STATE OF HAWAII
Department of Agriculture
ACCEPTED
LICENSE NO. 9226.432

PULL HERE TO OPEN

GROUP 9 HERBICIDE

Touchdown Total®

iQ® TECHNOLOGY

syngenta®

Herbicide

Nonselective Foliar Systemic Herbicide for Weed Control

LOW FOAM TECHNOLOGY

Active Ingredient:	
*Potassium salt of glyphosate: N-(phosphonomethyl) glycine . . .	44.9%
Other Ingredients:	55.1%
Total:	100.0%

*Contains 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

SCP 1169A-L1H 0812
4015667

2.5 gallons
Net Contents

™

FIRST AID	
If in eyes	• 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	• 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	• 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	• 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.

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 exists, 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.

continued...

PRECAUTIONARY STATEMENTS *(continued)*

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.

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 must 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, LLC or Seller. To the extent permitted by applicable law, 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. To the extent permitted by applicable law: (1) this warranty does not extend to the use of this product contrary to label instructions or under conditions not reasonably foreseeable to or beyond the control of Seller or SYNGENTA, and, (2) Buyer and User assume the risk of any such use. TO THE EXTENT PERMITTED BY APPLICABLE LAW, SYNGENTA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS WARRANTED BY THIS LABEL.

To the extent permitted by applicable law, in no event shall SYNGENTA be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **TO THE EXTENT PERMITTED BY APPLICABLE LAW, 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 Limitation of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of SYNGENTA.

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.

GENERAL INFORMATION

Touchdown Total is a nonselective foliar systemic herbicide used for control of a broad spectrum of emerged annual and perennial grass and broadleaf weeds and unwanted woody brush and trees.

Touchdown Total is formulated as a liquid concentrate that contains 4.17 lbs. acid equivalent per gallon, in the potassium salt form.

Touchdown Total may be used in the following agricultural and nonagricultural areas:

USE AREAS AND CROPS

- alfalfa (including glyphosate-tolerant), clover, and other legumes
- berries, fruits, nuts, and vines
- canola (including glyphosate-tolerant)
- conservation compliance/conservation reserve program (CRP)
- corn (including glyphosate tolerant)
- cotton (including glyphosate tolerant)
- fallowland and postharvest
- grasses and grass seed production
- herbs
- pastures
- peanuts
- small grains
- sorghum
- soybeans (including glyphosate-tolerant)
- sugar beet (including glyphosate-tolerant)
- sugarcane
- sunflower
- vegetables

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USE AREAS AND CROPS *(continued)*

- airports
- apartment complexes
- Christmas tree farms
- farmsteads
- fencerows
- forests
- golf courses
- habitat restoration and management areas
- highways
- industrial sites
- lumber yards
- manufacturing sites
- natural areas
- office complexes
- ornamental nurseries
- parks
- parking areas
- pasture and rangeland
- petroleum tank farms and pumping installations
- pipeline, power, telephone and utility rights-of-way
- railroads
- recreational areas
- residential areas (commercial applicators only)
- roadsides
- school grounds
- storage areas
- utility substations
- warehouse areas

USE PRECAUTIONS AND RESTRICTIONS

- Do not apply this product through any type of irrigation system.
- Do not apply this product by direct application (ground or air) to any body of water.
- 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.
- The **MAXIMUM USE RATES** indicated for Touchdown Total have been determined based upon the concentration of glyphosate acid (expressed as acid equivalents) contained in this product. The actual maximum application rates stated apply to the total amount of glyphosate acid equivalents applied to a given site in any year either from the application of this product alone or in combination with other glyphosate-containing products, applied either as mixtures with other products or separately. Application rates must be calculated to ensure that the use of this and other glyphosate-containing products does not exceed the maximum use rate as specified below unless otherwise specified in the specific use directions.
- In agricultural use sites and crop areas, do not exceed a total of 5.8 qt Touchdown Total/A, equivalent to 6 lb glyphosate acid equivalents per acre per year.
- In nonagricultural use areas, do not exceed a total of 7.6 qt Touchdown Total/A equivalent to 8 lb glyphosate acid equivalents per acre per year.
- 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.
- Do not allow the herbicide solution to mist, drip, drift, or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants, or other areas on which treatment was not intended. When spraying, avoid combinations of pressure and nozzle type that will result in splatter or fine particles (mist) which are likely to drift. Avoid applying at excessive speed or pressure.
- 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.
- 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.

- 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, aluminum, 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.

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 a number of species, including horseweed/marestail (*Conyza canadensis*), hairy fleabane (*Conyza bonariensis*), rigid ryegrass (*Lolium rigidum*), Palmer amaranth (*Amaranthus palmeri*), common waterhemp (*Amaranthus rudis*), common ragweed (*Ambrosia artemisiifolia*), giant ragweed (*Ambrosia trifida*), and johnsongrass (*Sorghum halepense*), 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.

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 glyphosate-tolerant corn and 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 glyphosate-tolerant 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 glyphosate-tolerant crops likely to require more than one application of glyphosate.
d. To manage glyphosate-tolerant 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

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.

RATES

Follow specified 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 to 2% by weight or 8.5 to 17.0 lb/100 gallons 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.

When an adjuvant is to be used with this product, the use of an adjuvant that meets the requirements of the Chemical Producers and Distributors Association (CDPA) adjuvant certification program is recommended.

TANK MIXES WITH RESIDUAL HERBICIDES

Refer to crop sections for 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 1/2 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 to 40 gallons 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 weeds. Flood nozzles may result in reduced weed control due to inadequate coverage.

Do not make direct applications to any body of water.

Air

Applications should be made in 3 to 15 gallons 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

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.

Do not make direct applications 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.

Touchdown Total Spot Spray Dilution Table

	To Make This Volume			
Solution Strength	**1 gallon**	**10 gallons**	**25 gallons**	**100 gallons**
0.4%	0.5 fl oz	5 fl oz	12 fl oz	3 pt
0.7%	0.9 fl oz	9 fl oz	1.4 pt	5.6 pt
0.9%	1.2 fl oz	12 fl oz	1.9 pt	3.8 qt
1.1%	1.4 fl oz	14 fl oz	2.2 pt	4.4 qt
1.5%	1.9 fl oz	1.2 pt	3 pt	1.5 gal
2.2%	2.8 fl oz	1.8 pt	4.4 pt	2.2 gal
5%	6.4 fl oz	4 pt	10 pt	5 gal
10%	12.8 fl oz	1 gal	2.5 gal	10 gal

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 qt of Touchdown Total in 2 gallons of water unless directed otherwise in this label (see **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.

Injection Systems

Touchdown Total may be used in aerial or ground injection spray systems. It may be used as a liquid concentrate or diluted prior to injecting into the spray stream. Do not mix Touchdown Total with the undiluted concentrate of other products when using injection systems unless specifically recommended.

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 qt/A). For vehicle mounted equipment, apply in 3 to 15 gallons 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.

CROP USE DIRECTIONS

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

ALFALFA (NOT GLYPHOSATE-TOLERANT), 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; wiper/wick; preharvest; 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

Use this treatment to eliminate or destroy declining crop stands. In alfalfa, up to 48 fl oz per acre of Touchdown Total may be applied as a broadcast spray with ground or aerial equipment at least 36 hours before harvest. For other legumes listed, apply up to 34 fl oz per acre at least three days before harvest. Applications may be made any time of the year when the 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.

Use Precautions and Restrictions 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 pt/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.

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 pt/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®	Sencor®	Trifluralin	

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

ALFALFA, GLYPHOSATE-TOLERANT

For use on the following glyphosate-tolerant alfalfa only: all Roundup Ready® alfalfa, including Roundup Ready Alfalfa.

Method of Application: Before, during, or after planting; and postemergence in alfalfa varieties which have been genetically modified to be tolerant to glyphosate-based herbicides. Touchdown Total applications should be made after weeds have emerged but before crop growth interferes with spray coverage of the weeds.

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.

Use Precautions and Restrictions for Glyphosate-Tolerant Alfalfa

- Maximum amount of Touchdown Total which may be applied from all applications is 5.7 qt/A.
- Maximum preplant/preemergence rate is 48 fl oz/A.
- Maximum amount of Touchdown Total applied in crop from all applications is 4.4 qt/A. Maximum single application in crop is 48 fl oz/A.
- Sequential applications of Touchdown Total must be at least 7 days apart.
- Remove domestic livestock before application and wait at least 5 days before grazing or harvesting and feeding forage or hay.
- Applications of Touchdown Total to alfalfa which is not glyphosate-tolerant will result in severe crop injury and reduced yields.

New Stand Establishment (year of seeding) – During stand establishment, make postemergence applications from emergence up to 5 days before first cutting at no more than 48 fl oz/A for any single application. After first cutting in newly-established stands, make application of no more than 48 fl oz/A for any single application up to 5 days before each cutting.

Established Stands (non-seeding year) – Make application of no more than 48 fl oz/A for any single application up to 5 days before each cutting.

BERRIES, FRUITS, NUTS, AND VINES

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

Almond
Apple
Apricot
Atemoya
Avocado
Banana
Barbados cherry (Acerola)
Beechnut
Blackberry
Blueberry
Boysenberry
Breadfruit
Brazil nut
Butternut
Calamondin
Canistel
Carambola
Cashew
Cherimoya
Cherry (sweet, sour, tart)
Chestnut
Chinquapin
Chironja
Citron (post-directed only)
Citrus hybrids
Cocoa bean
Coconut
Coffee
Crabapple
Cranberry
Currant
Date
Dewberry
Durian
Elderberry
Fig
Filbert (Hazelnut)
Gooseberry
Grapefruit
Grapes (all)
Guava
Hickory nut
Huckleberry
Jaboticaba
Jackfruit
Kiwi fruit
Kumquat
Lemon
Lime
Loganberry
Longan
Loquat
Lychee
Macadamia
Mandarin
Mango
Mangosteen
Marmaladebox (genip)
Mayhaw
Nectarine
Olallieberry
Olive (post-directed only)
Orange (all)
Oriental pear
Papaya
Passion fruit
Peach
Pear
Pecan
Persimmon
Pineapple
Pistachio
Plantain
Plum
Plumcot
Pomegranate
Prune (all)
Pummelo
Quince
Rambutan
Raspberry (black, red)
Sapodilla
Sapote (black, mamey, white)
Satsuma mandarin
Soursop
Sugar apple
Tamarind
Tangelo
Tangerine
Tangor
Tea
Walnut (black, English)
Youngberry

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.

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 **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.

Use Precautions and Restrictions 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 qt of Touchdown Total in 4 gallons 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.**
- 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 wick, 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 qt/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, specified 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 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 Instructions in Citrus (Florida and Texas Only)

To control or suppress the perennial weeds listed in the following table, apply the specified rate of Touchdown Total in 3 to 30 gallons of water per acre. Use 10 to 30 gallons 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.

	Rate of Touchdown Total (Quarts per Acre)			
Weed Species	**0.7**	**1.4**	**2.2**	**3.6**
Bermudagrass	B	B	PC	C
Guineagrass				
Texas and Florida Ridge	B	C	C	C
Florida Flatwoods	NR	B	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 qt of Touchdown Total per acre. Apply in 20 to 30 gallons of water per acre when plants are actively growing. Use the 1.4 qt rate on plants less than 8 inches tall and 2.2 qt 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. Do not add AMS to the spray solution. Application must be made 1 to 3 weeks ahead of seedhead emergence.

Bahiagrass

Touchdown Total can be used to inhibit seedhead emergence and suppress vegetative growth for approximately 40 to 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 to 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 gallons 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 gallons 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 pt in 3 to 20 gallons of water per acre. Use 1.4 pt east of the Rocky Mountains and 2.9 pt 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 gallons 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.

Use Precautions and Restrictions for Canola (Not Glyphosate-Tolerant)

- 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

For use on the following glyphosate-tolerant canola only: all Roundup Ready® canola, including Roundup Ready Canola and all Genuity™ brand canola which contains Roundup Ready.

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.

Use Precautions and Restrictions for Glyphosate-Tolerant Canola

- The last application must be made at least 60 days before harvest of 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 to 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 to 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.

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 to 4 inches of new growth before application. When perennial weeds have been mowed or grazed, allow regrowth to reach specified stage (see **PERENNIAL WEED CONTROL** section, Table 3, for rates and timing).

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

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

Weed Species	Program A	Program B
Fescue Orchardgrass Ryegrass	Gramoxone Inteon at 2.6 to 4.4 pt/A followed 7 to 10 days later with Gramoxone Inteon at 3.0 to 4.0 pt/A	Touchdown Total at 1.4 to 3.0 pt/A followed 10 to 14 days later with Gramoxone Inteon at 3.0 to 4.0 pt/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 (except for sweet corn); 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.

Use Precautions and Restrictions for Corn

- 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 qt/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 48 fl oz/A by air; and 2.2 qt/A by ground preharvest.
- Following postharvest application, allow at least 7 days between treatment and harvest or feeding of treated vegetation.
- Crop plants contacted by Touchdown Total will be injured or killed.

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 pt/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 pt/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 gallons/A with 2,4-D, dicamba, or any residual herbicides on the following list. Use 1.5 to 3.0 pt/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®	Northstar
Bicep Magnum®	Fultime™	Prowl
Bicep II Magnum®	Guardsman®	Simazine
Broadstrike®	Harness®	Spirit
Bullet®	Harness Xtra	Surpass® EC
Callisto®	Hornet™	Surpass 100
Camix	Lariat®	Topnotch®
Clarity®	Lasso®	Warrior®
Degree™	Lexar	2,4-D

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 Inteon herbicide may be considered for Hooded Sprayer applications in corn. Use Gramoxone Inteon at 1.0 to 2.0 pt/A for control of actively growing weeds. Read and follow directions for this use on the Gramoxone Inteon 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

For use on the following glyphosate-tolerant corn only: all Agrisure® GT corn (including Agrisure Viptera™ 3110 and Agrisure Viptera™ 3111); all Roundup Ready® corn, including Roundup Ready Corn, Roundup Ready 2 Corn, all Genuity™ brand corn which contains Roundup Ready 2, and YieldGard® corn which contains Roundup Ready 2 (including YieldGard VT Triple™); and all Herculex® corn which contains Roundup Ready 2.

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 CONTROLLED** section for application rates and timing.

Use Precautions and Restrictions for Glyphosate-Tolerant Corn

- Maximum amount of Touchdown Total which may be applied from all applications is 5.75 qt/A.
- Maximum preplant/preemergence rate is 3.6 qt/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 with no more than 24 fl oz/A at least 7 days before harvest or feeding of corn stover.
- Applications of Touchdown Total to corn hybrids which are not glyphosate tolerant will result in severe crop injury and reduced yields.

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 pt/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 pt/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 gallons/A with 2,4-D, dicamba, or any residual herbicides on the following list. Use 1.5 to 3.0 pt/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	Lasso
Ambush	Distinct	Lightning
Atrazine	Dicamba	Linex
Axiom	Dual Magnum	Lorox
Balance	Dual II Magnum	Lumax
Basis	Extrazine II	Marksman
Bicep Lite II Magnum	Frontier	Micro-Tech
Bicep Magnum	Fultime	Prowl
Bicep II Magnum	Guardsman	Simazine
Broadstrike	Harness	Surpass EC
Bullet	Harness Xtra	Surpass 100
Callisto	Hornet	Topnotch
Clarity	Karate	Warrior
Degree	Lariat	2,4-D

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.

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.

Use Precautions and Restrictions 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 pt/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 pt/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	Prowl
Clarity	Dual Magnum	Staple®
Command®	Dual II Magnum	Valor®
Cotoran®	Karmex	Zorial®
Cotton-Pro®	Meturon®	2-4,D
Cy-Pro®		

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 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.

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.
- 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 post-directed 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 gallons of water per acre by ground or in 3 to 15 gallons 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®
Ginstar® EC
Prep™

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

COTTON, GLYPHOSATE-TOLERANT

For use on the following glyphosate-tolerant cotton only: all Roundup Ready® cotton, including Roundup Ready Cotton, Roundup Ready Flex Cotton, and all Genuity™ brand cotton which contains Roundup Ready or Roundup Ready Flex.

Cotton, Roundup Ready Flex Cotton Only

Method of Application: Before, during, or after planting; postemergence; post-directed; 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.

Use Precautions and Restrictions for Roundup Ready Flex Cotton

- Maximum preplant/preemergence rate is 3.6 qt/A.
- Make postemergence over-the-top applications from ground cracking to 60% open bolls with a maximum of 35 fl oz/A for any single application by ground and 24 fl oz/A for any single application by air and a maximum of 4.3 qt/A per season.
- Apply a maximum of 48 fl oz/A per season between layby and 60% open bolls.

- Do not apply more than 24 fl oz/A by air, nor more than 48 fl oz/A by ground from 60% open bolls to 7 days preharvest.
- The maximum allowable combined total per year for all Touchdown Total applications is 5.75 qt/A.
- 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.
- Applications of Touchdown Total to cotton varieties which are not glyphosate-tolerant will result in severe crop injury and reduced yields. Applications past the 4th leaf stage over the top may only be made to Roundup Ready Flex cotton.
- Drift control agents may be used.

Tank Mixtures (Preplant/Preemergence) for Roundup Ready Flex Cotton

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 pt/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 pt/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	Cotton-Pro	Dual II Magnum	Staple
Clarity	Cy-Pro	Karmex	Solicam
Command	Direx	Meturon	Valor
Cotoran	Dual Magnum	Prowl	2-4,D

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

Tank Mixtures (Postemergence) for Roundup Ready Flex Cotton

Touchdown Total can be applied in a tank mix with Envoke®. Refer to the Envoke product label for precautionary statements, restrictions, rates, and a list of weeds controlled. Avoid use of additional adjuvants or AMS.

Post-Directed or Hooded Applications

Touchdown Total may be used through post-directed or hooded sprayers through the lay-by stage of cotton. This application type directs the spray to the target weed.

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:

- Post-directed applications should be used that direct the spray onto the main portion of the target weed. For best results, apply to weeds less than 3- to 6-inches tall.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low-drift nozzles.

Tank Mixtures (Post-Directed or Hooded)

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

Tank Mixtures with Dual Magnum

Touchdown Total tank mixtures with Dual Magnum can be applied postemergence over the top on cotton from 3 inches tall up to 100 days before harvest or 80 days before harvest for post-directed applications. Do not use additional adjuvants or AMS. 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, LA, MO, MS, NC, NM, OK, SC, TN, TX, and VA.

Refer to the Dual Magnum label for rates, precautions, and restrictions.

Preharvest

Apply Touchdown Total at 24 fl oz/A by air and no more than 48 fl oz/A by ground. No enhancement of harvest aids will occur on glyphosate-tolerant cotton. Refer to the **WEEDS CONTROLLED** section for application rates and timing.

Cotton, Glyphosate-Tolerant (Roundup Ready Cotton)

Method of Application: Before, during, or after planting; postemergence; post-directed; 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.

Use Precautions and Restrictions for Glyphosate-Tolerant Cotton

- Maximum preplant/preemergence rate is 3.6 qt/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/A per season by precision, post-directed, 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 qt/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.
- The maximum allowable combined total per year for all Touchdown Total applications is 5.75 qt/A.
- Drift control agents may be used.
- Applications of Touchdown Total to cotton varieties which are not glyphosate-tolerant will result in severe crop injury and reduced yields.

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 pt/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 pt/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	Solicam
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.

Post-Directed or Hooded Applications

Touchdown Total may be used through precision post-directed 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:

- Post-directed 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.

Tank Mixtures (Post-Directed or Hooded)

Touchdown Total can be applied in a tank mix with most cotton herbicides which are labeled for hooded, shielded, or post-directed 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) on glyphosate tolerant cotton and up to layby on Roundup Ready Flex cotton only. 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, LA, 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 post-directed 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.

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 fl oz/A of Touchdown Total in 3 to 10 gallons 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 fl oz/A with Goal herbicide at 2 to 3 fl 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 fl 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.

Use Precautions and Restrictions 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.

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.

Use Precautions and Restrictions for Grass Seed Production

- 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 qt of Touchdown Total in 10 to 20 gallons 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.

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	Orchardgrass
Bermudagrass	Ryegrass
Bluegrass	Timothy
Bromegrass	Wheatgrass
Fescue	

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.

Use Precautions and Restrictions 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 pt/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.

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.

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 to 6 inches of new growth prior to treatment.

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.

Use Precautions and Restrictions 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 pt/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.

Use Precautions and Restrictions for Peanuts

- Avoid contact of spray mixture with foliage, shoots, or stems. Applications must be made prior to ground cracking and crop emergence to avoid crop injury.

SAFFLOWER

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

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.

Use Precautions and Restrictions for Safflower

- Make only one preplant or preemergence application with no more than 70 fl oz/A.
- Make preharvest applications at 7 days before harvest or livestock feeding with no more than 70 fl oz/A.

Method of Application: Preharvest

- For weed control as a harvest aid, apply to safflower when seed has lost its opaque character, approximately 20-30 days after the end of flowering of the secondary branches.

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.

Use Precautions and Restrictions 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.

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.

Use Precautions and Restrictions for Sorghum

- 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 qt/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 or feeding of treated vegetation with a maximum of 1.4 qt/A.
- Contact with sorghum foliage may result in crop injury.

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 pt/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 pt/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	Dual II Magnum	Karate
Bicep Lite II Magnum	Frontier	Prowl
Bicep II Magnum	Guardsman	Warrior
Dicamba		

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

Gramoxone Inteon Herbicide may be considered for hooded sprayer applications in sorghum. Use Gramoxone Inteon at 1.0 to 2.0 pt/A for control of actively growing weeds. Read and follow directions for this use on the Gramoxone Inteon 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.

Use Precautions and Restrictions for Soybeans

- 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 3.6 qt/A by ground; and no more than 48 fl oz/A by air.
- Allow at least 25 days before grazing or harvesting for livestock feed following harvest aid application. If the application rate is no more than 23 fl oz/A, the grazing interval is reduced to 14 days after the last preharvest application.
- Soybeans, except glyphosate-tolerant varieties, will be injured or killed when contacted with Touchdown Total.

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

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

For use on the following glyphosate-tolerant soybeans only: all Roundup Ready® soybeans including Roundup Ready Soybeans, Roundup Ready 2 Yield® Soybeans, and all Genuity™ brand soybeans which contain Roundup Ready 2.

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.

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.

Use Precautions and Restrictions for Glyphosate-Tolerant Soybeans

- Applications of Touchdown Total prior to soybean emergence should not exceed a total of 3.6 qt/A.
- Make postemergence applications from cracking throughout flowering of soybeans at a maximum of 2.2 qt per season with no more than 48 fl oz/A for any single application.
- Make preharvest applications at least 14 days before harvest of grain, forage, and hay with no more than 24 fl oz/A.
- All Touchdown Total applications for a soybean crop should not exceed a total of 5.8 qt/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	Linex	Scepter
Authority Broadleaf	FirstRate	Lorox	Sencor
Boundary	Flexstar	Lorox Plus	Squadron
Broadstrike	Frontier	Partner	Steel
Canopy	Fusilade	Preview	Turbo
Canopy XL	Fusion	Prowl	Warrior
Command	Gemini	Pursuit	2,4-D
Cover	Karate	Pursuit Plus	2,4-DB
Dual Magnum	Lasso	Reflex	

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

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®	Pursuit
Bravo®	Quadris®
Classic®	Raptor™
FirstRate	Reflex
Flexstar	Reliance™ STS®
Fusilade	Scepter
Fusion	Synchrony® STS®
Karate	Tilt®
Pinnacle®	Warrior

Use a minimum of 17 fl oz/A Touchdown Total in mixture with postemergent tank mix herbicides on 3 inch tall weeds. Use a minimum of 24 fl oz/A Touchdown Total in mixture with postemergent tank mix herbicides on 3 to 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.

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.

SUGAR BEET, GLYPHOSATE-TOLERANT

For use on the following glyphosate-tolerant sugar beets only: all Roundup Ready® sugar beets, including Roundup Ready Sugar beet and all Genuity™ brand sugar beet which contain Roundup Ready.

Method of Application: Before, during, or after planting; and postemergence in sugar beet 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.

Use Precautions and Restrictions for Glyphosate – Tolerant Sugar Beet

- Maximum amount of Touchdown Total which may be applied from all applications is 5.7 qt/A.
- Maximum preplant/preemergence rate is 3.6 qt/A.
- Maximum amount of Touchdown Total applied over-the-top of the crop from emergence to 8-leaf state is 60 fl oz/A.
- From emergence to 8-leaf stage apply no more than 35 fl oz/A for any single application.
- Maximum amount of Touchdown Total applied over-the-top of the crop from 8-leaf state to canopy closure is 48 fl oz/A.
- From 8-leaf state to canopy closure apply no more than 24 fl oz/A for any single application.
- Make no more than 4 sequential postemergence applications of Touchdown Total, which must be at least 10 days apart.
- Allow a minimum of 30 days between postemergence application and harvest.
- Applications of Touchdown Total to sugar beet varieties which are not glyphosate-tolerant will result in severe crop injury and reduced yields.

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.

Use Precautions and Restrictions 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 pt/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	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 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 specified use rates and application timing for each state listed.

LA – Apply 4.3 to 13.4 fl oz/A 3 to 5 weeks before harvest of **ratoon cane only.**
TX – Apply 5.4 to 13.4 fl oz/A 3 to 5 weeks before harvest of **ratoon cane only.**
FL – Apply 4.8 to 13.4 fl oz/A 3 to 6 weeks before harvest of **last ratoon cane only.**
HI – Apply 10 to 23 fl oz/A 4 to 10 weeks before harvest.
PR – Apply 5.6 fl oz/A 3 to 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 qt in 10 to 40 gallons of water per acre to new growth having at least 7 new leaves. Allow 7 days between application and tillage.

SUNFLOWER

Method of Application: Preplant/Preemergence and Preharvest

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.

Use Precautions and Restrictions for Sunflowers

- Make only one preplant/preemergence or preharvest application with no more than 24 fl oz/A.
- Do not graze or feed sunflower forage.
- Make preharvest applications at least 7 days before harvest or livestock feeding with no more than 24 fl oz/A.
- 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 24 fl oz/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.

Preharvest

For weed control as a harvest aid in sunflower, apply no more than 24 fl oz/A to physiologically mature sunflower when the back of the heads are yellow and bracts are turning brown and seed moisture content is less than 35%.

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	
Cabbage (all)	Mizuna
Cabbage (Chinese)	Mustard greens
Cantaloupe	Okra
Cardoon	Onions (dry bulb, green, spring, Japanese bunching)
Carrot	Parsley, turnip-rooted
Casaba	Parsnip
Cavalo Broccolo	Peas (all)
Cauliflower	Pepinos
Celeriac	Pepper (all)
Celery	Potato (Irish)
Celery (Chinese)	Pumpkin
Celtuce	Purslane
Chard (Swiss)	Radish
Chayote	Radish, oriental (daikon)
Chervil	Rape greens
Chick peas	Rhubarb
Chicory	Rutabaga
Chrysanthemum	Salsify, black
Collards	Salsify (oyster plant)
Corn salad	Salsify (Spanish)
Cress	Shallots
Cucumber	Spinach (all)
Dandelion	Spinach, mustard
Dock (sorrel)	Squash (summer, winter)
Eggplant	Sweet potato
Endive	Tomatillo
Fennel (Florence)	Tomato
Garlic	Turnip
Gherkin	Watercress
Ginseng	Watermelon
Gourd, edible	Welsh onion
Great-headed garlic	Yams
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. In addition, preharvest or spot application in dry beans, peas, lentils and chickpeas only and in California only preharvest application in garlic grown for processing (dehydration).

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.

Use Precautions and Restrictions 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.

- Wiper/wick applications to rutabagas must be made at least 14 days before harvest.
- Make one preharvest or one spot application in **dry beans** with no more than 24 fl oz/A or in **peas, lentils,** and **chickpeas** with no more than 69 fl oz/A at least 7 days before harvest.
- Employ at least a 30 day plant back interval between treatment and replanting for any crop not listed on this label.
- Do not feed treated vines and hay to livestock.
- Do not combine a preharvest with a spot application on the same crop area.
- Do not treat cowpeas or field (feed) peas: these crops are considered as livestock feed.
- For California use only, make preharvest application of no more than 48 fl oz/A to garlic grown for dehydration only, at least 30 days before harvest. Do not apply to garlic grown for seed or make aerial preharvest applications.
- 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 1/2 inch of sprinkler irrigation or rainfall.
- Preharvest application is not recommended for legumes grown for seed, as reduction in germination or vigor may occur.

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 pt/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	Lorox
Command	Matrix®
Dual Magnum	Prefar®
Dual II Magnum	Prowl
Fusilade DX	Sencor
Goal	Trifluralin
Kerb	Treflan®
Lexone	Turbo

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

Preharvest

Touchdown Total may be applied over-the-top of dry beans, peas, lentils and chickpeas to control weeds before harvest. Apply no more than 24 fl oz/A in dry beans or no more than 69 fl oz/A in peas, lentils, and chickpeas in 3 to 20 gallons of water per acre at the hard dough stage of the legume seed (30% or less grain moisture). Only one application per year may be made.

In California only, Touchdown Total may be applied by ground equipment prior to harvest of garlic grown for dehydration to control weeds such as field bindweed and nutsedge. Apply 24 to 48 fl oz/A Touchdown Total in a minimum of 5 gal/A when garlic tops have fully dried and there is no green tissue present.

Spot Treatment

Touchdown Total may be applied as a spot treatment to control troublesome weeds in dry beans at no more than 24 fl oz/A and in peas, lentils, and chickpeas at no more than 69 fl oz/A. Apply in 10 to 20 gallons of water using a ground sprayer or use a 2% solution in a hand-held sprayer. For best results, make applications at or beyond the bud stage of growth. Only one application per year may be made.

CHRISTMAS TREES

Method of Application: Post-directed spray; site preparation; and spot spray.

Touchdown Total may be used prior to planting Christmas trees; or as a post-directed 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.

Use Precautions and Restrictions 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.

FARMSTEADS (NONCROP)

Method of Application: 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:

Barrier strips	Farmyards
Ditchbanks	Fence rows
Dry ditches and dry 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 qt/A of this product when weeds are less than 6 inches tall and 1.1 to 2.9 qt/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 qt/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 specified rates.

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.

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 gallons of spray solution per acre. Chemical mowing applications may be made along farm ditches and other parts of farmsteads.

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.

Use Precautions and Restrictions 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.

FORESTRY AND UTILITY RIGHTS-OF-WAY

Touchdown Total is for the control or partial control of woody brush, trees, annual, and perennial weeds in forestry and utility sites. Touchdown Total is also used in preparing or establishing wildlife openings within these sites, for maintaining logging roads, and for side trimming along utility rights-of-way (including electrical power; pipeline and telephone rights-of-way and utility sites such as substations).

Do not apply this product to any body of water.

Do not apply this product by air to forestry and utility rights-of-way.

Broadcast applications can be made at 1.4 to 7.2 qt/A in 10 to 60 gallons/A by ground.

Spray to wet applications can be made with a handgun, backpack, or mistblower applicator with a 0.75 to 2% spray solution. For low volume directed spray applications, use a 5 to 10% solution of Touchdown Total. Handguns, backpack, or mistblower applicators can be used. For low volume directed spray applications, coverage should be uniform with at least 50 percent of the foliage contacted. Coverage of the top one-half of the plant is important for best results.

Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections for use rates. For best results, apply to actively growing woody brush and trees after full leaf expansion and before fall color and leaf drop. Increase rates within the specified range for control of perennial weeds any time after emergence and before seedheads, flowers, or berries appear.

Use the lower rates of Touchdown Total within the specified range for control of annual weeds and actively growing perennial weeds after seedheads, flowers, or berries appear.

Tank Mixtures for Use in Forestry Site Preparation and Utility Rights-of-Way

Tank mixtures of Touchdown Total may be used to increase the spectrum of vegetation controlled. Any specified rate of Touchdown Total may be used in a tank mix.

Arsenal®	Garlon™ 4
Chopper®	Oust XP
Escort®	Vanquish®
Garlon™ 3A	

- Only use Garlon 4 tank mixes or use Touchdown Total alone at specified rates in utility side trimming.
- Ensure that Garlon 3A is thoroughly mixed with water according to label directions before adding to tank mixture. Ensure adequate agitation at the time Garlon 3A is added to avoid spray compatibility problems.
- For forestry site preparation, make sure the tank mix product is approved for use prior to planting desired species.

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

Forestry Conifer and Hardwood Release – Directed Spray and Selective Equipment

Touchdown Total may be applied with selective equipment or as a directed spray for forestry conifer and hardwood release, including Christmas tree plantations and silvicultural nurseries. See the **APPLICATION PROCEDURES** section for recommended equipment.

Spray to wet applications can be made with a 2% spray solution for control of undesirable woody brush and trees. Use a 1 to 2% spray solution for most annual and perennial weeds. For low volume directed spray applications, use a 5-10% solution of Touchdown Total. Handguns, backpack, or mistblower applicators can be used. Coverage should be uniform with at least 50 percent of the foliage contacted. Coverage of the top one-half of the plant is important for best results.

Equipment calibrated for broadcast applications can be used. Use 1.4 to 7.2 qt of Touchdown Total in 10 to 60 gallons of clean water per acre. Use shielded application equipment to avoid contact with foliage **or** green bark of desirable plants.

Wiper application equipment may be used. Refer to the **Wiper Applicators and Sponge Bars** section for rate and use directions.

Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections for use rates. For best results, apply to actively growing woody brush and trees after full leaf expansion and before fall color and leaf drop. Increase rates within the specified range for control of perennial weeds any time after emergence and before seedheads, flowers, or berries appear.

Use the lower rates of Touchdown Total within the specified range for control of annual weeds and actively growing perennial weeds after seedheads, flowers, or berries appear.

Tank Mixtures for Use in Directed Spray and Selective Equipment

Tank mixtures of Touchdown Total may be used to increase the spectrum of vegetation controlled. Any specified rate of Touchdown Total may be used in a tank mix.

Arsenal
Garlon 4
Oust XP

- Only use Oust XP tank mixes or use Touchdown Total alone at specified rates in hardwood plantations.
- Only use Garlon 4 or Arsenal tank mixes or use Touchdown Total alone at specified rates in pine plantations.

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

Forestry Conifer Release – Broadcast Spray

To avoid injury to desirable species, make sure final resting buds have formed and are well hardened off before fall application or prior to initial bud swelling in the spring.

Outside Southeastern U.S.

Touchdown Total can be used as a broadcast spray for conifer forest release. Apply Touchdown Total at 0.7 to 2.2 qt/A for species listed in the following table in areas outside the southeastern U.S., unless specified otherwise in the table.

Use for Release of the Following Conifer Species Outside the Southeastern U.S.

Species	Scientific Name	Remarks
Douglas Fir	*Pseudotsuga menziesii*	Apply 0.7 to 1.1 qt/A at end of first growing season (except CA).
Fir	*Abies* spp.	---
Hemlock	*Tsuga* spp.	Do not add surfactant. Injury may result.
Pines	*Pinus* spp.	Not for use on loblolly, long leaf, short leaf, or slash pine. Apply 0.7 to 1.1 qt/A at end of first growing season (except CA).
Redwood, California	*Sequoia* spp.	Do not add surfactant. Injury may result.
Spruce	*Picea* spp.	In Michigan, Minnesota, and Wisconsin, up to 2.2 qt/A may be used for difficult to control woody brush and trees. In other areas, apply 0.7 to 1.1 qt/A at end of first growing season.

Tank Mixtures for Broadcast Sprays Outside the Southeastern U.S.

Tank mixtures of Touchdown Total may be used to increase the spectrum of vegetation control.

Arsenal Applicators Concentrate
Oust XP

- In Maine and New Hampshire, use 1 fl oz/A of Arsenal Applicators Concentrate in a tank mix to control difficult species.
- For Douglas Fir release, use 2 to 6 fl oz/A of Arsenal Applicators Concentrate in a tank mix with 0.7 to 1.1 qt/A of Touchdown Total.
- For Balsam Fir and Red Spruce release, use 1 to 2.5 fl oz/A of Arsenal Applicators Concentrate with 1.4 qt/A of Touchdown Total.
- For Jack Pine and White Spruce release, use 1 to 3 oz/A of Oust XP in a tank mix with 0.7 to 1.4 qt/A of Touchdown Total. For White Pine release, use 1 to 1.5 oz/A of Oust XP in a tank mix with 0.7 to 1.4 qt/A of Touchdown Total. Over-the-top applications to established stands can be made. Make sure late summer or final fall resting buds have formed before application.

Southeastern U.S.

Touchdown Total can be used as a broadcast spray for conifer forest release. Apply Touchdown Total at 0.7 to 1.4 qt/A for species listed in the following table in areas outside the southeastern U.S., unless specified otherwise in the table.

Use for Release of the Following Conifer Species In the Southeastern U.S.

Species	Scientific Name	Remarks
Eastern White Pine	*Pinus strobus*	• Apply 0.7 to 1.1 qt/A during late summer or early fall on established stands. • Apply 0.7 qt/A at end of first growing season. • Make sure final fall resting buds have formed before application.
Loblolly Pine	*Pinus taeda*	
Long-leaf Pine	*Pinus palustris*	
Short-leaf Pine	*Pinus echinata*	
Slash Pine	*Pinus elliottii*	
Virginia Pine	*Pinus virginiana*	

Tank Mixtures for Broadcast Sprays in the Southeastern U.S.

A tank mix of Touchdown Total may be used to increase the spectrum of vegetation control. Apply 0.7 to 1.4 qt/A of Touchdown Total in a tank mix with Arsenal Applicators Concentrate at 2 to 16 fl oz. Use the higher specified rates for dense, tough-to-control, woody brush and trees.

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

Forestry Conifer Release – Broadcast – Annual and Perennial Weed Control

Touchdown Total is for the control of annual weeds and control or suppression of perennial weeds listed in the **WEED CONTROL** sections (Table 1 and 2). Make applications to actively growing weeds as a broadcast spray over the top of labeled conifers. For best results, apply in a maximum of 25 gallons of clean water per acre.

Tank Mixtures for Residual Annual and Perennial Weed Control in Conifer Forests

Touchdown Total in a tank mix with the following residual herbicides can provide residual control of annual and perennial weeds.

Atrazine
Oust XP

- For Loblolly Pine release, apply 11.5 to 17.3 fl oz/A of Touchdown Total in a tank mix with 2 to 4 oz/A of Oust XP.
- For Slash Pine release, apply 8.6 to 11.5 fl oz/A of Touchdown Total in a tank mix with 2 to 4 oz/A of Oust XP.
- These applications can be made to newly planted pines. For best results, apply after emergence of annual and perennial weeds in the spring or early summer. May and June applications are often the best.
- For Douglas Fir release, apply 0.7 qt/A of Touchdown Total in a tank mix with 4 lb a.i./A. Do not add surfactant. Applications can only be made to Douglas firs established at least one full growing season. Apply in early spring (mid-March to early April) before bud swell. Injury will occur if applications are made after bud swell.

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

HABITAT MANAGEMENT AND HABITAT RESTORATION

Touchdown Total may be used to control exotic and other undesirable vegetation in habitat management and natural areas, including rangeland and wildlife refuges. 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	Vanquish
Princep® Caliber 90®	2,4-D

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.

ORNAMENTAL AND PLANT NURSERY USES

For specific use rates, refer to **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections for annual and perennial weed control.

Touchdown Total may be post-directed around established woody ornamental species such as arborvitae, azalea, boxwood, crabapple, euonymus, fir, Douglas fir, jojoba, hollies, lilac, magnolia, maple, oak, privet, pine, spruce, and yew. Touchdown Total may also be used to trim-and-edge around trees, buildings, greenhouses, shadehouses, sidewalks and roads, potted plants, and other objects in a nursery setting.

Desirable plants may be protected from the spray solution by using shields or coverings made of cardboard or other impermeable material. TOUCHDOWN TOTAL IS NOT RECOMMENDED FOR USE AS AN OVER-THE-TOP BROADCAST SPRAY IN ORNAMENTALS. Care must be exercised to avoid contact of spray, drift, or mist with foliage or green bark of established ornamentals.

When applying Touchdown Total to control weeds in and around shadehouses and greenhouses, desirable vegetation must not be present and air circulation fans must be off.

TURFGRASS USES (INCLUDING ROADSIDES)

Chemical Mowing

Touchdown Total, at 4.3 fl oz in 10 to 40 gallons of water per acre, will suppress Kentucky bluegrass and serve as a substitute for mowing.

Touchdown Total, at 5.8 fl oz (0.5 pt) in 10 to 40 gallons of water per acre, will suppress fine fescue, orchardgrass, quackgrass, or tall fescue and serve as a substitute for mowing.

Touchdown Total, at 2.9 to 3.6 fl oz in 10 to 40 gallons of water per acre, will suppress some annual grasses such as ryegrass, wild barley, and wild oats growing in coarse turf on roadsides or other industrial areas. Make applications while the annual grasses are actively growing and before the seedheads reach the boot stage of development. Treatment may cause injury to the desired grasses.

Dormant Bermudagrass

Touchdown Total may be used to control or partially control many winter annual weeds and tall fescue for effective release in dormant bermudagrass. Treat only when turf is dormant and prior to spring greenup. Apply 6 to 46 fl oz of Touchdown Total in 10 to 40 gallons of water per acre to control winter annuals less than 6 inches in height and tall fescue at or beyond the 4 to 6 leaf stage.

Dormant Bahiagrass

Touchdown Total may be used to control or partially control many winter annual weeds and tall fescue for effective release of dormant bahiagrass. Treat only when turf is dormant and prior to spring greenup. Apply 6 to 46 fl oz of Touchdown Total in 10 to 40 gallons of water per acre to control winter annuals less than 6 inches in height and tall fescue at or beyond the 4 to 6 leaf stage.

Rates to Achieve Control (C) or Suppression (S) in Dormant Bermudagrass and Bahiagrass

	Touchdown Total fluid oz/acre				
Weed Species	**5.8**	**8.6**	**11.5**	**17.3**	**23**
Barley, little	S	C			
Bedstraw, catchweed	S	C			
Bluegrass, annual	S	C			
Chervil	S	C			
Chickweed, common	S	C			
Clover, crimson	*	S	S	C	
Clover, largehop	*	S	S	C	
Fescue, tall	*	*	*	*	S
Geranium, Carolina	*	*	S	S	C
Henbit	*	S	C		
Ryegrass, Italian	*	*	S	C	
Speedwell, corn	S	C			
Vetch, common	*	*	S	C	

*These rates apply only to sites where an established competitive turf is present.

Tank Mix with Oust XP - Dormant Bermudagrass

Touchdown Total can be tank mixed with Oust XP for residual control. Apply 6 to 48 fl oz of Touchdown Total with 0.25 to 1 oz of Oust XP per acre. Use where some temporary injury or discoloration to a desirable bermudagrass stand can be tolerated. Use a maximum of 1 oz of Oust XP to minimize injury and avoid delays in greenup.

Actively Growing Bermudagrass

Touchdown Total may be used to control or partially control many annual and perennial weeds for effective release in actively growing, well established bermudagrass. Apply 12 to 36 fl oz of Touchdown Total in 10 to 40 gallons of spray solution per acre. Use the lower rate when treating annual weeds below 6 inches in height or runner length. Use the higher rate as weeds increase in size or as they approach flower or seedhead formation. These rates will also provide partial control of the following perennial species:

Bahiagrass	Johnsongrass*
Bluestem, silver	Trumpetcreeper**
Fescue, tall	Vaseygrass

*Johnsongrass is controlled at the higher rate.

**Suppression at the higher rate only.

Use only on well established bermudagrass. Bermudagrass injury may occur but regrowth will occur under moist conditions. Repeat applications are not advised in the same season.

Tank Mix with Oust XP - Actively Growing Bermudagrass

Touchdown Total can be tank mixed with Oust XP for residual control. Apply 12 to 23 fl oz of Touchdown Total with 1 to 2 oz of Oust XP per acre. Use lower rates of both products when treating annual weeds below 6 inches in height or runner length. Use the higher rates of both products as weeds increase in size or as they approach flower or seedhead formation. These rates will also provide partial control of the following perennial species:

Bahiagrass	Dallisgrass	Fescue, tall	Trumpetcreeper
Bluestem, silver	Dock, curly	Johnsongrass	Vaseygrass
Broomsedge	Dogfennel	Poor Joe	Vervain, blue

Use only on well-established bermudagrass. Bermudagrass injury may occur but regrowth will occur under moist conditions. Repeat applications are not advised in the same season.

Tank Mix with Oust XP - Dormant Bahiagrass

Touchdown Total can be tank mixed with Oust XP for residual control. Apply 6 to 46 fl oz of Touchdown Total with 0.25 to 0.5 oz of Oust XP per acre. Use where some temporary injury or discoloration to a desirable bahiagrass stand can be tolerated.

Actively Growing Bahiagrass

Touchdown Total, at 4 fl oz in 10 to 40 gallons of spray solution per acre, may be used to suppress vegetative growth and inhibit seedhead formation of actively growing bahiagrass for approximately 45 days. Make applications 1 to 2 weeks after green-up or after mowing to a height of 3 to 4 inches. Applications must be made before seedhead emergence. Suppression can be extended to 120 days with an application of Touchdown Total at 3 fl oz, followed in 45 days with an application at 1.5 to 3 fl oz. Do not make more than 2 applications per year.

Tank Mix with Oust XP - Actively Growing Bahiagrass

Touchdown Total can be tank mixed with Oust XP for residual control. One to 2 weeks following an initial spring mowing, apply 4 fl oz. of Touchdown Total with 0.25 oz of Oust XP. Do not make more than one application per year.

Bahiagrass Seedhead and Vegetative Suppression - Touchdown Total, at 4.3 fl oz in 10 to 25 gallons of spray solution per acre, may be used to suppress vegetative growth and inhibit seedhead formation of actively growing bahiagrass for approximately 45 days. Make applications 1 to 2 weeks after green-up or after mowing to a height of 3-4 inches. Applications must be made before seedhead emergence. Suppression can be extended to 120 days with an application of Touchdown Total at 2.9 fl oz, followed in 45 days with an application at 1.4 to 2.8 fl oz. Do not make more than 2 applications per year.

Annual Grass Suppression in Rough Turf - Touchdown Total at 2.9 to 3.6 fl oz in 10 to 40 gallons of spray solution per acre, may be used to suppress growth of some annual grasses (such as annual ryegrass, wild barley, and wild oats) growing in coarse turf on roadsides or other industrial areas. Make applications when annual grasses are actively growing and before seedheads are in the boot stage. Treatments after seedhead emergence may cause injury to desired grasses.

Renovation; Seed or Sod Production

Touchdown Total controls most existing vegetation prior to renovating turfgrass areas or establishing turfgrass grown for seed or sod. For maximum control of existing vegetation, delay planting or sodding 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 the best control where existing vegetation is growing under mowed turfgrass management. Apply Touchdown Total after omitting at least one regular mowing to allow sufficient growth for good interception of the spray.

Use Precautions and Restrictions for Turfgrass Uses

- Do not feed or graze turfgrass grown for seed or sod production for 8 weeks following application.
- 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 translocation into underground plant parts.
- Desirable turfgrasses may be planted following the above procedures. Hand-held equipment may be used for spot treatment of unwanted vegetation growing in existing turfgrass. Broadcast or hand-held equipment may be used to control sod remnants or other unwanted vegetation after sod is harvested.
- Application of rates greater than 12 fl oz/A of Touchdown Total may result in injury or delayed green-up in highly maintained areas, such as golf courses and lawns.
- Oust XP tank mixes should not be used in highly maintained turfgrass.
- Use only in areas where some temporary injury or discoloration of perennial grasses can be tolerated.

Roadsides

For specific use rates, refer to **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** section.

Touchdown Total may be used on road shoulders, medians, and landscape areas. It may be applied with boom sprayers, shielded boom sprayers, high-volume off-center nozzles, hand-held equipment, and similar equipment.

Touchdown Total may be used to control weeds growing under guardrails and around signposts and other objects along the roadside.

Touchdown Total may be used as a spot treatment to control unwanted vegetation growing along roadsides.

Touchdown Total may be tank mixed with the following products for shoulder, guardrail, spot, and bare ground treatments:

Banvel	Escort	Pendulum	Sahara	Telar
Diuron	Krovar	Princep	Simazine	Vanquish
Endurance	Oust XP	Ronstar	Surflan	2,4-D

OTHER USE AREAS; INDUSTRIAL SITES; PARKS; RAILROADS; RESIDENTIAL AND RECREATIONAL

Touchdown Total may be used in industrial sites, parks, railroads and residential and recreational areas. It may be applied with any application equipment described in this label. Touchdown Total may be used to trim-and-edge around objects in nonagricultural use sites, for spot treatment of unwanted vegetation, and to eliminate unwanted weeds growing in established shrub beds or ornamental plantings. Touchdown Total may be used prior to planting an area to ornamentals, flowers, turfgrass (sod or seed), or prior to laying asphalt or beginning construction projects.

Nonagricultural Use Areas and Industrial Sites

Repeated applications of Touchdown Total may be used, as weeds emerge, to maintain bare ground.

Tank Mixtures for Nonagricultural Use Areas and Industrial Sites

Touchdown Total can be tank mixed with the following herbicides for control of emerged annual weeds and control or partial control of perennial weeds, woody brush, and trees.

Arsenal	Karmex	Sahara®
Banvel	Krovar	Simazine
Barricade®	Pendulum®	Surflan®
Diuron	Plateau®	Telar®
Endurance®	Princep®	Vanquish
Escort	Ronstar®	2,4-D

Tank Mix with Oust XP - Perennial Weed Control

Touchdown Total, applied at 1.4 to 2.8 pt in a tank mix with Oust XP at 2 to 4 oz/A, will provide control or suppression of the following perennial weeds:

Bahiagrass	Fescue, tall
Bermudagrass	Johnsongrass
Broomsedge	Poor Joe
Dallisgrass	Quackgrass
Dock, curly	Vaseygrass
Dogfennel	Vervain, blue

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

Railroads

For specific use rates, refer to **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** section.

Touchdown Total may be used to maintain bare ground on railroad ballast and shoulders. Repeat applications of Touchdown Total may be used, as weeds emerge, to maintain bare ground. Touchdown Total may be used to control tall-growing weeds to improve line-of-sight at railroad crossings and reduce the need for mowing along rights-of-way. For crossing applications, up to 80 gallons of spray solution per acre may be used. Touchdown Total may be tank mixed with the following products for ballast, shoulder, spot, bare ground, and crossing treatments.

Arsenal	Escort	Krovar	Spike®	2,4-D
Banvel	Garlon™	Oust XP	Telar	
Diuron	Hyvar®	Sahara	Vanquish	

Woody Brush and Tree Management

For specific use rates, refer to **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** section.

Touchdown Total may be used to control woody brush and tree weeds in any area described in **USE AREAS.**

Apply Touchdown Total as a broadcast spray, using boom-type or boomless nozzles.

Apply a 0.75 to 2% solution of Touchdown Total when using high-volume spray-to-wet applications. Use a 5 to 10% solution of Touchdown Total when using low volume directed sprays for spot treatment.

For weeds that have been mowed, grazed, or cut; allow regrowth to occur prior to treatment. Reduced results may occur when treating weeds heavily covered with dust.

Tank Mixtures for Woody Brush Control on Railroad Rights-of-Way

Touchdown Total can be tank mixed with the following products for enhanced control of woody brush and trees.

Arsenal	Garlon
Escort	Tordon®

Cut Stumps

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. Avoid applications during peak sap flow in spring.

Alder	Madrone	Salt-cedar
Coyote Brush	Maple	Sweetgum
Dogwood	Oak	Tan oak
Eucalyptus	Poplar	Willow
Hickory	Reed, giant	

Note: Avoid making cut stump applications when roots of desirable adjacent trees may have grafted onto the roots of the cut stump.

Tree Injections and Frill Applications

Touchdown Total may be used to control woody brush and trees by using injection and frill applications in any areas described in USE AREAS.

Apply the equivalent of 1 ml of this product per each 2 to 3 inches of trunk diameter at breast height (DBH). For best results, apply a 25 to 100% solution of Touchdown Total to a continuous frill or to evenly spaced cuts around the tree below all branches. In larger diameter trees, better results are achieved by applying diluted material to a continuous frill or more closely spaced cuttings.

Avoid runoff in species that exude sap freely by making frills or cuts at an oblique angle, producing a cupping effect. Use Touchdown Total in an undiluted form. For best results, avoid applications during peak sap flow in the spring. Make applications during periods of active growth and after full leaf expansion.

Following is a partial list of species that can be controlled using this technique.

Black gum[1]	Oak
Dogwood[1]	Poplar
Hickory[1]	Sweetgum
Maple, red[1]	Sycamore

[1]Partial Control

Note: Avoid making injection or frill applications when roots of desirable adjacent trees may have grafted onto the roots of the cut stump.

WEEDS CONTROLLED, WOODY BRUSH AND TREES 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

WEED SPECIES	SCIENTIFIC NAME	TOUCHDOWN TOTAL FLUID OUNCES PER ACRE				
		MAXIMUM WEED HEIGHT/LENGTH				
		3”	6”	12”	18”	24”
Anoda, spurred	*Anoda cristata*	24	30			
Barley	*Hordeum vulgare*				12	17
Barnyardgrass	*Echinochloa crus-galli*	24	24	35		
Bassia, fivehook	*Bassia hyssopifolia*		24			
Bittercress	*Cardamine* spp.			12	17	
Bluegrass, annual	*Poa annua*			12		
Bluegrass, bulbous	*Poa bulbosa*			12		
Bristly starbur	*Ancanthospornum hispidum*		17	24		
Brome, downy[1]	*Bromus tectorum*		12	17		
Brome, Japanese	*Bromus japonicus*		12	17		24
Browntop panicum	*Panicum fasciculatum*		12	24		35
Buckwheat, wild[2]	*Polygonum convolvulus*	24				
Buffalobur	*Solanum rostratum*	24	36	36		
Burcucumber	*Sicyos angulatus*		17	24		
Burgherkin	*Cucumis anguria*	24	36			
Buttercup[3]	*Ranunculus* spp.			12	17	
Camphorweed	*Heterotheca subaxillaris*		36			
Canarygrass	*Phalaris canariensis*		24			
Carolina geranium[4]	*Geranium carolinianum*	24	36			
Carpetweed	*Mullugo verticillata*		17	24		
Cheat	*Bromus secalinus*		12		17	
Cheatgrass	*Bromus tectorum*		12		17	
Cheeseweed	*Malva parviflora*	17	24			

continued…

Table 1: Annual Weed Control – Touchdown Total Rates *(continued)*

WEED SPECIES	SCIENTIFIC NAME	TOUCHDOWN TOTAL FLUID OUNCES PER ACRE				
		MAXIMUM WEED HEIGHT/LENGTH				
		3”	6”	12”	18”	24”
Chervil	*Anthriscus cerefolium*				12	
Chickweed, common	*Stellaria media*			17	24	
Chickweed, mouseear	*Cerastium vulgatum*		12	17	17	
Citronmelon	*Citrullus lanatus*	24	35			
Cocklebur, common	*Xanthium strumarium*			12	17	24
Coffee senna	*Cassia occidentalis*	24	35			
Coreopsis, plains/tickseed	*Coreopsis tinctoria*		17	24	35	
Corn[5]	*Zea mays*		12	17		24
Corn speedwell	*Veronica arvensis*			12		
Cowpea	*Vigna unguiculata*	24	35			
Crabgrass[6]	*Digitaria* spp.	12	17	24		
Crotalaria, showy	*Crotalaria spectabilis*	17	24	35		
Croton, tropic	*Croton glandulosus*	24	35			
Crowfootgrass	*Dactyloctenium aegyptium*	12	24	48		
Cutleaf eveningprimrose[4]	*Oenothera laciniata*	24	35			
Deadnettle, purple	*Lamium purpureum*		24	35		
Devil’s-claw (unicorn plant)	*Proboscidea louisianica*	17	24			
Dwarfdandelion	*Krigia cespitosa*				12	
Eastern mannagrass			12	17		
Eclipta	*Eclipta prostrata*	17	24	35		
Fall panicum	*Panicum dichotomiflorum*	12	17	35		
Falsedandelion	*Pyrrhopappus carolinianus*				17	
Falseflax, smallseed	*Camelina microcarpa*			12		
Fiddleneck	*Amsinckia* spp.		17	35		
Filaree	*Erodium* spp.		24	35		
Fleabane, annual	*Erigeron annus*		12		17	
Fleabane, hairy	*Conyza bonariensis*		24	35		
Fleabane, rough	*Erigeron strigosus*	12	17	24		
Florida beggarweed	*Desmodium tortuosum*		17	24		
Florida pusley	*Richardia scabra*	24	35			
Foxtails	*Setaria* spp.		12	17	24	
Goatgrass, jointed	*Aegilops cylindrica*		12	17		
Goosefoot, nettleleaf	*Chenopodium murale*		35			
Goosegrass	*Eleusine indica*	17	24	35		
Grain sorghum (milo)	*Sorghum bicolor*		12	17	24	

WEED SPECIES	SCIENTIFIC NAME	TOUCHDOWN TOTAL FLUID OUNCES PER ACRE				
		MAXIMUM WEED HEIGHT/LENGTH				
		3”	6”	12”	18”	24”
Groundcherry	*Physalis* spp.		35			
Groundsel, common	*Senecio vulgaris*		17			
Hemp sesbania	*Sesbania exaltata*	17	29	36		
Henbit	*Lamium amplexicaule*		24	35		
Hophornbeam copperleaf	*Acalypha ostryifolia*	23	35			
Horseweed/Marestail[8]	*Conyza canadensis*		17	24	35	
Itchgrass	*Rottboellia cochinchinensis*		12	24	35	
Jimsonweed	*Datura stramonium*			24	35	
Johnsongrass, seedling	*Sorghum halepense*		12	17	24	35
Junglerice	*Echinochloa colona*	17	24	35		
Knotweed	*Polygonum aviculare*		24	35		
Kochia[3]	*Kochia scoparia*		17	24		
Lambsquarters, common	*Chenopodium album*		24	35	40	
Lettuce, prickly	*Lactuca serriola*		17	24		
Little barley	*Hordeum pussillum*		12	17		
London rocket	*Sisymbrium irio*		12			24
Mayweed	*Anthemis cotula*	17	24		35	
Medusahead	*Taeniatherum caput-medusae*	17	24			
Morningglory[4,7]	*Ipomoea* spp.	24	35			
Mustard, blue	*Chorispora tenella*		12	17	24	
Mustard, tansy	*Descurainia pinnata*		12	17	24	
Mustard, tumble	*Sisymbrium altissimum*		12	17	24	
Mustard, wild	*Brassica kaber*		12	17	24	
Nightshade, black	*Solanum nigrum*	17	24	35		
Nightshade, hairy	*Solanum sarrachoides Sendtner*	17	24	35		
Oats	*Avena sativa*	12	17		24	
Oats, wild	*Avena fatua*	12	17		24	
Panicum, Texas	*Panicum texanum*		12	23		35
Pennycress, field	*Thlaspi arvense*		12	17		
Pigweed	*Amaranthus* spp.			17	24	29
Poinsettia, wild	*Euphorbia heterophylla*	17	35			
Prickly sida (Teaweed)[4,7]	*Sida spinosa*	24	35			
Puncturevine	*Tribulus terrestris*	24	35			
Purslane, common	*Portulaca oleracea*	24	35			

continued…

Table 1: Annual Weed Control – Touchdown Total Rates *(continued)*

WEED SPECIES	SCIENTIFIC NAME	TOUCHDOWN TOTAL FLUID OUNCES PER ACRE				
		MAXIMUM WEED HEIGHT/LENGTH				
		3”	6”	12”	18”	24”
Rabbitfootgrass	*Polypogon monspeliensis*		24			
Ragweed, common	*Ambrosia artemisiifolia*		17	24	35	
Ragweed, giant	*Ambrosia trifida*		17	24	35	
Red rice	*Oryza sativa*	24				
Redweed	*Melochia corchorifolia*	24	35			
Rockpurslane Redmaids	*Calandrinia* spp.		24			
Rye	*Secale cereale*		12		24	35
Ryegrass, Italian	*Lolium multiflorum*		24	35		
Sandbur, field	*Cenchrus incertus*		12	17		
Sandbur, southern	*Cenchrus echinatus*	12	17	24		
Shattercane	*Sorghum bicolor*		12	17	24	
Shepherdspurse	*Capsella bursa-pastoris*		12	17		
Sicklepod	*Cassia obtusifolia*	24	35			
Signalgrass, broadleaf	*Brachiaria platyphylla*	17	24	35		
Smartweed (ladysthumb)	*Polygonum persicaria*		24	35		
Smartweed, Pennsylvania	*Polygonum pensylvanicum*		24	35		
Sowthistle, annual	*Sonchus oleraceus*		24	35		
Spanishneedles	*Bidens bipinnata*		24	35		
Speedwell, purslane	*Veronica peregrina*			12		
Sprangletop	*Leptochloa* spp.		12	17	24	
Spurge, prostrate	*Euphorbia* spp.		17	24		
Spurge, spotted	*Euphorbia maculata*		17	24		
Spurry, umbrella	*Holosteum umbellatum*		17			
Stinkgrass	*Eragrostis cilianensis*			17		
Sunflower, common	*Helianthus annuus*			12	17	
Thistle, Russian	*Salsola iberica*		24	35		
Velvetleaf[7]	*Abutilon theophrasti*		24	35		
Virginia copperleaf	*Acalypha virginica*	24	35			
Virginia pepperweed	*Lepidium virginicum*				17	
Waterhemp	*Amaranthus* spp.		24	35		
Wheat	*Triticum aestivum*		12	17	24	

Table 1: Annual Weed Control – Touchdown Total Rates *(continued)*

WEED SPECIES	SCIENTIFIC NAME	TOUCHDOWN TOTAL FLUID OUNCES PER ACRE				
		MAXIMUM WEED HEIGHT/LENGTH				
		3″	6″	12″	18″	24″
Wild-proso millet	*Panicum miliaceum*		17	24	35	
Witchgrass	*Panicum capillare*			17		
Woolly cupgrass	*Eriochloa villosa*		17	24		
Yellow rocket	*Barbarea vulgaris*			17	24	

[1] In no-till systems, use 17 fl oz/A.

[2] Maximum runner length. For control of wild buckwheat >3″ in runner length, use sequential applications of 24 fl 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 Inteon should be considered as an alternative.

[5] Will not control glyphosate-tolerant volunteer corn.

[6] Plant diameter.

[7] Multiple applications may be required.

Touchdown Total will not control glyphosate-resistant weed biotypes. Glyphosate-resistant biotypes can be controlled by timely application of Gramoxone Inteon 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 ai/A of Dicamba or 0.5 lb ai/A of 2,4-D

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

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

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

Table 3: Perennial Weed Control and Weed Management – Touchdown Total Rates Used Alone or in Tank Mix with 0.25 lb ai/A of Dicamba or 0.5 lb ai/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	*Medicago sativa*	1.5	1-1.5		At 6 to 8 inch stage or more after final cutting in fall. Deep till 7 days after treatment.
Artichoke, Jerusalem	*Helianthus tuberosus*	1.5	2.2-3.6		At or after flowering.
Balsam-apple[1]	*Momordica charantia*	1.5	--		Apply at or beyond bloom.
Bahiagrass	*Paspalum notatum*	1.5	2.2-3.6		Early seedhead stage.
Barley, foxtail	*Hordeum jubatum*	1.5	0.75-1.6		4 to 6 inch stage.
Bentgrass	*Agrostis* 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 to 10 days after application.
Bermudagrass	*Cynodon dactylon*	1.5	2.2-3.6		Seedheads present; may require retreatment.
Bermudagrass, water (knotgrass)		1.5	1.1		Apply when water bermudagrass is 12 to 18 inches in length. Allow 7 days before flushing or flooding the field. Not registered for use in California on this weed.
Bindweed, field	*Convolvulus arvensis*	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.
			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 to 18 inches in length.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Bindweed, field *(continued)*	*Convolvulus arvensis*	1.5	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	*Poa pratensis*	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 to 12 inches.
Blueweed, Texas	*Helianthus ciliaris*	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	*Pteridium aquilinum*	0.7-1.1	2.2–3.3		Fronds fully expanded and at least 18 inches long.
Bromegrass, smooth	*Bromus inermis*	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 to 12 inches in height.
Bursage, woollyleaf	*Ambrosia grayi*	1.5	1.4	Yes	Apply to actively growing plants at or beyond flowering.
			0.75	Yes[1]	Apply to actively growing plants at or beyond flowering.
Canarygrass, reed	*Phalaris arundinacea*	1.5	1.6-2.2		Boot to head.
Cattail	*Typha* spp.	1.5	2.2-3.6		Early head to early bud.
Clover, red Clover, white	*Trifolium pratense* *Trifolium repens*	1.5	2.2-3.6		Early head to early bud. May require retreatment.
Cogongrass	*Imperata cylindrica*	1.5	2.2-3.6		Late summer/fall, greater than 18 inches in height. May require retreatment.

continued…

Table 3: Perennial Weed Control and Weed Management – Touchdown Total Rates Used Alone or in Tank Mix with 0.25 lb ai/A of Dicamba or 0.5 lb ai/A of 2,4-D *(continued)*

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Dallisgrass	*Paspalum dilatatum*	1.5	2.2-3.6		Early head to early bud.
Dandelion	*Taraxacum officinale*	1.5	2.2-3.6		Early bud.
			0.4	Yes	Early bud.
Dayflower[1]	*Commelina* spp.	1.5	1.1-1.6		Less than 4 inches in height.
Dock, curly	*Rumex crispus*	1.5	2.2-3.6		Early bud.
			0.4	Yes	Early bud.
Dogbane, hemp	*Apocynum cannabinum*	1.5	3.3		Late bud to flower. May require retreatment.
			0.4	Yes	Actively growing at 6 to 12 inch stage for suppression.
Dogfennel	*Eupatorium capillifolium*	1.5	2.2-3.6		Actively growing, less than 12 inches in height.
Fescue	*Festuca* spp.	1.5	2.2-3.6		Apply when most plants have reached the early head stage.
Fescue, tall	*Festuca arundinacea*	1.5	0.75-2.2		Apply 2.2 qt/A when most plants have reached boot to early seedhead stage. Fall applications only: Apply 0.75 qt./A when plants are 6 to 12 inches in height. A spring applied sequential treatment of 0.75 pt/A will improve long term control.
Goatweed	*Scoparia dulcis*	1.5	1.4-2.2		Less than 8 inch stage.
Guineagrass	*Panicum maximum*	0.7	1.6-2.2		7 to 10 leaf stage.
Horsenettle	*Solanum carolinense*	1.5	2.2–3.6		Early bud stage.
Horseradish	*Armoracia rusticana*	1.5	3.3		Apply when most plants have reached the late bud to early flower stage in late summer or fall.
Iceplant	*Mesembryanthemum crystallinum*	1.1–1.5	–		At or beyond the early bud stage.
Ivy, German	*Senecio milkanioides*	1.5	1.4-3.6		At or beyond the early bud stage.
Johnsongrass	*Sorghum halepense*	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 qt/A for annual tillage systems. Use 1.4 to 2.2 qt/A on no-till acres. Allow 3 to 7 days before tillage.
			0.4		For burndown, apply when plants are 12 inches in height and allow 3 days before tillage.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Kikuyugrass	*Pennisetum clandestinum*	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	*Centaurea* spp.	1.5	3.3		Apply in fall at late bud to flower stage.
Lantana, largeleaf[1]	*Lantana camara*	1.0	–		Apply at or beyond bloom stage.
Lespedeza	*Lespedeza* spp.	1.5	2.2-3.6		Apply when most plants have reached the early bud stage.
Loosestrife, purple	*Lythrum salicaria*	1.5	1.4-3.6	Yes	Apply at or beyond bloom stage.
Milkweed, common	*Asclepias syriaca*	1.5	2.2	Yes	Apply when most plants have reached the early bud stage.
Milkweed, honeyvine	*Ampelamus albidus*	1.5	1.6-3.3	Yes	Late bud to early flower. May require retreatment.
Muhly, wirestem	*Muhlenbergia frondosa*	1.5	0.75-1.6		Use 0.75 to 1.6 qt/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	*Verbascum thapsus*	1.5	2.2-3.6		Early bud.
Napiergrass	*Pennistum purpureum*	1.5	2.2-3.6		Early head stage.
Nightshade, silverleaf	*Solanum eleagnifolium*	1.5	1.6		Apply when 60% of plants have berries. Apply fall treatments before a killing frost.

continued…

Table 3: Perennial Weed Control and Weed Management – Touchdown Total Rates Used Alone or in Tank Mix with 0.25 lb ai/A of Dicamba or 0.5 lb ai/A of 2,4-D *(continued)*

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Nutsedge, purple Nutsedge, yellow	*Cyperus rotundus* *Cyperus esculentus*	0.7-1.5	0.4-2.2		Apply 2.2 qt/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 to 1.4 qt/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 to 1.4 qt per acre. Treat when plants have 3 to 5 leaves or less than 6 inches tall. Repeat treatments at this stage for long term control.
Orchardgrass	*Dactylis glomerata*	1.5	0.75-1.6		Apply 1.4 qt/A on plants at early boot to seedhead stage. For partial control in pasture or hay crop renovation, apply 0.75 to 1.1 qt/A. Apply to actively growing plants 4 to 12 inches in height. In orchardgrass sods rotated to no-till corn: Apply 0.75 to 1.1 qt. 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[1]	*Erianthus ravennae*	1.0-1.5	--		Apply at or beyond boot stage.
Paragrass	*Brachiaria mutica*	1.5	2.2-3.6		Early seedhead stage.
Phaseybean[1]	*Phaseolus lathyroides*	1.5	1.6-3.3		Less than 8 inches tall.
Phragmites[1]	*Phragmites* 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.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Poison hemlock	*Conium maculatum*	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	*Phytolacca americana*	1.5	1.1		Apply to actively growing plants up to 24 inches in height.
Quackgrass	*Agropyron repens*	1.5	0.75-2.2		Apply 0.75 to 2.2 qt/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 to 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]	*Brunnichia ovata*	1.5	0.5-1.6		For suppression, apply 0.5 qt/A at each of two applications 7 to 14 days apart or a single application of 1.6 qt/A. Apply to plants greater than 18 inches tall in September/October to plants which have been growing 45 to 60 days since the last tillage. Make application at least 1 week prior to killing frost.
Ryegrass, perennial	*Lolium perenne*	1.0	0.75-2.2		Apply 0.7 to 2.2 qt/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 to 2.2 qt/A. Do not tank mix with residual herbicides when using the 0.75 qt/A per acre rate.

continued…

Table 3: Perennial Weed Control and Weed Management – Touchdown Total Rates Used Alone or in Tank Mix with 0.25 lb ai/A of Dicamba or 0.5 lb ai/A of 2,4-D *(continued)*

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Smallflowered Alexandergrass	*Brachiaria subquadripara*	1.5	1.6-3.3		Less than 4 inches in height, actively growing.
Smartweed, swamp	*Polygonum coccineum*	1.5	2.2–-3.6		Early bud, 12 inch stage.
			0.4	Yes	Early bud, 12 inch stage.
Sowthistle, perennial	*Sonchus arvensis*	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	*Euphorbia esula*	1.5	0.4	Yes	For suppression: greater than 12 inches tall in late summer.
Starthistle, yellow	*Centaurea solstitialis*	1.5	2.2-3.6		Apply to actively-growing plant at late bud to flower stage.
Sweet potato, wild[1]	*Ipomea pandurata*	1.5	--		Apply at or beyond flowering stage.
Switchgrass	*Panicum virgatum*	1.5	1.1-2.2		Boot to head stage.
Thistle, artichoke[1]	*Cynara cardunculus*	1.5	--		Apply when plants are beyond the bloom stage.
Thistle, Canada	*Cirsium arvense*	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 to 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	*Phleum pratense*	1.5	1.6-2.2		Boot to head; wait 3 days before tillage.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Torpedograss[1]	*Panicum repens*	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.
Trumpetcreeper[1]	*Campsis radicans*	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	*Paspalum urvillei*	1.5	2.2-3.6		Apply at early head stage.
Vetch	*Vicia* spp.	1.5	1.4-2.9		Boot to head.
Virginia creeper	*Parthenocissus quinquefolia*	1.5	3.3		Full leaf expansion.
Velvetgrass	*Holcus* spp.	1.5	2.2-3.6		Early head stage.
Wheatgrass, western	*Agropyron smithii*	1.5	1.6-2.2		Boot to head.

[1]Partial control.

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 qt/A or a 0.7 to 1.5% solution for spot spray clean-up.

Table 4: Woody Brush and Trees Controlled

Weed	Rate (qt/A)[1]
Alder	2.2-2.9
Ash[2]	1.4-3.6
Aspen, quaking	1.4-3.6
Bearmat (Bearclover)[2]	1.4-3.6
Beech[2]	1.4-3.6
Birch	0.7-1.4
Blackberry	2.2-2.9

continued…

Table 4: Woody Brush and Trees Controlled *(continued)*

Weed	Rate (qt/A)[1]
Blackgum	1.4-3.6
Bracken	1.4-3.6
Broom, French and Scotch	1.4-3.6
Buckwheat, California[2]	1.4-3.6
Cascara[2]	3.6
Catsclaw[2]	3.6
Ceanothus[2]	1.4-3.6
Chamise[2]	1.4-3.6
Cherry, bitter, black and pin	0.7-3.6
Cottonwood, eastern	1.4-3.6
Coyote brush	1.4-3.6
Cypress, swamp and bald	1.4-3.6
Deerwood	1.4-3.6
Dewberry	2.2-2.9
Dogwood[2]	1.4-3.6
Elderberry	0.7-1.4
Elm[2]	1.4-3.6
Eucalyptus, bluegum	1.4-3.6
Florida holly (Brazilian peppertree)[2]	1.4-3.6
Gallberry	1.4-3.6
Gorse[2]	1.4-3.6
Hackberry, western	1.4-3.6
Hasardia[2]	1.4-3.6
Hawthorn	0.7-3.6
Hazel	0.7-1.4
Hickory[2]	1.4-3.6
Honeysuckle	2.2-2.9
Hornbeam, American[2]	1.4-3.6
Huckleberry	1.4-3.6
Kudzu	2.9-3.6
Locust, black[2]	1.4-3.6
Madrone, resprouts[2]	3.6
Magnolia, sweetbay	1.4-3.6
Manzanita	1.4-3.6
Maple, red	1.4-3.6
Maple, sugar	3.6
Monkey flower[2]	1.4-3.6
Oak, black and white[2]	1.4-3.6
Oak, northern and pin	1.4-3.6

Weed	Rate (qt/A)[1]
Oak, post	2.2-2.9
Oak, red	1.4-3.6
Oak, scrub[2]	1.4-3.6
Oak, southern red	0.7-3.6
Orange, osage	1.4-3.6
Persimmon[2]	1.4-3.6
Pine	1.4-3.6
Poison ivy	2.9-3.6
Poison oak	2.9-3.6
Poplar, yellow[2]	1.4-3.6
Prunus	1.4-3.6
Raspberry	2.2-2.9
Redbud, eastern	1.4-3.6
Redcedar, eastern	1.4-3.6
Rose, multiflora	0.7-1.4
Russian olive[2]	1.4-3.6
Sage brush, California	1.4-3.6
Sage, black	1.4-3.6
Sage, white[2]	1.4-3.6
Sago, black	1.4-3.6
Salmonberry	0.7-1.4
Saltbrush, Seamyrtle	1.4-3.6
Saltcedar[2]	1.4-3.6
Sassafras[2]	1.4-3.6
Sourwood[2]	1.4-3.6
Sumac (laurel[2], poison, smooth, sugar bush, and winged[2])	1.4-3.6
Sweetgum	0.7-3.6
Swordfern[2]	1.4-3.6
Tallowtree, Chinese	3.6
Tan oak resprouts[2]	3.6
Thimbleberry	0.7-1.4
Tobacco tree[2]	1.4-3.6
Toyon	1.4-3.6
Trumpetcreeper	0.7-3.6
Vine maple[2]	1.4-3.6
Virginia creeper	1.4-3.6
Waxmyrtle, southern[2]	1.4-3.6
Willow	2.2-2.9
Yerbesenta, California	1.4-3.6

[1]Or use a 2% solution for spot spray clean-up.
[2]Partial control

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 Handling [less than 5 gallons]

Non-refillable container. Do not reuse or refill this container. Offer for recycling if available. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or mix tank or store rinsate for later use and disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available 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 Handling [Bulk/Mini-Bulk]

Refillable container. Refill this container with Touchdown Total Herbicide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the person refilling. To clean container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

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

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GROUP 9 HERBICIDE

Touchdown Total®

Herbicide

Nonselective Foliar Systemic Herbicide for Weed Control

Active Ingredient:
*Potassium salt of glyphosate:
N-(phosphonomethyl) glycine 44.9%

Other Ingredients:	55.1%
Total:	100.0%

*Contains 4.17 pounds per U.S. gallon of glyphosate acid.

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

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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.

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LAST DIGIT IS CHECK DIGIT
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KEEP OUT OF REACH OF CHILDREN.

CAUTION

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: 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: 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: 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: 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.

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: Pesticide wastes are toxic. Improper disposal of unused pesticide, spray mixture, or rinse water is a violation of federal law. If these wastes cannot be used according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance in proper disposal methods.

Container Handling: Non-refillable container. Do not reuse or refill this container. Offer for recycling if available. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or mix tank or store rinsate for later use and disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available 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!

2.5 gallons

Net Contents

syngenta®