not increase sucrose content control under conditions of good natural ripening.

Fallow Treatments

For removal of the last stubble of ratoon cane between sugarcane crops, apply 3.0 to 3.6 qts. in 10 to 40 gals. of water per acre to new growth having at least 7 new leaves. Allow 7 days between application and tillage.

SUNFLOWER

Method of Application: Before, during, or after planting, but before crop emergence.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES, and APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Sunflowers

- Make only one preplant or preemergence application with no more than 24 fl. oz./A.

- Do not graze or feed sunflower forage.
- Avoid contact with sunflower foliage.

Tank Mixtures for Preplant/Preemergence Use for Sunflower

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 1.5 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Eptam
Prowl
Trifluralin

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

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VEGETABLE CROPS

Touchdown Total may be used on the vegetable crops listed below:

Amaranth	Guar
Arrugula	Horseradish
Artichoke (Jerusalem)	Kale
Asparagus	Kohlrabi
Beans (all)	Leeks
Beet, garden	Lentils
Beet, sugar	Lettuce
Broccoli (all)	Melons (all including citron, crenshaw, honey balls, honeydew, mango, musk, Persian)
Brussels Sprouts	Mizuna
Cabbage (all)	Mustard greens
Cabbage (Chinese)	Okra
Cantaloupe	Onions (green, spring, Japanese bunching)
Cardoon	Parsley, turnip-rooted
Carrot	Parsnip
Casaba	Peas (all)
Cavalo Broccolo	Pepinos
Cauliflower	Pepper (all)
Celeriac	Potato (Irish)
Celery	Pumpkin
Celery (Chinese)	Purslane
Celtuce	Radish
Chard (Swiss)	Radish, oriental (daikon)
Chayote	Rape greens
Chervil	Rhubarb
Chick peas	Rutabaga
Chicory	Salsify, black
Chrysanthemum	Salsify (oyster plant)
Collards	Salsify (Spanish)
Corn salad	Shallots
Cress	Spinach (all)
Cucumber	Spinach, mustard
Dandelion	Squash (summer, winter)
Dock (sorrel)	Sweet potato
Eggplant	Tomatillo
Endive	Tomato
Fennel (Florence)	Turnip
Garlic	Watercress
Gherkin	Watermelon
Ginseng	Yams
Gourd, edible	
Groundcherry	

Method of Application: Broadcast application before transplanting or before, during, or after planting but prior to crop emergence if direct seeded; spot spray; wiper/wick (rutabaga only); postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES, and APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label. Refer to **WEEDS CONTROLLED** for application rates and timing.

General Use Precautions for Vegetable Crops

- For **Asparagus**, do not apply broadcast within one week of emergence of first spears. Spot applications can be made immediately after cutting, but before emergence. Spears can be harvested 5 days after spot application. Postharvest applications can be made as a directed or shielded spray avoiding contact of the spray with the ferns, stems, or spears.
- Wait 3 days after application before planting cantaloupe, casaba, chayote, Chinese okra, Chinese waxgourd, cucumber, cucuzza, edible gourd, eggplant, gherkin, gourds, groundcherry, melons (all), pepper (all), pumpkin, squash, tomatillo, watercress, and watermelon.
- If transplanting into plastic mulch, ensure residues of this product are removed from the plastic prior to transplanting. Residues can be removed by a minimum of ½ inch of sprinkler irrigation or rainfall.
- Wiper/wick applications to rutabagas must be made at least 14 days before harvest.

Tank Mixtures With Residual Herbicides for Preplant/Preemergence Use in Vegetables

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Devrinol
Command
Dual MAGNUM
Dual II MAGNUM
Fusilade DX
Goal
Kerb
Lexone

Lorox
Matrix®
Prefar®
Prowl
Sencor
Trifluralin
Treflan®
Turbo

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Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

WEEDS CONTROLLED

Water volumes of 3 to 40 gallons per acre by ground equipment and 3 to 15 gallons by air are recommended. Use the minimum spray volume that provides adequate coverage.

When tank mixing with residual herbicides, refer to the individual crop section for recommendations.

Apply to actively growing weeds.

Table 1: Annual Weed Control – Touchdown Total Rates

Use the higher end of the rate range when stressful growing conditions or dense plant populations exist.

WEED SPECIES	SCIENTIFIC NAME	Touchdown Total FLUID OUNCES PER ACRE				
		MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Anoda, spurred	<i>Anoda cristata</i>	17-24	24-30			
Barley	<i>Hordeum vulgare</i>				12-17	17-24
Barnyardgrass	<i>Echinochloa crus-galli</i>	24	17-24	24-35		
Bassia, fivehook	<i>Bassia hyssopifolia</i>		24			
Bittercress	<i>Cardamine spp.</i>			6-12	12-17	
Bluegrass, annual	<i>Poa annua</i>			6-12		
Bluegrass, bulbous	<i>Poa bulbosa</i>			6-12		
Bristly starbur	<i>Ancanthosporium hispidum</i>		12-17	17-24		
Brome, downy ¹	<i>Bromus tectorum</i>		9-12	12-17		
Brome, Japanese	<i>Bromus japonicus</i>		6-12	12-17		17-24
Browntop panicum	<i>Panicum fasciculatum</i>		6-12	17-24		26-35
Buckwheat, wild ²	<i>Polygonum convolvulus</i>	24				
Buffalobur	<i>Solanum rostratum</i>	17-24	24-36	24-36		
Burcucumber	<i>Sicyos angulatus</i>		12-17	17-24		

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WEED SPECIES	SCIENTIFIC NAME	Touchdown Total FLUID OUNCES PER ACRE				
		MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Burgherkin	<i>Cucumis anguria</i>	17-24	24-36			
Buttercup ³	<i>Ranunculus</i> spp.			6-12	12-17	
Camphorweed	<i>Heterotheca subaxillaris</i>		24-36			
Canarygrass	<i>Phalaris canariensis</i>		17-24			
Carolina geranium ⁴	<i>Geranium carolinianum</i>	17-24	24-36			
Carpetweed	<i>Mullugo verticillata</i>		12-17	17-24		
Cheat	<i>Bromus secalinus</i>		6-12		12-17	
Chervil	<i>Anthriscus cerefolium</i>				6-12	
Chickweed, common	<i>Stellaria media</i>			6-17	17-24	
Chickweed, mouseear	<i>Cerastium vulgatum</i>		6-12	6-17	17-24	
Citronmelon	<i>Citrullus lanatus</i>	17-24	24-35			
Cocklebur, common	<i>Xanthium strumarium</i>			6-12	12-17	17-24
Coffee senna	<i>Cassia occidentalis</i>	17-24	24-35			
Corn ⁵	<i>Zea mays</i>		6-12	12-17		17-24
Corn speedwell	<i>Veronica arvensis</i>			6-12		
Cowpea	<i>Vigna unguiculata</i>	17-24	24-35			
Crabgrass ⁵	<i>Digitaria</i> spp.	12	12-17	17-24		
Crotalaria, showy	<i>Crotalaria spectabilis</i>	12-17	17-24	24-35		
Croton, tropic	<i>Croton glandulosus</i>	17-24	24-35	-		
Crowfootgrass	<i>Dactyloctenium aegyptium</i>	6-12	12-24	24-48		
Cutleaf eveningprimrose ⁴	<i>Oenothera laciniata</i>	17-24	26-35			
Devil's-claw (unicorn plant)	<i>Proboscidea louisianica</i>	17	24			
Dwarf dandelion	<i>Krigia cespitosa</i>				6-12	
Eastern mannagrass			6-12	12-17		
Eclipta	<i>Eclipta prostrata</i>	12-17	17-24	24-35		
Fall panicum	<i>Panicum dichotomiflorum</i>	6-12	17-24	24-35		26-35

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WEED SPECIES	SCIENTIFIC NAME	Touchdown Total FLUID OUNCES PER ACRE				
		MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Falsedandelion	<i>Pyrrhopappus carolinianus</i>				12-17	
Falseflax, smallseed	<i>Camelina microcarpa</i>			6-12		
Fiddleneck	<i>Amsinckia</i> spp.		17	24-35		
Filaree	<i>Erodium</i> spp.		17-24	24-35		
Fleabane, annual	<i>Erigeron annuus</i>		6-12		12-17	
Fleabane, hairy	<i>Conyza bonariensis</i>		17-24	24-35		
Fleabane, rough	<i>Erigeron strigosus</i>	6-12	12-17	17-24		
Florida beggarweed	<i>Desmodium tortuosum</i>		12-17	17-24		
Florida pusley	<i>Richardia scabra</i>	17-24	24-35			
Foxtails	<i>Setaria</i> spp.		6-12	12-17	17-24	
Goatgrass, jointed	<i>Aegilops cylindrica</i>		6-12	12-17		
Goosefoot, nettleleaf	<i>Chenopodium murale</i>		24-35			
Goosegrass	<i>Eleusine indica</i>	12-17	17-24	24-35		
Grain sorghum (milo)	<i>Sorghum bicolor</i>		6-12	12-17	17-24	
Groundcherry	<i>Physalis</i> sp.		24-35			
Groundsel, common	<i>Senecio vulgaris</i>		12-17			
Hemp sesbania	<i>Sesbania exaltata</i>	12-17	24-29	29-36		
Henbit	<i>Lamium amplexicaule</i>		17-24	26-35		
Hophornbeam copperleaf	<i>Acalypha ostryifolia</i>	17-23	26-35			
Horseweed/Marestail ^b	<i>Conyza canadensis</i>		12-17	17-24	24-35	
Itchgrass	<i>Rottboellia cochinchinensis</i>		6-12	17-24	24-35	
Jimsonweed	<i>Datura stramonium</i>			17-24	24-35	
Johnsongrass, seedling	<i>Sorghum halepense</i>		6-12	12-17	17-24	24-35
Junglerice	<i>Echinochloa colona</i>	12-17	17-24	24-35		
Knotweed	<i>Polygonum aviculare</i>		17-24	24-35		
Kochia ³	<i>Kochia scoparia</i>		12-17	17-24		
Lambsquarters, common	<i>Chenopodium album</i>		17-24	24-35	35-40	
Lettuce, prickly	<i>Lactuca serriola</i>		12-17	17-24		

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WEED SPECIES	SCIENTIFIC NAME	Touchdown Total FLUID OUNCES PER ACRE				
		MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Little barley	<i>Hordeum pussillum</i>		6-12	12-17		
London rocket	<i>Sisymbrium irio</i>		6-12			17-24
Mayweed	<i>Anthemis cotula</i>	12-17	17-24		24-35	
Morningglory ^{4,7}	<i>Ipomoea spp.</i>	17-24	24-35			
Mustard, blue	<i>Chorispora tenella</i>		6-12	12-17	17-24	
Mustard, tansy	<i>Descurainia pinnata</i>		6-12	12-17	17-24	
Mustard, tumble	<i>Sisymbrium altissimum</i>		6-12	12-17	17-24	
Mustard, wild	<i>Brassica kaber</i>		6-12	12-17	17-24	
Nightshade, black	<i>Solanum nigrum</i>	17	17-24	24-35		
Nightshade, hairy	<i>Solanum sarrachoides</i> <i>Sendtner</i>	17	17-24	24-35		
Oats	<i>Avena sativa</i>	12	12-17		17-24	
Oats, wild	<i>Avena fatua</i>	12	12-17		17-24	
Panicum, Texas	<i>Panicum texanum</i>		6-12	17-23		24-35
Pennycress, field	<i>Thlaspi arvense</i>		6-12	12-17		
Pigweed	<i>Amaranthus spp.</i>			12-17	17-24	24-29
Poinsettia, wild	<i>Euphorbia heterophylla</i>	12-17	24-35			
Prickly sida (Teaweed) ^{4,7}	<i>Sida spinosa</i>	17-24	24-35			
Puncturevine	<i>Tribulus terrestris</i>	17-24	24-35			
Purslane, common	<i>Portulaca oleracea</i>	17-24	24-35			
Rabbitfootgrass	<i>Polypogon</i> <i>monspeliensis</i>		17-24			
Ragweed, common	<i>Ambrosia artemisiifolia</i>		12-17	17-24	24-35	
Ragweed, giant	<i>Ambrosia trifida</i>		12-17	17-24	24-35	
Red rice	<i>Oryza sativa</i>	17-24				
Redweed	<i>Melochia corchorifolia</i>	17-24	24-35			
Rockpurslane Redmaids	<i>Calandrinia sp.</i>		17-24			
Rye	<i>Secale cereale</i>		6-12		17-24	24-35
Ryegrass, Italian	<i>Lolium multiflorum</i>		17-24	24-35		
Sandbur, field	<i>Cenchrus incertus</i>		12	12-17		

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WEED SPECIES	SCIENTIFIC NAME	Touchdown Total FLUID OUNCES PER ACRE				
		MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Sandbur, southern	<i>Cenchrus echinatus</i>	6-12	12-17	17-24		
Shattercane	<i>Sorghum bicolor</i>		6-12	12-17	17-24	
Shepherdspurse	<i>Capsella bursa-pastoris</i>		6-12	12-17		
Sicklepod	<i>Cassia obtusifolia</i>	17-24	24-35			
Signalgrass, broadleaf	<i>Brachiaria platyphylla</i>	12-17	17-24	24-35		
Smartweed (ladysthumb)	<i>Polygonum persicaria</i>		17-24	24-35		
Smartweed, Pennsylvania	<i>Polygonum pensylvanicum</i>		17-24	24-35		
Sowthistle, annual	<i>Sonchus oleraceus</i>		17-24	24-35		
Spanishneedles	<i>Bidens bipinnata</i>		17-24	24-35		
Speedwell, purslane	<i>Veronica peregrina</i>			6-12		
Sprangletop	<i>Leptochloa</i> spp.		6-12	12-17	17-24	
Spurge, prostrate	<i>Euphorbia</i> spp.		12-17	17-24		
Spurge, spotted	<i>Euphorbia maculata</i>		12-17	17-24		
Spurry, umbrella	<i>Holosteum umbellatum</i>		12-17			
Stinkgrass	<i>Eragrostis ciliaris</i>			12-17		
Sunflower, common	<i>Helianthus annuus</i>			6-12	12-17	
Thistle, Russian	<i>Salsola iberica</i>		17-24	24-35		
Velvetleaf ¹	<i>Abutilon theophrasti</i>		17-24	24-35		
Virginia copperleaf	<i>Acalypha virginica</i>	17-24	24-35			
Virginia pepperweed	<i>Lepidium virginicum</i>				12-17	
Waterhemp	<i>Amaranthus</i> spp.		17-24	24-35		
Wheat	<i>Triticum aestivum</i>		6-12	12-17	17-24	
Wild Buckwheat	<i>Polygonum convolvulus</i>		17-24	24-36		
Wild-proso millet	<i>Panicum miliaceum</i>		17	24	35	
Witchgrass	<i>Panicum capillare</i>			12-17		
Woolly cupgrass	<i>Eriochloa villosa</i>		12-17	17-24		
Yellow rocket	<i>Barbarea vulgaris</i>			12-17	17-24	

¹ In no-till systems, use 17 oz./A.

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- 2 Maximum runner length. For control of wild buckwheat >3" in runner length, use sequential applications of 24 oz./A.
- 3 Control will be reduced at the button stage.
- 4 When the predominant weed species include Carolina geranium, cutleaf eveningprimrose, and henbit that are less than 6 inches tall, Gramoxone Max should be considered as an alternative.
- 5 Will not control glyphosate-tolerant volunteer corn.
- 6 Plant diameter.
- 7 Multiple applications may be required.
- 8 Will not control glyphosate-tolerant marestail/horseweed. Glyphosate-tolerant biotypes can be controlled by timely application of Gramoxone Max plus either 2,4-D and/or a PSI herbicide prior to planting.

Table 2: Annual Weed Control – Touchdown Total Rates in a Tank Mix with 0.25 lb. a.i./A of Dicamba or 0.5 lb. a.i./A of 2,4-D

WEED SPECIES	SCIENTIFIC NAME	MAXIMUM HEIGHT/ LENGTH	Touchdown Total FLUID OUNCES PER ACRE
Kochia (dicamba only)	<i>Kochia scoparia</i>	6"	12-17
Lettuce, prickly	<i>Lactuca serriola</i>		
Morningglory	<i>Ipomoea</i> spp.		
Ragweed, common	<i>Ambrosia artemisiifolia</i>		
Ragweed, giant	<i>Ambrosia trifida</i>		
Smartweed, Pennsylvania	<i>Polygonum pennsylvanicum</i>		
Velvetleaf	<i>Abitilon theophrasti</i>		
Cocklebur, common	<i>Xanthium strumarium</i>	12"	
Fleabane, rough	<i>Erigeron strigosus</i>		
Horseweed/Marestail*	<i>Conyza canadensis</i>		
Kochia	<i>Kochia scoparia</i>		
Lambsquarters, common	<i>Chenopodium album</i>		
Pigweed	<i>Amaranthus</i> spp.		
Sunflower, common	<i>Helianthus annuus</i>		
Thistle, Russian	<i>Salsola iberica</i>		

Read and follow dicamba and 2,4-D labels.

*Glyphosate-tolerant biotypes less than 3 inches tall can be controlled by Gramoxone Max plus either 2,4-D or a triazine-based herbicide.

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Table 3: Perennial Weed Control and Weed Management – Touchdown Total Rates Used Alone or in Tank Mix with 0.25 lb. a.i./A of Dicamba or 0.5 lb. a.i./A of 2,4-D

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Alfalfa	<i>Medicago sativa</i>	1.5	1-1.5		At 6-8 inch stage or more after final cutting in fall. Deep till 7 days after treatment.
Artichoke, Jerusalem	<i>Helianthus tuberosus</i>	1.5	2.2-3.6		At or after flowering.
Balsam-apple ¹	<i>Momordica charantia</i>	1.5			Apply at or beyond bloom.
Bahiagrass	<i>Paspalum notatum</i>	1.5	2.2-3.6		Early seedhead stage.
Barley, foxtail	<i>Hordeum jubatum</i>	1.5	0.75-1.6		4-6 inch stage.
Bentgrass	<i>Agrostis</i> spp.	1.5	1.1		Should have at least 3 inches of growth. Ensure entire crown area has resumed growth prior to fall application. Till 7-10 days after application.
Bermudagrass	<i>Cynodon dactylon</i>	1.5	2.2-3.6		Seedheads present; may require retreatment.
Bermudagrass, water (knotgrass)		1.5	1.1		Apply when water bermudagrass is 12-18 inches in length. Allow 7 days before flushing or flooding the field. Not registered for use in California on this weed.
Bindweed, field	<i>Convolvulus arvensis</i>	1.5	2.7-3.6		At or after flowering, west of Mississippi River, in late summer for best results.
			2.2-2.7		At or after flowering, east of Mississippi River, in late summer for best results.
			1.4	Yes	At or after flowering for control, multiple applications may be required. Do not apply by air.
			0.7-1.4	Yes	For suppression on irrigated agricultural land, by ground equipment only. Apply in fall or following harvest on runners 12 inches or more in length.
Bindweed, field (continued)	<i>Convolvulus arvensis</i>		0.4	Yes	For suppression by ground or aerial applications. Apply by air in fallow and reduced tillage systems only. Applications should be delayed until maximum emergence has occurred and when vines are between 6-18 inches in length.

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WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
			0.7-3.6		In California: Apply at 12 inches or greater runner length. Use high end of rate range where dense populations exist. For suppression on land which is irrigated and tilled, use 0.7 qt./A.
Bluegrass, Kentucky	<i>Poa pratensis</i>	1.5	0.75-1.4		Apply at boot to early seedhead stage.
			0.75-1.1		For partial control in pasture or hay crop renovation, apply when plants are 4-12 inches.
Blueweed, Texas	<i>Helianthus ciliaris</i>	1.5	2.7-3.6		Apply at or beyond bloom west of the Mississippi River. For best results, apply in late summer or fall, but before a killing frost.
			2.2-2.7		Apply at or beyond bloom east of the Mississippi River. For best results, apply in late summer or fall, but before a killing frost.
Brackenfern	<i>Pteridium aquilinum</i>	0.7-1.1	2.2-3.3		FronDS fully expanded and at least 18 inches long.
Bromegrass, smooth	<i>Bromus inermis</i>	1.5	0.75-1.6		Apply when most plants are at the boot to early seedhead stage.
			0.75-1.1		For partial control in pasture or hay crop renovation, apply to actively growing plants 4-12 inches in height.
Bursage, woollyleaf	<i>Ambrosia grayi</i>	1.5	1.4	Yes	Apply to actively growing plants at or beyond flowering.
			0.75	Yes	Apply to actively growing plants at or beyond flowering.
Canarygrass, reed	<i>Phalaris arundinacea</i>	1.5	1.6-2.2		Boot to head.
Cattail	<i>Typha</i> spp.	1.5	2.2-3.6		Early head to early bud.
Clover, red Clover, white	<i>Trifolium pratense</i> <i>Trifolium repens</i>	1.5	2.2-3.6		Early head to early bud. May require retreatment.
Cogongrass	<i>Imperata cylindrica</i>	1.5	2.2-3.6		Late summer/fall, greater than 18 inches in height. May require retreatment.
Dallisgrass	<i>Paspalum dilatatum</i>	1.5	2.2-3.6		Early head to early bud.
Dandelion	<i>Taraxacum officinale</i>	1.5	2.2-3.6		Early bud.
			0.4	Yes	Early bud.
Dayflower ¹	<i>Commelina</i> spp.	1.5	1.1-1.6		Less than 4 inches in height.
Dock, curly	<i>Rumex crispus</i>	1.5	2.2-3.6		Early bud.
			0.4	Yes	Early bud.
Dogbane, hemp	<i>Apocynum cannabinum</i>	1.5	3.3		Late bud to flower. May require retreatment.
			0.4	Yes	Actively growing at 6-12 inch stage for suppression.

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WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Dogfennel	<i>Eupatorium capillifolium</i>	1.5	2.2-3.6		Actively growing, less than 12 inches in height.
Fescue	<i>Festuca spp.</i>	1.5	2.2-3.6		Apply when most plants have reached the early head stage.
Fescue, tall	<i>Festuca arundinacea</i>	1.5	0.75-2.2		Apply 2.2 qts./A when most plants have reached boot to early seedhead stage. Fall applications only: Apply 0.75 qt./A when plants are 6-12 inches in height. A spring applied sequential treatment of 0.75 pt./A will improve long term control.
Goatweed	<i>Scoparia dulcis</i>	1.5	1.4-2.2		Less than 8 inch stage.
Guineagrass	<i>Panicum maximum</i>	0.7	1.6-2.2		7-10 leaf stage.
Horsenettle	<i>Solanum carolinense</i>	1.5	2.2-3.6		Early bud stage.
Horseradish	<i>Armoracia rusticana</i>	1.5	3.3		Apply when most plants have reached the late bud to early flower stage in late summer or fall.
Iceplant	<i>Mesembryanthemum crystallinum</i>	1.1-1.5	-		At or beyond the early bud stage.
Johnsongrass	<i>Sorghum halepense</i>	0.7	0.4-2.2		Apply at boot to head stage and in the fall prior to frost. Use 0.7 to 1.4 qts./A for annual tillage systems. Use 1.4 to 2.2 qts./A on no-till acres. Allow 3-7 days before tillage.
			0.4		For burndown, apply when plants are 12 inches in height and allow 3 days before tillage.
Kikuyugrass	<i>Pennisetum clandestinum</i>	1.5	1.6-2.2		Spray when most kikuyugrass is at least 8 inches in height. Allow 3 or more days after application before tillage.
Knapweed	<i>Centaurea spp.</i>	1.5	3.3		Apply in fall at late bud to flower stage.
Lantana, largeleaf	<i>Lantana camara</i>	1.0	-		Apply at or beyond bloom stage.
Lespedeza	<i>Lespedeza spp.</i>	1.5	2.2-3.6		Apply when most plants have reached the early bud stage.
Milkweed, common	<i>Asclepias syriaca</i>	1.5	2.2	Yes	Apply when most plants have reached the early bud stage.
Milkweed, honeyvine	<i>Ampelamus albidus</i>	1.5	1.6-3.3	Yes	Late bud to early flower. May require retreatment.

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WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Muhly, wirestem	<i>Muhlenbergia frondosa</i>	1.5	0.75-1.6		Use 0.75 to 1.6 qts./A in pasture, sod, or noncrop areas. Spray plants 8 inches or more in height. Do not till between harvest and fall applications or in the fall or spring prior to spring applications. Allow 3 or more days after application before tillage.
Mullein, common	<i>Verbascum thapsus</i>	1.5	2.2-3.6		Early bud.
Napiergrass	<i>Pennisetum purpureum</i>	1.5	2.2-3.6		Early head stage.
Nightshade, silverleaf	<i>Solanum eleagnifolium</i>	1.5	1.6		Apply when 60% of plants have berries. Apply fall treatments before a killing frost.
Nutsedge, purple Nutsedge, yellow	<i>Cyperus rotundus</i> <i>Cyperus esculentus</i>	0.7-1.5	0.4-2.2		Apply 2.2 qts./A for control of nutsedge plants and immature nutlets attached to treated plants. Treat when plants are in flower or when new nutlets can be found at rhizome tips. Nutlets which have not germinated will not be controlled and may germinate following treatment. Sequential applications: 0.7-1.4 qts./A applied to plants in the 3-5 leaf stage or less than 6 inches tall. Repeat treatments at this stage for long term control. For partial control: apply 0.4-1.4 qts. per acre. Treat when plants have 3-5 leaves or less than 6 inches tall. Repeat treatments at this stage for long term control.
Orchardgrass	<i>Dactylis glomerata</i>	1.5	0.75-1.6		Apply 1.4 qts./A on plants at early boot to seedhead stage. For partial control in pasture or hay crop renovation, apply 0.75-1.1 qts./A. Apply to actively growing plants 4-12 inches in height. In orchardgrass sods rotated to no-till corn: Apply 0.75-1.1 qts. Apply to orchardgrass that is a minimum of 12 inches tall for spring applications and 6 inches tall for fall applications. Allow at least 3 days following application before planting. A sequential application of atrazine will be required for optimum results.
Pampasgrass	<i>Erianthus ravennae</i>	1.0-1.5			Apply at or beyond boot stage.
Paragrass	<i>Brachiaria mutica</i>	1.5	2.2-3.6		Early seedhead stage.

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WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Phaseybean ¹	<i>Phaseolus lathyroides</i>	1.5	1.6-3.3		Less than 8 inches tall.
Phragmites ¹	<i>Phragmites</i> spp.	1.0-1.5	2.2-3.6		For best results, treat during late summer or fall months or when plants are actively growing and in full bloom. Repeat treatments may be necessary. Visual control symptoms will be slow to develop.
Poison hemlock	<i>Conium maculatum</i>	1.0-1.5			Apply as a spray to wet treatment. Optimum results are obtained when plants are treated at the bud to full-bloom stage of growth.
Pokeweed, common	<i>Phytolacca americana</i>	1.5	1.1		Apply to actively growing plants up to 24 inches in height.
Quackgrass	<i>Agropyron repens</i>	1.5	0.75-2.2		Apply 0.75-2.2 qts./A in annual cropping systems, or in pastures and sods where deep tillage is used. Do not tank mix with a residual herbicide at the 0.75 qt. rate. Spray when quackgrass is 6-8 inches in height. Do not till between harvest and fall applications or in the fall or spring prior to spring application. Allow 3 or more days after application before tillage.
			1.6-2.2		Apply in pastures, sod, or noncrop areas where deep tillage will not follow the application. Spray when quackgrass is at least 8 inches in height.
Redvine ¹	<i>Brunnichia ovata</i>	1.5	0.5-1.6		For suppression, apply 0.5 qt./A at each of two applications 7-14 days apart or a single application of 1.6 qts./A. Apply to plants greater than 18 inches tall in September/October to plants which have been growing 45-60 days since the last tillage. Make application at least 1 week prior to killing frost.
Ryegrass, perennial	<i>Lolium perenne</i>	1.0	0.75-2.2		Apply 0.7-2.2 qts./A when most plants are in the boot to head stage or prior to frost. In noncrop or areas where no tillage is practiced, use 1.6-2.2 qts./A. Do not tank mix with residual herbicides when using the 0.75 qt./A per acre rate.
Smallflowered Alexandergrass	<i>Brachiaria subquadrifera</i>	1.5	1.6-3.3		Less than 4 inches in height, actively growing.
Smartweed, swamp	<i>Polygonum coccineum</i>	1.5	2.2-3.6		Early bud, 12 inch stage.
			0.4	Yes	Early bud, 12 inch stage.

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WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Sowthistle, perennial	<i>Sonchus arvensis</i>	1.5	1.6-2.2		Apply when most plants are at or beyond the bud stage of growth. After harvest, mowing, or tillage in the late summer or fall, allow at least 4 weeks for initiation of active growth and rosette development prior to application. Fall treatments must be applied before a killing frost. Allow 3 or more days before tillage.
Spurge, leafy	<i>Euphorbia esula</i>	1.5	0.4	Yes	For suppression: greater than 12 inches tall in late summer.
Sweet potato, wild	<i>Ipomea pandurata</i>	1.5			Apply at or beyond flowering stage.
Switchgrass	<i>Panicum virgatum</i>	1.5	1.1-2.2		Boot to head stage.
Thistle, artichoke	<i>Cynara cardunculus</i>	1.5			Apply when plants are beyond the bloom stage.
Thistle, Canada	<i>Cirsium arvense</i>	1.5	1.6-2.2		Apply when most plants are at or beyond the bud stage of growth. After harvest, mowing, or tillage in the late summer or fall, allow at least 4 weeks for initiation of active growth and rosette development prior to application. Fall treatments must be applied before a killing frost. Allow 3 or more days before tillage. For fall applications or following mowing, allow a minimum of 6-8 inches rosette development.
			0.4-0.7	Yes	For suppression: Apply in late summer or fall after harvest, mowing, or tillage. Allow rosette regrowth to be a minimum of 6 inches in diameter before treating. Allow 3 or more days before tillage.
Timothy	<i>Phleum pratense</i>	1.5	1.6-2.2		Boot to head; wait 3 days before tillage.
Torpedogras	<i>Panicum repens</i>	1.5	2.7-3.6		At or beyond seedhead. Repeat applications will be required to maintain control. Fall treatments must be made prior to a killing frost.
Trumpet creeper	<i>Campsis radicans</i>	1.5	1.6		Late September/October applications on actively growing plants at least 18 inches in height; retreatment may be required. Make applications at least one week before killing frost.
Vaseygrass	<i>Paspalum urvillei</i>	1.5	2.2-3.6		Apply at early head stage.
Vetch	<i>Vicia spp.</i>	1.5	1.4-2.9		Boot to head.

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WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Virginia creeper	<i>Parthenocissus quinquefolia</i>	1.5	3.3		Full leaf expansion.
Velvetgrass	<i>Holcus spp.</i>	1.5	2.2-3.6		Early head stage
Wheatgrass, western	<i>Agropyron smithii</i>	1.5	1.6-2.2		Boot to head.

¹ Partial control.

Table 4: Woody Brush and Trees Controlled

Apply Touchdown Total after full leaf expansion, unless otherwise directed. Use the higher rate for larger plants and/or dense areas of growth. On vines, use the higher rate for plants that have reached the woody stage of growth. In most areas, best results are obtained when application is made in late summer or fall after fruit formation.

In arid areas, best results are obtained when applications are made in the spring to early summer when brush species are at high moisture content and are flowering.

Symptoms may not appear prior to frost or senescence with fall treatments.

Allow 7 or more days after application before tillage, mowing, or removal. Repeat treatments may be necessary to control plants regenerating from underground parts or seed. Reduced performance may result if fall treatments are made following a frost.

When plants are growing under stressed conditions, or where infestations are dense, Touchdown Total may be used at 3.6 to 7.6 quarts per acre or a 0.7 to 1.5% solution for spot spray clean-up.

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The following are controlled with 1.6 to 2.2 qts.¹	
Birch	Rose, multiflora
Cherry; bitter, black, pin	Salmonberry
Elderberry	Sweetgum
Hawthorn	Thimbleberry
Hazel	Trumpet creeper
Oak, southern red	
The following are controlled with 2.2 to 3.3 qts.¹	
Alder	Oak, post
Blackberry	Quaking Aspen
Honeysuckle	Willow
The following are controlled with 2.7 to 3.6 qts.¹	
Kudzu	
Poison ivy/Poison oak	
The following are controlled with 1.6 to 3.6 qts.¹	
Ash ²	Oak; black, white ²
Bearmat (Bearclover) ²	Oak; northern, pin
Beech ²	Oak, scrub ²
Blackgum	Persimmon ²
Bracken	Pine
Cascara ²	Poplar, yellow ²
Ceanothus ²	Redbud, eastern
Chamise ²	Russian olive ²
Dogwood ²	Sage, white ²
Elm ²	Saltcedar
Florida holly (Brazilian peppertree) ²	Sassafras ²
Gorse ²	Sourwood ²
Hickory ²	Sumac; poison, smooth, winged ²
Hornbeam, American ²	Swordfern ²
Locust, black ²	Vine maple ²
Manzanita ²	Virginia creeper
Maple, red	Waxmyrtle, southern ²
The following are controlled with 3.6 qts.¹	
Broom; French, Scotch	Maple, sugar
Buckwheat, California ²	Monkey flower ²
Catsclaw ²	Sage, black
Coyote brush	Sage brush, California
Eucalyptus	Tallowtree, Chinese
Hasardia ²	Tan oak resprouts ²
Madrone resprouts ²	Tobacco, tree ²

¹ Alternatively, use a 1.5% solution for spot spray clean-up.

² Provides partial control

This product is sold only for uses stated on its label. This formulation is covered by U.S. Patent No. 5,468,718.

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Syngenta Crop Protection at 1-800-334-9481.

Syngenta Crop Protection, Inc.
Greensboro, North Carolina 27409
www.syngenta-us.com

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Base Label
(2.5, 30, 120 gal. and bulk)

GROUP 9 HERBICIDE

Touchdown Total™
IQ® Technology
Herbicide

Nonselective Foliar Systemic Herbicide for Weed Control



Active Ingredient:	
*Glyphosate: N-(phosphonomethyl) glycine	36.5%
Other Ingredients:	63.5%
Total:	100.0%

*Contains 500 grams per liter or 4.17 pounds per U.S. gallon of glyphosate acid.

KEEP OUT OF REACH OF CHILDREN.

CAUTION

See additional precautionary statements and directions for use in attached booklet.

EPA Reg. No. 100-1169
EPA Est. 100-LA-001 [2.5, 30, 120 gallon]
EPA Est. _____ [Bulk]

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Syngenta Crop Protection, Inc.
Greensboro, North Carolina 27409
www.syngenta-us.com

2.5, 30, 120 gallons
Net Contents

___ gallons [Bulk]
Net Contents

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Harmful if inhaled. Avoid breathing spray mist. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

FIRST AID	
If in eyes:	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 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.
If inhaled:	<ul style="list-style-type: none"> • 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 further treatment advice.
If on skin or clothing:	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If swallowed:	<ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice. • Have 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.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
HOT LINE NUMBER For 24 Hour Medical Emergency Assistance (Human or Animal) Or Chemical Emergency Assistance (Spill, Leak, Fire or Accident), Call 1-800-888-8372	

Environmental Hazards

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash waters.

Physical and Chemical Hazards

Do not store, mix or apply this product or spray solutions of this product in unlined steel (except stainless steel), galvanized steel containers, or sprayer tanks. This product or spray solutions of this product will react with these containers and tanks and produce hydrogen gas which may form a highly combustible mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by spark, open flame, lighted cigarette, welder torch, or other ignition source.

Spray solutions of this product should be mixed, stored and applied using only stainless steel, fiberglass, plastic, or plastic-lined steel containers.

[Bulk]:

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product should be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of SYNGENTA CROP PROTECTION, Inc. or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold SYNGENTA and Seller harmless for any claims relating to such factors.

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AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

STORAGE AND DISPOSAL

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

Pesticide Storage

Keep container closed to prevent spills and contamination.

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

Triple rinse (or equivalent). 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.

CONTAINER IS NOT SAFE FOR FOOD, FEED OR DRINKING WATER!