

Detonate[®]

herbicide

TENKÖZ[®]

For weed control in asparagus, conservation reserve programs, corn, cotton, fallow croplands, general farmstead (noncropland), sorghum, grass grown for seed, hay, proso millet, pasture, rangeland, small grains, sod farms and farmstead turf, soybean, and sugarcane.

Active Ingredient:

Diglycolamine salt of 3,6-dichloro-*o*-anisic acid* 58.1%

Other Ingredients: 41.9%

Total 100.0%

*Contains 39.4% 3,6-dichloro-*o*-anisic acid (4 pounds acid equivalent per gallon or 480 grams per liter).

EPA Reg No. 7969-137-55467

EPA Est. No. is indicated by the fifth letter of the code printed on this container:

B = 68323-TX-001 FF = 11773-IA-01 N = 5905-IA-001

**KEEP OUT OF REACH OF CHILDREN
CAUTION/PRECAUCIÓN**

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

See inside booklet for complete **First Aid, Precautionary Statements, Directions For Use, State-Specific Crop and/or Use Site Restrictions and Conditions of Sale and Warranty.**

In case of an emergency endangering life or property involving this product, call day or night 1-800-424-9300.

Net Contents: 2.5 gallons

43928 040111 06R11V3

NVA 2010-04-065-0154

Product of U.S. and China

Distributed By:

Tenköz, Inc.
1725 Windward Concourse
Alpharetta, GA 30005

FIRST AID

If swallowed	<ul style="list-style-type: none">• Call a poison control center or doctor immediately for treatment advice.• Have person sip a glass of water if able to swallow.• DO NOT induce vomiting unless told to do so by a poison control center or doctor.• DO NOT give anything to an unconscious person.
If on skin or clothing	<ul style="list-style-type: none">• Take off contaminated clothing.• Rinse skin immediately with plenty of water for 15 to 20 minutes.• Call a poison control center or doctor for treatment advice.
If in eyes	<ul style="list-style-type: none">• Hold eye open and rinse slowly and gently with water for 15 to 20 minutes.• Remove contact lenses, if present, after first 5 minutes, then continue rinsing eye.• Call a poison control center or doctor for treatment advice.

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor or going for treatment.

You may also call the following for emergency medical treatment information: 1-800-424-9300.

Precautionary Statements

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Causes moderate eye irritation. Harmful if swallowed or absorbed through skin. Avoid contact with skin, eyes or clothing.

Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are nitrile rubber and butyl rubber. If you want more options, follow the instructions for **Category C** on an EPA chemical-resistance category selection chart.

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

- Long-sleeved shirt and long pants
- Chemical-resistant gloves (except for pilots.)
- Shoes plus socks

See **Engineering Controls Statement** for additional requirements.

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

Engineering Controls Statement

When handlers use closed systems, 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.

Pilots must use cockpits in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR 170.240(d)(4-6)).

User Safety Recommendations

Users should:

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

Environmental Hazards

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 disposing of equipment washwaters or rinsate. Apply this product only as directed on the label.

This chemical is known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

Ground and Surface Water Protection

Point source contamination: To prevent point source contamination, **DO NOT** mix, load this pesticide product within 50 feet of wells (including abandoned wells and drainage wells), sink holes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs. **DO NOT** apply pesticide product within 50 feet of wells. This setback does not apply to properly capped or plugged abandoned wells and does not apply to impervious pad or properly diked mixing/loading areas as described below.

Mixing, loading, rinsing, or washing operations performed within 50 feet of a well are allowed only when conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be on or move across the pad. The pad must be self-contained to prevent surface water flow over or from the pad. The pad capacity must be maintained at 110% that of the largest pesticide container or application equipment used on the pad and have sufficient capacity to contain all product spills, equipment or container leaks, equipment wash waters, and rainwater that may fall on the pad. The containment capacity does not apply to vehicles delivering pesticide shipments to the mixing/loading site. States may have in effect additional requirements regarding wellhead setbacks and operational containment.

Care must be taken when using this product to prevent: a) back siphoning into wells, b) spills or c) improper disposal of excess pesticide, spray mixtures or rinsates. Check valves or antisiphoning devices must be used on all mixing equipment.

Movement by surface runoff or through soil: **DO NOT** apply under conditions which favor runoff. **DO NOT** apply to impervious substrates such as paved or highly compacted surfaces in areas with high potential for ground water contamination. Ground water contamination may occur in areas where soils are permeable or coarse and ground water is near the surface. **DO NOT** apply to soils classified as sand with less than 3% organic matter and where ground water depth is shallow. To minimize the possibility of ground water contamination, carefully follow application rate recommendations as affected by soil type in the general information section of this label.

Movement by water erosion of treated soil: **DO NOT** apply or incorporate this product through any type of irrigation equipment nor by flood or furrow irrigation. Ensure treated areas have received at least one-half inch rainfall (or irrigation) before using tailwater for subsequent irrigation of other fields.

Endangered Species Concerns

The use of any pesticide in a manner that may kill or otherwise harm an endangered species or adversely modify their habitat is a violation of federal law.

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.

Unless otherwise directed in supplemental labeling, all applicable directions, restrictions, precautions and **Conditions of Sale and Warranty** are to be followed. This labeling must be in the user's possession during application.

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 intervals. The requirements in this box only apply to uses of this product that are covered by the WPS.

DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of **24 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 worn over short-sleeved shirt and short pants
- Chemical-resistant footwear plus socks
- Chemical-resistant gloves made of any waterproof material
- Chemical-resistant headgear for overhead exposure
- Protective eyewear

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.

DO NOT enter or allow people (or pets) to enter the treated area until sprays have dried. **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.

Storage and Disposal

DO NOT contaminate water, food, or feed by storage or disposal. Open dumping is prohibited. This product may not be mixed, loaded, or used within 50 feet of all wells including abandoned wells, drainage wells, and sinkholes.

Pesticide Storage: Groundwater contamination may be reduced by diking and flooring of permanent liquid bulk storage sites with an impermeable material. Store in original container in a well-ventilated area separately from fertilizer, feed, and foodstuffs. Avoid cross-contamination with other pesticides.

Pesticide Disposal: Wastes resulting from this product may be disposed of on site or at an approved waste disposal facility.

Pesticide, spray mixture, or rinsate that cannot be used according to label instructions must be disposed of according to federal, state or local procedures under **Subtitle C** of the **Resource Conservation and Recovery Act**. Improper disposal of excess pesticide, spray mix, or rinsate is a violation of federal law.

Container Disposal:

Nonrefillable Container. DO NOT reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

Triple rinse containers small enough to shake (capacity \leq 5 gallons) as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Triple rinse containers too large to shake (capacity $>$ 5 gallons) as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or mix tank. Hold container upside down over application equipment or mix tank, or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

(continued)

Storage and Disposal *(continued)*

Refillable Container. Refill this container with pesticide only. **DO NOT** reuse this container for any other purpose. Triple rinsing the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

Triple rinse as follows: To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10% 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.

When this container is empty, replace the cap and seal all openings that have been opened during use; return the container to the point of purchase or to a designated location. This container must only be refilled with a pesticide product. **DO NOT** reuse the container for any other purpose. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn-out threads and closure devices. Check for leaks after refilling and before transport. **DO NOT** transport if this container is damaged or leaking. If the container is damaged, or leaking, or obsolete and not returned to the point of purchase or to a designated location, triple rinse emptied container and offer for recycling, if available, or dispose of container in compliance with state and local regulations.

In Case of Spill

In case of large-scale spillage regarding this product, call:
CHEMTREC 1-800-424-9300

Steps to be taken in case material is released or spilled:

Dike and contain the spill with inert material (sand, earth, etc.) and transfer liquid and solid diking material to separate containers for disposal. Remove contaminated clothing, and wash affected skin areas with soap and water. Wash clothing before reuse. Keep the spill out of all sewers and open bodies of water.

I. Product Information

Detonate® herbicide is a water-soluble formulation intended for control and suppression of many annual, biennial, and perennial broadleaf weeds, as well as woody brush and vines listed in **Table 1. General Weed List, Including ALS- and Triazine-Resistant Biotypes.** **Detonate** may be used for control of these weeds in asparagus, corn, cotton, conservation reserve programs, fallow cropland, grass grown for seed, hay, proso millet, pasture, rangeland, general farmstead (noncropland), small grains, sod farms and farmstead turf, sorghum, soybean, and sugarcane.

Mode of Action

Detonate is readily absorbed by plants through shoot and root uptake, translocates throughout the plant's system, and accumulates in areas of active growth. **Detonate** interferes with the plant's growth hormones (auxins) resulting in death of many broadleaf weeds.

Table 1. General Weed List, Including ALS- and Triazine-Resistant Biotypes**ANNUALS**

Alkanet
Amaranth, Palmer, Powell,
Spiny
Aster, Slender
Bedstraw, Catchweed
Beggarweed, Florida
Broomweed, Common
Buckwheat, Tartary, Wild
Buffalobur
Burclover, California
Burcucumber
Buttercup, Corn, Creeping,
Roughseed, Western Field
Carpetweed
Catchfly, Nightflowering
Chamomile, Corn
Chervil, Bur
Chickweed, Common
Clovers
Cockle, Corn, Cow, White
Cocklebur, Common
Copperleaf, Hophornbeam
Cornflower (Bachelor Button)
Croton, Tropic, Woolly
Daisy, English
Dragonhead, American
Eveningprimrose, Cutleaf
Falseflax, Smallseed
Flixweed
Fumitory
Goosefoot, Nettleleaf
Hempnettle
Henbit
Jacobs-Ladder
Jimsonweed

Knawel (German Moss)
Knotweed, Prostrate
Kochia
Ladysthumb
Lambsquarters, Common
Lettuce, Miners, Prickly
Mallow, Common, Venice
Marestail (Horseweed)
Mayweed
Morningglory, Ivyleaf, Tall
Mustard, Black, Blue, Tansy,
Treacle, Tumble, Wild,
Yellowtops
Nightshade, Black, Cutleaf,
Pennycress, Field (Fanweed,
Frenchweed, Stinkweed)
Pepperweed, Virginia
(Peppergrass)
Pigweed, Prostrate, Redroot
(Carelessweed), Rough,
Smooth, Tumble
Pineappleweed
Poorjoe
Poppy, Red-horned
Puncturevine
Purslane, Common
Pusley, Florida
Radish, Wild
Ragweed, Common, Giant
(Buffaloweed), Lance-Leaf
Rocket, London, Yellow
Rubberweed, Bitter (Bitterweed)
Salsify
Senna, Coffee,
Sesbania, Hemp
Shepherdspurse
Sicklepod

Sida, Prickly (Teaweed)
Smartweed, Green,
Pennsylvania
Sneezeweed, Bitter
Sowthistle, Annual, Spiny
Spanish Needles
Spikeweed, Common
Spurge, Prostrate, Leafy
Spurry, Corn
Starbur, Bristly
Starwort, Little
Sumpweed, Rough
Sunflower, Common (Wild),
Volunteer
Thistle, Russian
Velvetleaf
Waterhemp
Waterprimrose, Winged
Wormwood

BIENNIALS

Burdock, Common
Carrot, Wild (Queen Anne's
Lace)
Cockle, White
Eveningprimrose, Common
Geranium, Carolina
Gromwell
Knapweed, Diffuse, Spotted
Mallow, Dwarf
Plantain, Bracted
Ragwort, Tansy
Starthistle, Yellow
Sweetclover
Teasel
Thistle, Bull, Milk, Musk,
Plumeless

Table 1. General Weed List, Including ALS- and Triazine-Resistant Biotypes *continued*

PERENNIALS

Alfalfa¹
 Artichoke, Jerusalem
 Aster, Spiny, Whiteheath
 Bedstraw, Smooth
 Bindweed, Field, Hedge
 Blueweed, Texas
 Bursage, Woollyleaf¹ (Bur
 Ragweed, Povertyweed)
 Buttercup, Tall
 Campion, Bladder
 Chickweed, Field, Mouseear
 Chicory¹
 Clover¹, Hop
 Dandelion¹,
 Dock¹, Broadleaf (Bitterdock),
 Curly
 Dogbane, Hemp
 Dogfennel¹ (Cypressweed)
 Fern, Bracken
 Garlic, Wild
 Goldenrod, Canada, Missouri
 Goldenweed, Common
 Hawkweed
 Henbane, Black¹
 Horsenettle, Carolina
 Ironweed
 Knapweed, Black, Diffuse,
 Russian¹, Spotted
 Milkweed, Common,
 Honeyvine, Western Whorled
 Nettle, Stinging
 Nightshade, Silverleaf (White
 Horsenettle)
 Onion, Wild
 Plantain, Broadleaf, Buckhorn
 Pokeweed
 Ragweed, Western

Redvine
 Sericea Lespedeza
 Smartweed, Swamp
 Snakeweed, Broom
 Sorrel¹, Red (Sheep Sorrel)
 Sowthistle¹, Perennial
 Spurge, Leafy
 Sundrop,
 Thistle, Canada, Scotch
 Toadflax, Dalmatian
 Tropical Soda Apple
 Trumpetcreeper (Buckvine)
 Vetch
 Waterhemlock, Spotted
 Waterprimrose, Creeping
 Woodsorrel¹, Creeping, Yellow
 Wormwood, Louisiana
 Yankeeweed
 Yarrow, Common¹

WOODY SPECIES

Alder
 Ash
 Aspen
 Basswood
 Beech
 Birch
 Blackberry²
 Blackgum²
 Cedar²
 Cherry
 Chinquapin
 Cottonwood
 Creosotebush²
 Cucumbertree
 Dewberry²
 Dogwood²
 Elm

Grape
 Hawthorn (Thornapple)²
 Hemlock
 Hickory
 Honeylocust
 Honeysuckle
 Hornbeam
 Huckleberry
 Huisache
 Ivy, Poison
 Kudzu
 Locust, Black
 Maple
 Mesquite
 Oak
 Oak, Poison
 Olive, Russian
 Persimmon, Eastern
 Pine
 Plum, Sand (Wild Plum)²
 Poplar
 Rabbitbrush
 Redcedar, Eastern²
 Rose², McCartney, Multiflora
 Sagebrush, Fringed²
 Sassafras
 Serviceberry
 Spicebush
 Spruce
 Sumac
 Sweetgum²
 Sycamore
 Tarbush
 Willow
 Witchhazel
 Yaupon²
 Yucca²

¹ Noted perennials may be controlled using lower rates of **Detonate** than those recommended for other listed perennial weeds.

² Growth suppression only.

Resistance Management

Detonate has a low probability of selecting for resistant weed biotypes.

Cleaning Spray Equipment

Clean application equipment thoroughly by using a strong detergent or commercial sprayer cleaner, according to the manufacturer's directions, and then triple rinsing the equipment before and after applying this product.

II. Application Instructions

Detonate can be applied to actively growing weeds as aerial, broadcast, band, or spot spray applications using water or sprayable fertilizer as a carrier. For general **Detonate** application rates for control or suppression by weed type and growth stage see **Table 2. Detonate Application Rates for Control or Suppression by Weed Type and Growth Stage**. For crop-specific application timing and other details, refer to section **VI. Crop-Specific Information**.

To avoid uneven spray coverage, **Detonate** should not be applied during periods of gusty wind or when wind is in excess of 15 mph.

Avoid off-target movement. Use extreme care when applying **Detonate** to prevent injury to desirable plants and shrubs.

Cultivation

DO NOT cultivate within 7 days after applying **Detonate**.

Sensitive Crop Precautions

Detonate may cause injury to desirable trees and plants, particularly beans, cotton, flowers, fruit trees, grapes, ornamentals, peas, potatoes, soybeans, sunflowers, tobacco, tomatoes, and other broadleaf plants when contacting their roots, stems, or foliage. These plants are most sensitive to **Detonate** during their development or growing stage.

Precautions to avoid herbicide drift

- Use coarse sprays (volume median diameter of 400 microns or more) to avoid potential herbicide drift. Select nozzles that are designed to produce minimal amounts of fine spray particles (less than 200 microns). Examples of nozzles designed to produce coarse sprays via ground applications are **Delavan® Raindrops**, **Spraying Systems XR** (excluding 110° tips) flat fans, **Turbo Teejets®**, **Turbo Floodjets®**, or large capacity flood nozzles such as D10, TK10, or greater capacity tips.
- Keep the spray pressure at or below 20 psi and the spray volume at or above 20 gallons per acre (for ground broadcast applications), unless otherwise required by the manufacturer of drift-reducing nozzles. Consult your spray nozzle supplier concerning the choice of drift-reducing nozzles.
- Agriculturally approved drift-reducing additives may be used.

Aerial Application Methods and Equipment

Water Volume: Use 1 to 10 gallons of water per acre (2 to 20 gallons of diluted spray per treated acre for preharvest uses). Use the higher spray volume when treating dense or tall vegetation.

Application Equipment: Select nozzles designed to produce minimal amounts of fine spray particles. Make aerial applications at the lowest safe height to reduce exposing the spray to evaporation and wind.

The applicator must follow the most restrictive use cautions to avoid drift hazards, including those found in this labeling, as well as state and local regulations and ordinances.

DO NOT use aerial equipment if spray particles can be carried by the wind into areas where sensitive crops or plants are growing or when temperature inversions exist.

Ground Application (Banding)

When applying **Detonate** by banding, determine the amount of herbicide and water volume needed using the following formula:

$$\frac{\text{Bandwidth in inches}}{\text{Row width in inches}} \times \text{Broadcast rate per acre} = \text{Banding herbicide rate per acre}$$

$$\frac{\text{Bandwidth in inches}}{\text{Row width in inches}} \times \text{Broadcast volume per acre} = \text{Banding water volume per acre}$$

Table 2. Detonate Application Rates for Control or Suppression by Weed Type and Growth Stage

Use rate limitations are given in sections **V.** and **VI. Crop-Specific Information.**

Weed Type and Stage	Rate Per Acre (fl oz)	Weed Type and Stage	Rate Per Acre (fl oz)
Annual¹ Small, actively growing Established weed growth	8 to 16 16 to 24	Perennial Top growth suppression Top growth control and root suppression Noted perennials (footnote 1 in Table 1) Other perennials ³	8 to 16 16 to 32 32 32
Biennial Rosette diameter 1 to 3" Rosette diameter 3" or more Bolting	8 to 16 16 to 32 32	Woody Brush & Vines Top growth suppression Top growth control ^{2,3} Stems and stem suppression ³	16 to 32 32 32

¹ Rates below 8 fluid ounces per acre may provide control or suppression but should typically be applied with other herbicides that are effective on the same species and biotype.

² Species noted in **Table 2** will require tank mixes for adequate control.

³ **DO NOT** broadcast apply more than 32 fluid ounces per acre for single application. Use the higher level of listed rate ranges when treating dense vegetative growth or perennial weeds with well established root growth. "Other perennials" are defined as those listed in **Table 1. General Weed List, Including ALS- and Triazine-Resistant Biotypes** without footnote 1. The use on other perennials and on Woody Brush and Vine stems and for stem suppression is not registered in California. Rates higher than 32 fluid ounces per acre are for spot treatment only. **DO NOT** exceed 64 fluid ounces per acre per year.

Ground Application (Broadcast)

Water Volume: Use 3 to 50 gallons of spray solution per broadcast acre for optimal performance. Use the higher spray volume when treating dense or tall vegetation.

Application Equipment: Select nozzles designed to produce minimal amounts of fine spray particles. Spray with nozzles as close to the weeds as is practical for good weed coverage.

Ground Application (Wipers)

Detonate may be applied through wiper application equipment to control or suppress actively growing broadleaf weeds, brush, and vines. Use a solution containing 1 part **Detonate** to 1 part water. **DO NOT** apply greater than 1 lb dicamba acid equivalent (1 quart **Detonate**) per acre per application. **DO NOT** contact desirable vegetation with herbicide solution. Wiper application may be made to crops (including pastures) and non-cropland areas described in this label with the exception of cotton, sorghum, and soybean.

III. Additives

To improve postemergence weed control, agriculturally approved surfactants, sprayable fertilizers (urea ammonium nitrate, or ammonium sulfate), or crop oil concentrate may be added, particularly in dry growing conditions. (Refer to **Table 3. Additive Rate Per Acre.**)

Nitrogen Source

- **Urea ammonium nitrate (UAN):** Use 2 to 4 quarts of UAN (commonly referred to as 28%, 30%, or 32% nitrogen solution) per acre. **DO NOT** use brass or aluminum nozzles when spraying UAN.
- **Ammonium sulfate (AMS):** AMS at 2.5 pounds per acre may be substituted for UAN. Use high-quality AMS (spray grade) to avoid plugging of nozzles. Other sources of nitrogen are not as effective as those mentioned. TENKOZ does not recommend applying AMS, if applied in less than 10 gallons per acre because of potential problems with precipitation in reduced volumes. Use AMS only if it has been demonstrated to be successful in local experience.

Nonionic Surfactant

The standard label recommendation is 1 pint of an 80% active nonionic spray surfactant per 100 gallons of water. For certain weeds, a higher spray surfactant rate is recommended.

Oil Concentrate

A crop oil concentrate must contain either a petroleum or vegetable oil base and must meet all of the following criteria:

- be nonphytotoxic,
- contain only EPA-exempt ingredients,
- provide good mixing quality in the jar test, and
- be successful in local experience.

The exact composition of suitable products will vary; however, vegetable and petroleum oil concentrates should contain emulsifiers to provide good mixing quality. Highly refined vegetable oils have proven more satisfactory than unrefined vegetable oils. For additional information, see **Compatibility Test for Mix Components.**

Adjuvants containing crop oil concentrates may be used in preplant, preemergence, and preharvest application, as well as in pastures and noncropland. **DO NOT** use crop oil concentrate for postemergence in-crop applications unless specifically allowed in section **VI. Crop-Specific Information** of this label.

Table 3. Additive Rate Per Acre

Additive	Rate Per Acre
Nonionic Surfactant	1 to 2 pints per 100 gallons
AMS	2.5 pounds
UAN Solution	2 to 4 quarts
Crop Oil Concentrate	1 quart*
*see manufacturer's label for specific rate recommendations	

Compatibility Test for Mix Components

Before mixing components, always perform a compatibility jar test.

For 20 gallons per acre spray volume, use 3.3 cups (800 ml) of water. For other spray volumes, adjust accordingly. Only use water from the intended source at the source temperature.

Add components in the sequence indicated in the **Mixing Order** using 2 teaspoons for each pound or 1 teaspoon for each pint of recommended label rate per acre.

Always cap the jar and invert 10 cycles between component additions.

When the components have all been added to the jar, let the solution stand for 15 minutes. Evaluate the solution for uniformity and stability. The spray solution should not have free oil on the surface, nor fine particles that precipitate to the bottom, nor thick (clabbered) texture. If the spray solution is not compatible, repeat the compatibility test with the addition of a suitable compatibility agent. If the solution is then compatible, use the compatibility agent as directed on its label. If the solution is still incompatible, **DO NOT** mix the ingredients in the same tank.

Mixing Order

- 1) **Water.** Begin by agitating a thoroughly clean sprayer tank three-quarters full of clean water.
- 2) **Agitation.** Maintain constant agitation throughout mixing and application.
- 3) **Inductor.** If an inductor is used, rinse it thoroughly after each component has been added.
- 4) **Products in PVA bags.** Place any product contained in water-soluble PVA bags into the mixing tank. Wait until all water-soluble PVA bags have fully dissolved and the product is evenly mixed in the spray tank before continuing.
- 5) **Water-dispersible products** (dry flowables, wettable powders, suspension concentrates, or suspensions).
- 6) **Water-soluble products.** (such as **Detonate**)

- 7) **Emulsifiable concentrates** (such as oil concentrate when applicable).
- 8) **Water-soluble additives** (such as AMS or UAN when applicable).
- 9) **Remaining quantity of water.**

Maintain constant agitation during application.

IV. Tank Mixing Information

Tank Mix Partners/Components

The herbicide products listed may be applied with **Detonate** according to the specific tank mixing instructions in this label and respective product labels.

See section **VI. Crop-Specific Information** for more details. Read and follow the applicable **Restrictions and Limitations** and **Directions For Use** on all products involved in tank mixing. The most restrictive labeling applies to tank mixes.

Detonate may also be used in tank mixtures with foliar applied insecticides including synthetic pyrethroids such as Ambush®, Asana®, Pounce® and Warrior® insecticides or with the carbamate insecticide Furadan®. **DO NOT** apply **Detonate** in tank mixtures with Lorsban® insecticide.

Physical incompatibility, reduced weed control, or crop injury may result from mixing **Detonate** with other pesticides (fungicides, herbicides, insecticides, or miticides), additives, or fertilizers. TENKOZ does not recommend using tank mixes other than those listed on TENKOZ labeling. Local agricultural authorities may be a source of information when using other than TENKOZ recommended tank mixes.

- Accent® (nicosulfuron)
- Ally® (metsulfuron-methyl)
- Amber® (triasulfuron)
- Asulox® (asulam)
- Atrazine
- Axiom™ (flufenacet + metribuzin)
- Banvel® SGF (dicamba)
- Basagran® (bentazon)
- Beacon® (primisulfuron-methyl)
- Bicep II Magnum® (s-metolachlor + atrazine)
- Bladex® (cyanazine)
- Bronate® (bromoxynil + MCPA)
- Bronco® (alachlor + glyphosate)
- Buctril® (bromoxynil)
- Bullet® (alachlor + atrazine)
- Canvas® (thifensulfuron + tribenuron + metsulfuron)
- Caparol® (prometryn)
- Crossbow® (2,4-D + triclopyr)
- Curtail® (clopyralid + 2,4-D)
- Cyclone® (paraquat)
- Dakota® (fenoxaprop + MCPA)
- Degree™ (acetochlor)
- Degree Xtra™ (acetochlor + atrazine)
- DoublePlay® (acetochlor + EPTC)
- Dual Magnum™ (s-metolachlor)
- Dual II Magnum® (s-metolachlor + atrazine)
- Eradicane® (EPTC)
- Evik® (ametryn)
- Exceed® (primisulfuron + prosulfuron)
- Express® (thifensulfuron + tribenuron-methyl)
- Extrazine® II (cyanazine + atrazine)
- Fallow Master® (glyphosate + dicamba)
- Field Master™ (acetochlor + atrazine + glyphosate)
- Finesse® (chlorsulfuron + metsulfuron-methyl)
- Frontier® (dimethenamid)
- FullTime™ (acetochlor + atrazine)
- Garlon® (triclopyr)
- Glean® (chlorsulfuron)
- Gramoxone® Extra (paraquat)
- Guardsman® (dimethenamid + atrazine)
- Harmony® Extra (thifensulfuron + tribenuron-methyl)
- Harness® (acetochlor)
- Harness® Xtra (acetochlor + atrazine)
- Hornet™ (flumetsalam + clopyralid)
- Karmex® (diuron)
- Kerb® (pronamide)
- Laddok® S-12 (bentazon + atrazine)
- Landmaster® BW (glyphosate + 2,4-D)
- Lariat® (alachlor + atrazine)
- Lasso® (alachlor)
- Lexone® (metribuzin)
- Liberty® (glufosinate)
- Lightning® (imazethapyr + imazapyr)
- Marksman® (dicamba + atrazine)
- MCPA
- Outlook® (dimethenamid-P)
- Paramount® (quinclorac)
- Partner® (alachlor)
- Peak® (prosulfuron)
- Permit® (halosulfuron)
- Princep® (simazine)
- Prowl® (pendimethalin)
- Python™ (flumetsulam)
- Ramrod® (propachlor)
- Roundup Ultra® (glyphosate)
- Roundup Ultra® RT (glyphosate)
- Sencor® (metribuzin)
- Spirit™ (primisulfuron + prosulfuron)
- Stinger® (clopyralid)
- Surpass® (acetochlor)
- Sutan® + (butylate)
- Tiller® (fenoxapropethyl + MCPA + 2,4-D)
- TopNotch™ (acetochlor)
- Tordon® 22K (picloram)
- Touchdown® (sulfosate)
- Tough® (pyridate)
- 2,4-D

V. Restrictions and Limitations

- **Maximum seasonal use rate:** Refer to **Table 4. Crop-Specific Restrictions and Limitations** for crop-specific maximum seasonal use rates. **DO NOT** exceed **64 fluid ounces of Detonate** (2 pounds acid equivalent) per acre, per year.
- **Preharvest Interval (PHI):** Refer to section **VI. Crop-Specific Information** for preharvest intervals.
- **Restricted-Entry Interval (REI): 24 hours**
- **Crop Rotational Restrictions:**

The interval between application and planting rotational crop is given below. Always exclude counting days when the ground is frozen. Planting at intervals less than specified below may result in crop injury. Moisture is essential for the degradation of this herbicide in soil. If dry weather prevails, use cultivation to allow herbicide contact with moist soil.

Planting/replanting restrictions for Detonate applications of 24 fluid ounces per acre or less: No rotational cropping restrictions apply at 120 days or more following application. Additionally, for annual crop uses in this label including corn, cotton, sorghum, and soybean, follow the preplant use directions in section **VI. Crop-Specific Information**. For barley, oat, wheat, and other grass seedings, the interval between application and planting is 15 days per 8 fluid ounces per acre applied east of the Mississippi River and 22 days per 8 fluid ounces per acre west of the Mississippi River.

Planting/replanting restrictions for applications of more than 24 fluid ounces and up to 64 fluid ounces of Detonate per acre: Corn, sorghum, cotton (east of the Rocky Mountains) and all other crops grown in areas with 30" or more of annual rainfall may be planted 120 days or more after application. Barley, oat, wheat, and other grass seedings, may be planted if the interval from application to planting is 30 days per 16 fluid ounces per acre east of the Mississippi River and 45 days per 16 fluid ounces per acre west of the Mississippi River. For all other crops in areas with less than 30" of annual rainfall, the interval between application and planting is 180 days or more.

- **Rainfast period:** Rainfall or irrigation occurring within **4 hours** after postemergence applications may reduce the effectiveness of **Detonate**.
- **Stress:** **DO NOT** apply to crops under stress due to lack of moisture, hail damage, flooding, herbicide injury, mechanical injury, insects, or widely fluctuating temperatures as injury may result.
- **DO NOT** apply through any type of **irrigation** equipment. **DO NOT** treat irrigation ditches or water used for crop irrigation or domestic purposes.

Table 4. Crop-Specific Restrictions and Limitations¹

Crop	Maximum Rate Per Acre Per Application (fl oz)	Maximum In-Crop Rate Per Acre Per Season (fl oz)	Livestock Grazing or Feeding	Aircraft Application Allowed
Asparagus	16	16	Yes	Yes
Barley, Fall , Spring	8 8	12 11	Yes	Yes
Conservation Reserve Program (CRP)	32	64	Yes	Yes
Corn	16	24	Yes ²	Yes
Cotton	8	8	Yes	Yes
Fallow Ground	32	64	Yes	Yes
Grass grown for seed	32	64	Yes	Yes
Oats	4	4	Yes	Yes
Pastureland	32	32	Yes	Yes
Proso Millet	4	4	Yes	Yes
Small grains grown for grass, forage, fodder, hay and/or pasture	16	16	Yes	Yes
Sorghum	8	16	Yes	Yes
Soybean	32	64	Yes	Yes
Sugarcane	32	64	Yes	Yes
Triticale	4	4	Yes	Yes
Sod farms and farmstead turf	32	32	Yes	Yes
Wheat	8	16	Yes	Yes

¹Refer to section **VI. Crop-Specific Information** for more details.

²Once the crop reaches the ensilage (milk) stage or later in maturity.

VI. Crop-Specific Information

Asparagus

Apply **Detonate** to emerged and actively growing weeds in 40 to 60 gallons of diluted spray per treated acre immediately after cutting the field, but at least 24 hours before the next cutting. Multiple applications may be made per growing season.

If spray contacts emerged spears, crooking (twisting) of some spears may result. If such crooking occurs, discard affected spears.

Rates: Apply 8 to 16 fluid ounces of **Detonate** per acre to control annual sowthistle, black mustard, Canada and Russian thistle, and redroot pigweed (carelessweed).

Apply 16 fluid ounces of **Detonate** per acre to control common chickweed, field bindweed, nettleleaf goosefoot, and wild radish. Multiple applications may be made per growing season. **DO NOT** exceed a total of 16 fluid ounces of **Detonate** per treated acre, per crop year.

DO NOT harvest prior to 24 hours after treatment.

DO NOT use in the Coachella Valley of California.

Asparagus Tank Mixes

Apply 8 to 16 fluid ounces of **Detonate** per acre with glyphosate (Roundup® Ultra herbicide) or 2,4-D to improve control of Canada thistle and field bindweed.

Between Crop Applications

PREPLANT DIRECTIONS (POSTHARVEST, FALLOW, CROP STUBBLE, SET-ASIDE) FOR BROADLEAF WEED CONTROL:

Detonate can be applied either postharvest in the fall, spring, or summer during the fallow period or to crop stubble/set-aside acres. Apply **Detonate** as a broadcast or spot treatment to emerged and actively growing weeds after crop harvest (postharvest) and before a killing frost or in the fallow cropland or crop stubble the following spring or summer.

See **Crop-Rotational Restrictions** in section **V. Restrictions and Limitations** for the recommended interval between application and planting to prevent crop injury.

Rates and Timings:

Apply 4 to 32 fluid ounces of **Detonate** per acre. Refer to **Table 2** to determine use rates for specific targeted weed species. For best performance, apply **Detonate** when annual weeds are less than 6" tall, when biennial weeds are in the rosette stage and to perennial weed regrowth in late summer or fall following a mowing or tillage treatment. The most effective control of upright perennial broadleaf weeds such as Canada thistle and

Jerusalem artichoke occurs if **Detonate** is applied when the majority of weeds have at least 4 to 6" of regrowth or for weeds such as field bindweed and hedge bindweed that are in or beyond the full bloom stage.

Avoid disturbing treated areas following application. Treatments may not kill weeds that develop from seed or underground plant parts such as rhizomes or bulblets, after the effective period for **Detonate**. For seedling control, a follow-up program or other cultural practices could be instituted. For small grain in-crop uses of **Detonate**, refer to the small grain section for details.

Between Crop Tank Mixes

In tank mixes with one or more of the following herbicides, apply 4 to 16 fluid ounces of **Detonate** per acre for control of annual weeds, or 16 to 32 fluid ounces of **Detonate** per acre for control of biennial and perennial weeds:

- Ally®
- Amber®
- Atrazine
- Curtail®
- Cyclone®
- Fallow Master®
- Finesse®
- glyphosate
(Roundup Ultra)
- Gramoxone® Extra
- Kerb®
- Landmaster® BW
- Paramount®
- Sencor®
- Tordon® 22K
- Touchdown®
- 2,4-D

Corn (Field, Pop, Seed, and Silage)

Direct contact of **Detonate** with corn seed must be avoided. If corn seeds are less than 1.5" below the soil surface, delay application until corn has emerged.

Applications of **Detonate** to corn during periods of rapid growth may result in temporary leaning. Corn will usually become erect within 3 to 7 days. Cultivation should be delayed until after corn is growing normally to avoid breakage.

Corn may be harvested or grazed for feed once the crop has reached the ensilage (milk) stage or later in maturity. Up to 2 applications of **Detonate** may be made during a growing season. Sequential applications must be separated by 2 weeks or more.

DO NOT apply **Detonate** to seed corn or popcorn without first verifying with your local seed corn company (supplier) the selectivity of **Detonate** on your inbred line or variety of popcorn. This precaution will help avoid potential injury of sensitive varieties.

Avoid using crop oil concentrates after crop emergence as crop injury may result. Use crop oil concentrates only in dry conditions when corn is less than 5" tall and when applying **Detonate** alone or tank mixed with atrazine.

Use of sprayable fluid fertilizer as the carrier is not recommended for applications of **Detonate** made after corn emergence.

Detonate is not registered for use on sweet corn.

PREPLANT AND PREEMERGENCE APPLICATION IN NO TILLAGE CORN:

Rates: Apply 16 fluid ounces of **Detonate** per acre on medium- or fine-textured soils containing 2.5% or greater organic matter. Use 8 fluid ounces of **Detonate** per acre on coarse soils (sand, loamy sand, and sandy loam) or medium- and fine-textured soils with less than 2.5% organic matter.

Timing: **Detonate** can be applied to emerged weeds before, during, or after planting a corn crop. When planting into a legume sod (e.g. alfalfa or clover), apply **Detonate** after 4 to 6" of regrowth has occurred.

PREEMERGENCE APPLICATION IN CONVENTIONAL OR REDUCED TILLAGE CORN:

Rates: Apply 16 fluid ounces of **Detonate** per treated acre to medium- or fine-textured soils that contain 2.5% organic matter or more. **DO NOT** apply to coarse-textured soils (sand, loamy sand, or sandy loam) or any soil with less than 2.5% organic matter until after corn emergence (see **Early Postemergence** uses below).

Timing: **Detonate** may be applied after planting and prior to corn emergence. Preemergence application of **Detonate** does not require mechanical incorporation to become active. A shallow mechanical incorporation is recommended if the application is not followed by adequate rainfall or sprinkler irrigation. Avoid tillage equipment (e.g. drags, harrows) that concentrate treated soil over seed furrow, as seed damage could result.

Preemergence control of cocklebur, jimsonweed, and velvetleaf may be reduced if conditions such as low temperature or lack of soil moisture cause delayed or deep germination of weeds.

EARLY POSTEMERGENCE APPLICATION IN ALL TILLAGE SYSTEMS:

Rates: Apply 16 fluid ounces of **Detonate** per treated acre. Reduce the rate to 8 fluid ounces of **Detonate** per treated acre for corn grown on coarse-textured soils (sand, loamy sand, and sandy loam).

Timing: Apply between corn emergence and the 5-leaf stage or 8" tall, whichever occurs first. Refer to **Late Postemergence Application** if the sixth true leaf is emerging from whorl or the corn is greater than 8" tall.

LATE POSTEMERGENCE APPLICATION:

Rate: Apply 8 fluid ounces of **Detonate** per treated acre.

Timing: Apply **Detonate** from 8 to 36" tall corn or 15 days before tassel emergence, whichever comes first. For best performance, apply when weeds are less than 3" tall.

Apply directed spray when corn leaves prevent proper spray coverage, sensitive crops are growing nearby, or tank mixing with 2,4-D. **DO NOT** apply **Detonate** when soybeans are growing nearby if any of these conditions exist:

- corn is more than 24" tall
- soybean are more than 10" tall
- soybean have begun to bloom

Corn Tank Mixes or Sequential Uses

When using tank mix or sequential applications with **Detonate**, always follow the companion product label to determine specific use rates by soil types, weed species, and weed or crop growth stage. In addition, follow precautions and restrictions including state and local use restrictions that may apply to specific products.

Apply **Detonate** prior to, in tank mix with, or after one or more of the following herbicides:

- Accent® 1
- Atrazine
- Axiom™
- Banvel® 1
- Beacon® 1
- Bicep®
- Bladex®
- Bullet®
- Detonate™¹
- Degree™
- Degree Xtra™
- DoublePlay® 2
- Dual Magnum™
- Dual II Magnum®
- Eradicane®
- Exceed® 1
- Extrazine® II
- Field Master®
- Frontier®
- FulTime®
- Gramoxone® Extra
- Guardsman®
- Harness®
- Harness® Xtra
- Hornet™ 1
- Laddok® S-12
- Lasso®
- Liberty® 3
- Lightning® 5
- Marksman® 1
- Outlook®
- Permit® 1
- Princep®
- Prowl®
- Python™
- Roundup Ultra® 4
- Roundup Ultra® RT
- Spirit™ 1
- Stinger® 1
- Surpass®
- Sutan® + 2
- TopNotch™
- Touchdown®
- Tough®
- 2,4-D 1

¹ See **Table 5. Specific Guidelines for Tank Mixes or Sequential Use Programs** for additional limitations or restrictions that apply for tank mix or sequential use programs with these products.

² Sequential use only.

³ Use only on Liberty Link® (glufosinate tolerant) corn hybrids.

⁴ Includes postemergence use on Roundup Ready® (glyphosate tolerant) corn hybrids.

⁵ Use only **CLEARFIELD®** (imidazolinone tolerant) corn hybrids.

Table 5. Specific Guidelines for Tank Mixes or Sequential Use Programs

Tank Mix Partner	Rate Per Acre
Accent® or Beacon®	When tank mixing, applications immediately following extreme day or night temperature fluctuations or applications when daytime temperatures DO NOT exceed 50° F may result in decreased weed control or crop injury. Delay application until the temperatures warm and both weeds and crop resume normal growth.
2,4-D	To provide maximum crop safety after corn emergence, use this tank mix only after corn is greater than 8" tall and when application can be made with drop pipes that direct spray beneath corn leaves and away from the whorl of the corn. The maximum rate of 2,4-D recommended in this tank mix is 0.25 pints per acre (0.125 pounds of acid equivalent per acre).
Banvel®, Detonate or Marksman® herbicide	Tank mixes with these products that contain dicamba must not exceed a total combined rate of 0.50 pounds of dicamba acid equivalent per acre (0.25 pound on coarse-textured soils or on any soil when corn is greater than 8" tall). Sequential applications of these products must be separated by a minimum of 2 weeks (unless the combined rate is less than 0.5 pounds of dicamba acid equivalent and corn is 8" tall or less) and must not exceed a combined total of 0.75 pounds dicamba acid equivalent per acre for in-crop use.
Exceed®, Spirit™, Stinger®, Hornet™, or Permit®	For improved control of velvetleaf, tank mix 0.25 to 0.5 ounce of Exceed, 0.5 ounce of Spirit, or 0.17 to 0.33 ounce Permit per acre with Detonate . For improved control of Canada thistle, Stinger at 1.5 to 3 fluid ounces per acre or Hornet at 0.6 to 1.2 ounces per acre may be tank mixed with Detonate . Use the higher rate in the range for heavier infestations of these weeds.

Cotton**PREPLANT APPLICATION:**

Apply up to 8 fluid ounces of **Detonate** per acre to control emerged broadleaf weeds prior to planting cotton in conventional or conservation tillage systems.

For best performance, apply **Detonate** when weeds are in the 2 to 4 leaf stage and rosettes are less than 2" across.

Following application of **Detonate** and a minimum accumulation of 1" of rainfall or overhead irrigation, a waiting interval of 21 days is required per 8 fluid ounces per acre or less. These intervals must be observed prior to planting cotton.

DO NOT apply preplant to cotton west of the Rockies.

DO NOT make **Detonate** preplant applications to cotton in geographic areas with average annual rainfall less than 25".

If applying a spring preplant treatment following application of a fall preplant (postharvest) treatment, then the combination of both treatments may not exceed 2 pounds acid equivalent (64 fluid ounces) per acre.

Cotton Tank Mixes

For control of grasses or additional broadleaf weeds, **Detonate** may be tank mixed with Bladex[®], Caparo[®], Gramoxone[®] Extra, and Roundup[®] Ultra RT herbicides.

Grass Grown for Seed

Apply 8 to 16 fluid ounces of **Detonate** per treated acre on seedling grass after the crop reaches the 3 to 5 leaf stage. Apply up to 32 fluid ounces of **Detonate** per acre on well-established perennial grass. For best performance, apply **Detonate** when weeds are in the 2 to 4 leaf stage and rosettes are less than 2" across. Use the higher level of listed rate ranges when treating more mature weeds or dense vegetative growth.

To suppress annual grasses such as brome (downy and ripgut), rattail fescue, and windgrass, apply up to 32 fluid ounces of **Detonate** per treated acre in the fall or late summer after harvest and burning of established grass seed crops. Applications should be made immediately following the first irrigation when the soil is moist and before weeds have more than 2 leaves.

DO NOT apply **Detonate** after the grass seed crop begins to joint.

Refer to the **Pasture, Hay, Rangeland, and General Farmstead** section for grazing and feeding restrictions.

Grass Seed Tank Mixes

Detonate may be applied in tank mixes with one or more of the following herbicides:

- Buctril[®]
- Curtail[®]
- Express[®]
- Karmex[®]
- MCPA amine
- Sencor[®]
- Stinger[®]
- 2,4-D amine or ester

Proso Millet

For use only within Colorado, Nebraska, North Dakota, South Dakota, and Wyoming.

Detonate combined with 2,4-D will provide control or suppression of the annual broadleaf weeds listed in **Table 1**.

Apply 4 ounces of **Detonate** per treated acre with 0.375 pounds a.i. of 2,4-D. Apply the tank mix of **Detonate** + 2,4-D as a broadcast or spot treatment to emerged and actively growing weeds and when proso millet is in the 2 to 5 leaf stage. Use directions for 2,4-D products vary with manufacturers. Refer to a 2,4-D product with labeling consistent with the crop stage timing for **Detonate**. Some types of proso millet may be affected adversely by a tank mix of **Detonate** + 2,4-D.

DO NOT apply unless possible proso millet crop injury will be acceptable.

Restrictions for proso millet that is grazed or cut for hay are indicated in **Table 6. Timing Restrictions for Lactating Dairy Animals Following Treatment in Pasture, Hay, Rangeland, and General Farmstead** section of this label.

Pasture, Hay, Rangeland, and General Farmstead (noncropland)

Detonate is recommended for use on pasture, hay, rangeland, and general farmstead (non-cropland) (including fencerows and non-irrigation ditchbanks) for control or suppression of broadleaf weed and brush species listed in **Table 1**.

Detonate may also be applied to non-cropland areas to control broadleaf weeds in noxious weed control programs, districts, or areas including broadcast or spot treatment of roadsides and highways, utilities, railroad, and pipeline rights-of-way. Noxious weeds must be recognized at the state level, but programs may be administered at state, county, or other level.

Detonate uses described in this section also pertain to grasses and small grains (forage, sorghum, rye, sudan-grass, or wheat) grown for grass, forage, fodder, hay and/or pasture only. Grasses and small grains not grown for grass, forage, fodder, hay and/or pasture must comply with crop-specific uses in this label. Some perennial weeds may be controlled with lower rates of either **Detonate** or **Detonate** plus 2,4-D (refer to **Table 2**).

Rates and Timings

Refer to **Table 2** for rate selection based on targeted weed or brush species. Some weed species will require tank mixes for adequate control.

Rates above 32 fluid ounces of **Detonate** per acre are for spot treatments only. **DO NOT** broadcast apply more than 32 fluid ounces per acre.

Retreatments may be made as needed; however, **DO NOT** exceed a total of 32 fluid ounces of **Detonate** per treated acre during a growing season.

Grass grown for hay requires a 7-day wait period between application and harvest.

Crop-Specific Restrictions and Limitations

DO NOT apply more than 16 fluid ounces of **Detonate** per acre to small grains grown for pasture.

Newly seeded areas may be severely injured if more than 16 fluid ounces of **Detonate** is applied per acre.

Established grass crops growing under stress can exhibit various injury symptoms that may be more pronounced if herbicides are applied. Bentgrass, carpetgrass, buffalograss, and St. Augustinegrass may be injured if more than 16 fluid ounces of **Detonate** is applied per acre. Usually colonial bentgrasses are more tolerant than creeping types. Velvetgrasses are most easily injured. Treatments will kill or injure alfalfa, clovers, lespedeza, wild winter peas, vetch, and other legumes.

Table 6 lists the timing restrictions for grazing or harvesting hay from treated fields. There are no grazing restrictions for animals other than lactating dairy animals.

Table 6. Timing Restrictions for Lactating Dairy Animals Following Treatment

Detonate Rate per Treated Acre (pts)	Days Before Grazing (days)	Days Before Hay Harvest (days)
Up to 1	7	37
Up to 2	21	51
Up to 4	40	70

Detonate can be applied using water, oil in water emulsions including invert systems, or sprayable fluid fertilizer as a carrier (refer to the **Compatibility Test for Mix Components**).

To prepare oil in water emulsions, half-fill spray tank with water, then add the appropriate amount of emulsifier. With continuous agitation, slowly add the herbicide and then the oil (such as diesel oil or fuel oil) or a premix of oil plus additional emulsifier to spray tank. Complete filling of spray tank with water. Maintain vigorous agitation during spray operation to prevent oil and water from forming separate layers. **Detonate** may be applied broadcast using either ground or aerial application equipment.

Aerial Application:

- **Spray Volume:** Use 2 to 40 gallons of diluted spray per treated acre in a water-based carrier.

Ground Application:

- **Spray Volume:** Use 3 to 600 gallons of diluted spray per treated acre. The volume of spray applied will depend on the height, density, and type of weeds or brush being treated and on the type of equipment being used.

- **Spot Treatments: Detonate** may be applied to individual clumps or small areas of undesirable vegetation using handgun or similar types of application equipment. Apply diluted sprays to allow complete wetting (up to runoff) of foliage and stems.

Cut Surface Treatments:

Detonate may be applied as a cut surface treatment for control of unwanted trees and prevention of sprouts of cut trees.

Rate: Mix 1 part **Detonate** with 1 to 3 parts water to create the application solution. Use the lower dilution rate when treating difficult-to-control species.

- **For Frill or Girdle Treatments:** Make a continuous cut or a series of overlapping cuts using an axe to girdle tree trunk. Spray or paint the cut surface with the solution.
- **For Stump Treatments:** Spray or paint freshly cut surface with the water mix. The area adjacent to the bark should be thoroughly wet.

Note: For more rapid foliar effects, 2,4-D may be added to the solution.

Applications For Control of Dormant Multiflora Rose: Detonate can be applied when plants are dormant as an undiluted spot treatment directly to the soil or as a Lo-Oil basal bark treatment using an oil-water emulsion solution.

- **Spot treatments:** Spot treatment applications of **Detonate** should be applied directly to the soil as close as possible to the root crown but within 6 to 8" of the crown. On sloping terrain, apply **Detonate** to the uphill side of the crown. **DO NOT** apply when snow or water prevents applying **Detonate** directly to the soil. The use rate of **Detonate** depends on the canopy diameter of the multiflora rose.

Examples: Use 0.25, 1.0, or 2.35 fluid ounces of **Detonate** respectively, for 5, 10, or 15 feet canopy diameters.

- **Lo-Oil basal bark treatments:** For Lo-Oil basal bark treatments, apply **Detonate** to the basal stem region from the ground line to a height of 12 to 18". Spray until runoff, with special emphasis on covering the root crown. For best results, apply **Detonate** when plants are dormant. **DO NOT** apply after bud break or when plants are showing signs of active growth. **DO NOT** apply when snow or water prevents applying **Detonate** to the ground line.

To prepare approximately 2 gallons of a Lo-Oil spray solution:

- 1) Combine 1.5 gallons of water, 1 ounce of emulsifier, 16 fluid ounces of **Detonate**, and 2.5 pints of No. 2 diesel fuel.
- 2) Adjust the amounts of materials used proportionately to the amount of final spray solution desired.

DO NOT exceed 8 gallons of spray solution mix applied per acre, per year.

Pasture Tank Mixes

Detonate may be applied in tank mixes with one or more of the following herbicides:

- Ally®
- Amber®
- Crossbow®
- Curtail®
- Garlon®
- Gramoxone® Extra
- Roundup Ultra® RT
- Stinger®
- Tordon® 22K
- 2,4-D

Conservation Reserve Program (CRP)

Detonate is recommended for use on both newly seeded and established grasses grown in Conservation Reserve or federal Set-Aside Programs. Treatments of **Detonate** will injure or may kill alfalfa, clovers, lespedeza, wild winter peas, vetch, and other legumes.

NEWLY SEEDED AREAS

Detonate may be applied either preplant or postemergence to newly seeded grasses or small grains such as barley, oats, rye, sudangrass, wheat, or other grain species grown as a cover crop. Postemergence applications may be made after seedling grasses exceed the 3-leaf stage. Rates of **Detonate** greater than 16 fluid ounces per treated acre may severely injure newly seeded grasses.

Preplant applications may injure new seedlings if the interval between application and grass planting is less than 45 days per 16 fluid ounces of **Detonate** applied per treated acre west of the Mississippi River or 20 days per 16 fluid ounces applied east of the Mississippi River.

ESTABLISHED GRASS STANDS

Established grass stands are perennial grasses planted one or more seasons prior to treatment. Certain species (bentgrass, carpetgrass, smooth brome, buffalograss, or St. Augustinegrass) may be injured when treated with more than 16 fluid ounces of **Detonate** per treated acre.

When applied at recommended rates, **Detonate** will control many annual and biennial weeds and provide control or suppression of many perennial weeds.

Rates and Timings

Apply 4 to 32 fluid ounces of **Detonate** per acre. Refer to **Table 2** for rates based on target weed species. **Detonate** may be tank mixed or applied sequentially with other products labeled for use in Conservation Reserve Programs such as atrazine, Cyclone®, glyphosate (Roundup Ultra®), Gramoxone® Extra, Touchdown®, or 2,4-D.

Retreatments may be made as needed; however, **DO NOT** exceed a total of 64 fluid ounces (4 pints) of **Detonate** per acre per year.

Small Grains not underseeded to legumes (fall- and spring-seeded barley, oat, triticale and wheat)

Detonate combinations with listed tank mix partners will provide control or suppression of the annual broadleaf weeds listed in **Table 1**. For improved control of listed weeds, tank mix **Detonate** with one or more of the herbicides listed. **Detonate** used in a tank mix with other herbicides offers the best spectrum of weed control and herbicide tolerant or resistant weed management. Refer to the specific crop section for **Detonate** application rate and timing.

For applications prior to weed emergence or when sulfonylurea-resistant weeds are present or suspected, tank mix a minimum of 3 fluid ounces of **Detonate** per treated acre with a non-sulfonylurea herbicide such as 2,4-D or MCPA. Tank mixing **Detonate** with these products will offer more consistent control of sulfonylurea-resistant weeds.

Additives: When tank mixing **Detonate** with sulfonylurea herbicides (Ally[®], Amber[®], Canvas[®], Express[®], Finesse[®], Glean[®], Harmony[®] Extra, and Peak[®]), use 1 to 4 pints of an agriculturally approved surfactant (containing at least 80% active ingredient) per 100 gallons of spray or not more than 0.25 to 0.5% by volume. Use the highest rate of surfactant when using the lower rate ranges of the tank mix or when treating more mature and difficult to control weeds or dense vegetative growth.

Refer to the specific crop sections below for use rates. When treating difficult to control weeds such as kochia, wild buckwheat, cow cockle, prostrate knotweed, Russian thistle, and prickly lettuce or when dense vegetative growth occurs, use the 3 to 4 fluid ounces of **Detonate** per acre.

Timings: Apply **Detonate** before, during, or after planting small grains. See specific small grain crop uses below for maximum crop stage. For best performance, apply **Detonate** when weeds are in the 2 to 3 leaf stage and rosettes are less than 2" across. Applying **Detonate** to small grains during periods of rapid growth may result in crop leaning. This condition is temporary and will not reduce crop yields.

Applications to small grains may be made with aerial applications with 1 gallon of water or more per acre. Where dense foliage is present, 2 to 3 gallons of water per acre should be used.

Restrictions for small grain areas that are grazed or cut for hay are indicated in **Table 6** in **Pasture, Hay, Rangeland, and General Farmstead** section of this label.

Small Grains: Barley (fall- and spring-seeded)

EARLY SEASON APPLICATIONS:

Apply 2 to 4 fluid ounces of **Detonate** per treated acre to fall-seeded barley prior to the jointing stage. Apply 2 to 3 fluid ounces of **Detonate** per acre before spring-seeded barley exceeds the 4-leaf stage.

Note: For spring barley varieties that are seeded during the winter months or later, follow the rates and timings given for spring-seeded barley.

DO NOT tank mix **Detonate** with 2,4-D in early season applications on spring-seeded barley.

PREHARVEST APPLICATIONS:

Detonate can be used to control weeds that may interfere with harvest of fall- and spring-seeded barley. Apply 8 fluid ounces of **Detonate** per acre as a broadcast or spot treatment to annual broadleaf weeds when barley is in the hard dough stage and the green color is gone from the nodes (joints) of the stem. Best results will be obtained if application can be made when weeds are actively growing, but before weeds canopy.

A waiting interval of 7 days is required before harvest. **DO NOT** use preharvest-treated barley for seed unless a germination test is performed on the seed with an acceptable result of 95% germination or better.

For control of additional broadleaf weeds or grasses, **Detonate** may be tank mixed with other herbicides, such as 2,4-D, that are labeled for preharvest uses in barley.

DO NOT make preharvest applications in California.

Barley Tank Mixes

Table 7.	
Tank Mix Partner	Rate Per Acre
Ally®	0.05 to 0.1 ounce ¹
Amber®	0.14 to 0.28 ounce ¹
Bronate®	0.75 to 1.5 pints
Bucril®	1 to 1.5 pints
Canvas®	0.2 to 0.4 ounce ¹
Express®	0.083 to 0.167 ounce ¹
Finesse®	0.167 to 0.33 ounce ¹
Glean®	0.167 ounce ¹
Harmony® Extra	0.167 to 0.33 ounce ¹
MCPA amine or ester	8 to 12 fluid ounces ² (0.25 to 0.375 pound a.e.)
Metribuzin (Sencor®, Lexone®)	0.125 to 0.47 pound a.i.
2,4-D amine or ester ^{2,3}	8 fluid ounces (0.25 pound a.e.)

¹ **DO NOT** use low rates of sulfonylureas (Ally, Amber, Canvas, Express, Finesse, Glean, and Harmony Extra) on more mature weeds or on dense vegetative growth.

² When using formulations other than 4 pounds per gallon use pounds of a.e. per acre listed.

³ This tank mix is for fall-seeded barley only.

Small Grains: Oat (fall- and spring-seeded)

EARLY SEASON APPLICATIONS:

Apply 2 to 4 fluid ounces of **Detonate** per acre to fall-seeded oat prior to the jointing stage. Apply 2 to 4 fluid ounces of **Detonate** per acre before spring-seeded oat exceeds the 5-leaf stage.

A waiting interval of 7 days is required before harvest.

Detonate may be tank mixed with MCPA amine or ester for applications in oat.

DO NOT tank mix **Detonate** with 2,4-D in oat.

Small Grains: Triticale (fall- and spring-seeded)

EARLY SEASON APPLICATIONS:

Apply 2 to 4 fluid ounces of **Detonate** per treated acre to triticale. Early season applications to fall-seeded triticale must be made prior to the jointing stage.

Early season applications to spring-seeded triticale must be made before triticale reaches the 6-leaf stage.

Triticale Tank Mixes: For best performance, **Detonate** should be used in tank mix combination with bromoxynil (Buctril, Moxy™ 2E) herbicide.

Small Grains: Wheat (fall- and spring-seeded)

EARLY SEASON APPLICATIONS:

Apply 2 to 4 fluid ounces of **Detonate** per treated acre to wheat unless using one of the fall-seeded wheat specific programs below. Early season applications to fall-seeded wheat must be made prior to the jointing stage.

Early season applications to spring-seeded wheat must be made before wheat exceeds the 6-leaf stage.

Early developing wheat varieties such as TAM 107, Madison, or Wakefield must receive application between early tillering and the jointing stage. Care should be taken in staging these varieties to be certain that the application occurs prior to the jointing stage.

To improve control of Russian thistle, flixweed, gromwell, or mayweed, add 2,4-D amine or ester to a tank mix with one of the following herbicides: Ally®, Amber®, Canvas®, Express®, Finesse®, Glean®, Harmony® Extra, or Peak®.

SPECIFIC USE PROGRAMS FOR FALL-SEEDED WHEAT ONLY:

Detonate may be used at 6 fluid ounces on fall-seeded wheat in Western Oregon as a spring application only. In Colorado, Kansas, New Mexico, Oklahoma, and Texas, up to 8 fluid ounces of **Detonate** may be applied on fall-seeded wheat after it exceeds the 3-leaf stage for suppression of perennial weeds, such as field bindweed. Applications may be made in the fall following a frost but before a killing freeze. **Detonate** may be tank mixed with 2,4-D amine at 8 fluid ounces after wheat begins to tiller. Periods of extended stress such as cold and wet weather may enhance the possibility of crop injury. For fall applications only, **DO NOT** use if the potential for crop injury is not acceptable.

PREHARVEST APPLICATIONS:

Detonate can be used to control weeds that may interfere with harvest of wheat. Apply 8 fluid ounces **Detonate** per acre as a broadcast or spot treatment to annual broadleaf weeds when wheat is in the hard dough stage and the green color is gone from the nodes (joints) of the stem. Best results will be obtained if application can be made when weeds are actively growing but before weeds canopy.

A waiting interval of 7 days is required before harvest. **DO NOT** use preharvest-treated wheat for seed unless a germination test is performed on the seed with an acceptable result of 95% germination or better.

For control of additional broadleaf weeds or grasses, **Detonate** may be tank mixed with other herbicides such as Ally, Roundup® Ultra, and 2,4-D.

DO NOT make preharvest applications in California.

Wheat Tank Mixes

Table 8.

Tank Mix Partner	Rate Per Acre
Ally®	0.05 to 0.1 ounce ¹
Amber®	0.14 to 0.28 ounce ¹
Bronate®	0.75 to 1.5 pints
Buctril®	1 to 1.5 pints
Canvas®	0.2 to 0.4 ounce ¹
Curtail®	2 to 2.67 pints
Dakota® ²	16 fluid ounces
Express®	0.083 to 0.167 ounce ¹
Finesse®	0.167 to 0.33 ounce ¹
Glean®	0.167 ounce ¹
Harmony® Extra	0.167 to 0.33 ounce ¹
Karmex® ³	0.5 to 1.5 pounds
Glyphosate (Roundup Ultra® RT) ⁴	12 to 16 fluid ounces
MCPA amine or ester ⁵	8 to 12 fluid ounces (0.25 to 0.375 pound a.e.)
Metribuzin ³ (Sencor®, Lexone®)	0.25 to 0.375 pound a.i.
Peak® ¹	0.25 to 0.38 ounce
Stinger®	4 to 5.33 fluid ounces
Tiller® ²	1 to 1.7 pints
2,4-D amine or ester ⁵	8 to 12 fluid ounces (0.25 to 0.375 pound a.e.)

¹ **DO NOT** use low rates of sulfonylurea herbicides, such as Ally, Amber, Canvas, Express, Finesse, Glean, Harmony Extra, and Peak on more mature weeds or on dense vegetative growth.

² **DO NOT** use **Detonate** as a tank mix treatment with Dakota or Tiller on Durum wheat. **DO NOT** tank mix with Tiller if wild oat is the target weed.

³ Tank mixes with Karmex and metribuzin are for use in fall-seeded wheat only.

⁴ A tank mix of up to 4 fluid ounces of **Detonate** with Roundup Ultra RT or any glyphosate formulation labeled for use as a preplant application to small grains may be applied with no waiting period prior to planting.

⁵ Up to 32 fluid ounces of (1.0 pound a.e.) may be used on fall-seeded wheat if crop injury is acceptable. When using formulations other than 4 pounds per gallon, use the pounds of a.e. per acre listed.

Sorghum

Detonate may be applied preplant, postemergence, or preharvest in sorghum to control many annual broadleaf weeds and to reduce competition from established perennial broadleaf weeds, as well as control their seedlings.

DO NOT graze or feed treated sorghum forage or silage prior to mature grain stage. If sorghum is grown for pasture or hay, refer to **Pasture, Hay, Rangeland, and General Farmstead** section of this label for specific grazing and feeding restrictions.

DO NOT apply **Detonate** to sorghum grown for seed production.

PREPLANT APPLICATION:

Up to 8 fluid ounces of **Detonate** may be applied per acre if applied at least 15 days before sorghum planting.

POSTEMERGENCE APPLICATION:

Up to 8 fluid ounces of **Detonate** per acre may be applied after sorghum is in the spike stage (all sorghum emerged) but before sorghum is 15" tall. For best performance, apply **Detonate** when the sorghum crop is in the 3 to 5 leaf stage and weeds are small (less than 3" tall). Use drop pipes (drop nozzles) if sorghum is taller than 8". Keep the spray off the sorghum leaves and out of the whorl to reduce the likelihood of crop injury and to improve spray coverage of weed foliage. Applying **Detonate** to sorghum during periods of rapid growth may result in temporary leaning of plants or rolling of leaves. These effects are usually outgrown within 10 to 14 days.

Delay harvest until 30 days after treatment.

Preharvest uses in Texas and Oklahoma only: Up to 8 fluid ounces of **Detonate** per acre may be applied for weed suppression any time after the sorghum has reached the soft dough stage. An agriculturally approved surfactant may be used to improve performance. For aerial applications, use at least 2 gallons of water-based carrier per treated acre. Delay harvest until 30 days after a preharvest treatment.

SPLIT APPLICATION:

Detonate may be applied in split applications: preplant followed by postemergence or preharvest; or postemergence followed by preharvest. **DO NOT** exceed 8 fluid ounces per acre, per application or a total of 16 ounces per acre, per season.

Sorghum Tank Mixes and Sequential Treatments

Detonate may be applied prior to, in a tank mix with, or after one or more of the following herbicides:

- Atrazine
- Basagran®
- Bicep II Magnum®
- Buctril®
- Cyclone®
- Dual Magnum™
- Dual II Magnum®
- Fallow Master®
- Frontier®
- Gramoxone® Extra
- Guardsman®
- Laddok® S-12
- Landmaster®
- Lasso®
- Outlook®
- Paramount®
- Peak®
- Permit®
- Ramrod®
- Roundup Ultra®

Soybean

PREPLANT APPLICATIONS:

Apply 4 to 16 fluid ounces of **Detonate** per acre to control emerged broadleaf weeds prior to planting soybeans.

DO NOT exceed 16 fluid ounces of **Detonate** per acre in a spring application prior to planting soybeans.

Following application of **Detonate** and a minimum accumulation of 1" rainfall or overhead irrigation, a waiting interval of 14 days is required for 8 fluid ounces per acre or less, and 28 days for 16 fluid ounces per acre. These intervals must be observed prior to planting soybeans or crop injury may occur.

DO NOT make **Detonate** preplant applications to soybeans in geographic areas with average annual rainfall less than 25".

PREHARVEST APPLICATIONS:

Detonate can be used to control many annual and perennial broadleaf weeds and control or suppress many biennial and perennial broadleaf weeds in soybean prior to harvest (refer to **Table 1**). Apply 8 to 32 fluid ounces of **Detonate** per acre as a broadcast or spot treatment to emerged and actively growing weeds after soybean pods have reached mature brown color and at least 75% leaf drop has occurred.

DO NOT harvest soybeans until 7 days after application.

Treatments may not kill weeds that develop from seed or underground plant parts, such as rhizomes or bulbets, after the effective period for **Detonate**. For seedling control, a follow-up program or other cultural practice could be instituted.

DO NOT use preharvest-treated soybean for seed unless a germination test is performed on the seed with an acceptable result of 95% germination or better.

DO NOT feed soybean fodder or hay following a preharvest application of **Detonate**.
DO NOT make preharvest applications in California.

Soybean Tank Mixes

PREPLANT TANK MIXES:

Detonate may be tank mixed with other herbicides registered for early preplant use in soybeans including burndown herbicides such as glyphosate (Roundup Ultra®) and 2,4-D or residual herbicides such as Outlook®, Frontier® or Dual Magnum™.

PREHARVEST TANK MIXES:

Detonate may be tank mixed with other herbicides registered for preharvest use in soybeans such as glyphosate (Roundup Ultra) and Gramoxone® Extra.

Sugarcane

Apply **Detonate** for control of annual, biennial, or perennial broadleaf weeds listed in **Table 1**. Apply 8 to 24 fluid ounces of **Detonate** per acre for control of annual weeds, 16 to 32 fluid ounces for control of biennial weeds and for control or suppression of perennial weeds.

Use the higher level of listed rate ranges when treating dense vegetative growth.

Retreatments may be made as needed, however, **DO NOT** exceed a total of 64 fluid ounces of **Detonate** per treated acre during a growing season.

Timing: **Detonate** may be applied to sugarcane any time after weeds have emerged, but before the close-in stage of sugarcane. Applications of 32 fluid ounces of **Detonate** per acre made over the top of actively growing sugarcane may result in crop injury.

When possible, direct the spray beneath the sugarcane canopy to minimize the likelihood of crop injury. Using directed sprays will also help maximize the spray coverage of weed foliage.

Delay harvest until 87 days after treatment.

Sugarcane Tank Mixes

Detonate may be tank mixed with other products registered for use in sugarcane such as Asulox®, atrazine, Evik®, and 2,4-D.

Farmstead Turf (noncropland) and Sod Farms

DO NOT use on residential sites.

For use in general farmstead turf (noncropland) and sod farms, apply 3 to 32 fluid ounces of **Detonate** per acre to control or suppress growth of many annual, biennial, and some perennial broadleaf weeds commonly

found in turf. **Detonate** will also suppress many other listed perennial broadleaf weeds and woody brush and vine species. Refer to **Table 2** for rate recommendations based on targeted weed or brush species and growth stage. Some weed species will require tank mixes for adequate control.

Repeat treatments may be made as needed; however, **DO NOT** exceed 32 fluid ounces of **Detonate** per acre, per growing season.

Apply 30 to 200 gallons of diluted spray per treated acre (3 to 17 quarts of water per 1,000 square feet), depending on density or height of weeds treated and on the type of equipment used.

To avoid injury to newly seeded grasses, delay application of **Detonate** until after the second mowing. Furthermore, applying more than 16 fluid ounces of **Detonate** per treated acre may cause noticeable stunting or discoloration of sensitive grass species such as bentgrass, carpetgrass, buffalograss, and St. Augustine-grass.

In areas where roots of sensitive plants extend, **DO NOT** apply more than 4 fluid ounces of **Detonate** per treated acre on coarse-textured (sandy-type) soils, or in excess of 8 fluid ounces per treated acre on fine-textured soils. **DO NOT** make repeat applications in these areas for 30 days and until previous applications of **Detonate** have been activated in the soil by rain or irrigation.

Farmstead Turf (noncropland) and Sod Farm Tank Mixes

Apply 3.2 to 8 fluid ounces of **Detonate** per acre in a tank mix with one of the products in **Table 9** at the rates listed. Use the higher rates when treating established weeds.

Tank Mix Partner	Rate Per Acre
bromoxynil (Buctril®)	0.375 to 0.5 pound a.i.
MCPA	0.5 to 1.5 pounds a.e.
MCPP	0.5 to 1.5 pounds a.e.
2,4-D	0.5 to 1.5 pounds a.e.

Pests listed in this label	
Common Name	Scientific Name
ANNUALS	
Alkanet	<i>Lithospermum arvense</i>
Amaranth, Palmer	<i>Amaranthus palmeri</i>
, Powell	<i>Amaranthus powellii</i>
, Spiny	<i>Amaranthus spinosus</i>
Aster, Slender	<i>Aster subulatus</i>
Bedstraw, Catchweed	<i>Galium aparine</i>
Beggarweed, Florida	<i>Desmodium tortuosum</i>
Broomweed, Common	<i>Gutierrezia dracunculoides</i>
Buckwheat, Tartary	<i>Fagopyrum tataricum</i>
, Wild	<i>Polygonum convolvulus</i>
Buffalobur	<i>Solanum rostratum</i>
Burclover, California	<i>Medicago polymorpha</i>
Burcucumber	<i>Sicyos angulatus</i>
Buttercup, Corn	<i>Ranunculus arvensis</i>
, Creeping	<i>Ranunculus repens</i>
, Roughseed	<i>Ranunculus muricatus</i>
, Western Field	<i>Ranunculus occidentalis</i>
Carpetweed	<i>Mollugo verticillata</i>
Catchfly, Nightflowering	<i>Silene noctiflorum</i>
Chamomile, Corn	<i>Anthemis arvensis</i>
Chervil, Bur	<i>Anthriscus caucalis</i>
Chickweed, Common	<i>Stellaria media</i>
Clovers	<i>Trifolium</i> spp.
Cockle, Corn	<i>Agrostemma githago</i>
, Cow	<i>Vaccaria pyramidata</i>
, White	<i>Melandrium album</i>
Cocklebur, Common	<i>Xanthium strumarium</i>
Copperleaf, Hophornbeam	<i>Acalypha ostryifolia</i>
Cornflower (Bachelor Button)	<i>Centaurea cyanus</i>
Croton, Tropic	<i>Croton glandulosus</i>
, Woolly	<i>Croton capitatus</i>
Daisy, English	<i>Bellis perennis</i>

Pests listed in this label	
Common Name	Scientific Name
ANNUALS <i>continued</i>	
Dragonhead, American	<i>Dracocephalum parviflorum</i>
Eveningprimrose, Cutleaf	<i>Oenothera laciniata</i>
Falseflax, Smallseed	<i>Camelina microcarpa</i>
Fleabane, Annual	<i>Erigeron annuus</i>
Flixweed	<i>Descurainia sophia</i>
Fumitory	<i>Fumaria officinalis</i>
Goosefoot, Nettleleaf	<i>Chenopodium murale</i>
Hempnettle	<i>Galeopsis tetrahit</i>
Henbit	<i>Lamium amplexicaule</i>
Jacob's Ladder	<i>Polemonium caeruleum</i>
Jimsonweed	<i>Datura stramonium</i>
Knawel (German Moss)	<i>Scleranthus annuus</i>
Knotweed, Prostrate	<i>Polygonum aviculare</i>
Kochia	<i>Kochia scoparia</i>
Ladysthumb	<i>Polygonum persicaria</i>
Lambsquarters, Common	<i>Chenopodium album</i>
Lettuce, Miners	<i>Claytonia perfoliata</i>
, Prickly	<i>Lactuca serriola</i>
Mallow, Common	<i>Malva neglecta</i>
, Venice	<i>Hibiscus trionum</i>
Marestail (Horseweed)	<i>Hippuris vulgaris</i>
Mayweed	<i>Anthemis cotula</i>
Morningglory, Ivyleaf	<i>Ipomea hederacea</i>
, Tall	<i>Ipomea purpurea</i>
Mustard, Black	<i>Brassica nigra</i>
, Blue	<i>Chorispora tenella</i>
, Tansy	<i>Descurainia pinnata</i>
, Treacle	<i>Erysimum repandum</i>
, Tumble	<i>Sisymbrium altissimum</i>
, Wild	<i>Sinapis arvensis</i>
Nightshade, Black	<i>Solanum nigrum</i>
, Cutleaf	<i>Solanum triflorum</i>

Pests listed in this label	
Common Name	Scientific Name
ANNUALS	
Pennycress, Field (Fanweed, Frenchweed, Stinkweed)	<i>Thlaspi arvense</i>
Pepperweed, Virginia (Peppergrass)	<i>Lepidium virginicum</i>
Pigweed, Prostrate	<i>Amaranthus blitoides</i>
, Redroot (Carelessweed)	<i>Amaranthus retroflexus</i>
, Smooth	<i>Amaranthus hybridus</i>
, Tumble	<i>Amaranthus albus</i>
Pineappleweed	<i>Matricaria matricarioides</i>
Poorjoe	<i>Diodia teres</i>
Puncturevine	<i>Tribulus terrestris</i>
Purslane, Common	<i>Portulaca oleracea</i>
Pusley, Florida	<i>Richardia scabra</i>
Radish, Wild	<i>Raphanus raphanistrum</i>
Ragweed, Common	<i>Ambrosia artemisiifolia</i>
, Giant (Buffaloweed)	<i>Ambrosia trifida</i>
, Lance-Leaf	<i>Ambrosia bidentata</i>
Ragwort, Tansy	<i>Senecio jacobaea</i>
Rocket, London	<i>Sisymbrium irio</i>
, Yellow	<i>Barbarea vulgaris</i>
Rubberweed, Bitter	<i>Hymenoxys odorata</i>
Salsify	<i>Tragopogon porrifolius</i>
Sesbania, Hemp	<i>Sesbania exaltata</i>
Shepherdspurse	<i>Capsella bursa-pastoris</i>
Sicklepod	<i>Cassia obtusifolia</i>
Sida, Prickly (Teaweed)	<i>Sida spinosa</i>
Smartweed, Green	<i>Polygonum scabrum</i>
, Pennsylvania	<i>Polygonum pennsylvanicum</i>
Sneezeweed, Bitter	<i>Helenium amarum</i>
Sowthistle, Annual	<i>Sonchus oleraceus</i>
, Spiny	<i>Sonchus asper</i>

Pests listed in this label	
Common Name	Scientific Name
ANNUALS <i>continued</i>	
Spikeweed, Common	<i>Hemizonia pungens</i>
Spurge, Prostrate	<i>Euphorbia humistrata</i>
Spurry, Corn	<i>Spergula arvensis</i>
Starbur, Bristly	<i>Acanthospermum hispidum</i>
Starwort, Little	<i>Stellaria graminea</i>
Sumpweed, Rough	<i>Iva ciliata</i>
Sunflower, Common (Wild)	<i>Helianthus annuus</i>
Thistle, Russian	<i>Salsola iberica</i>
Velvetleaf	<i>Abutilon theophrasti</i>
Waterhemp, Common	<i>Amaranthus rudis</i>
, Tall	<i>Amaranthus tuberculatus</i>
Waterprimrose, Winged	<i>Ludwigia decurrens</i>
Wormwood	<i>Artemisia annua</i>
BIENNIALS	
Burdock, Common	<i>Arctium minus</i>
Carrot, Wild (Queen Anne's Lace)	<i>Daucus carota</i>
Cockle, White	<i>Melandrium album</i>
Eveningprimrose, Common	<i>Oenothera biennis</i>
Geranium, Carolina	<i>Geranium carolinianum</i>
Gromwell	<i>Lithospermum</i> spp.
Knapweed, Diffuse	<i>Centaurea diffusa</i>
, Spotted	<i>Centaurea maculosa</i>
Mallow, Dwarf	<i>Malva borealis</i>
Plantain, Bracted	<i>Plantago aristata</i>
Ragwort, Tansy	<i>Senecio jacobaea</i>
Starthistle, Yellow	<i>Centaurea solstitialis</i>
Sweetclover	<i>Melilotus</i> spp.
Teasel	<i>Dipsacus sativus</i>
Thistle, Bull	<i>Cirsium vulgare</i>
, Musk	<i>Carduus nutans</i>
, Plumeless	<i>Carduus acanthoides</i>

Pests listed in this label	
Common Name	Scientific Name
PERENNIALS	
Alfalfa	<i>Medicago sativa</i>
Artichoke, Jerusalem	<i>Helianthus tuberosus</i>
Aster, Spiny	<i>Aster spinosus</i>
, Whiteheath	<i>Aster pilosus</i>
Bedstraw, Smooth	<i>Gallium mollugo</i>
Bindweed, Field	<i>Convolvulus arvensis</i>
, Hedge	<i>Calystegia sepium</i>
Blueweed, Texas	<i>Helianthus ciliaris</i>
Bursage, Woollyleaf, (Bur Ragweed, Povertyweed)	<i>Ambrosia grayi</i>
Buttercup, Tall	<i>Ranunculus acris</i>
Campion, Bladder	<i>Silene vulgaris</i>
Chickweed, Field	<i>Cerastium arvense</i>
, Mouseear	<i>Cerastium vulgatum</i>
Chicory	<i>Cichorium intybus</i>
Clover, Hop	<i>Trifolium aureum</i>
Dandelion	<i>Taraxacum officinale</i>
Dock, Broadleaf (Bitterdock)	<i>Rumex obtusifolius</i>
, Curly	<i>Rumex crispus</i>
Dogbane, Hemp	<i>Apocynum cannabinum</i>
Dogfennel (Cypressweed)	<i>Eupatorium capillifolium</i>
Fern, Bracken	<i>Pteridium aquilinum</i>
Garlic, Wild	<i>Allium vineale</i>
Goldenrod, Canada	<i>Solidago canadensis</i>
, Missouri	<i>Solidago missouriensis</i>
Goldenweed, Common	<i>Isocoma coronopifolia</i>
Hawkweed	<i>Hieracium</i> spp.
Henbane, Black	<i>Hyoscyamus niger</i>
Horsenettle, Carolina	<i>Solanum carolinense</i>
Ironweed	<i>Vernonia</i> spp.
Knapweed, Black	<i>Centaurea nigra</i>
, Russian	<i>Centaurea repens</i>
Milkweed, Common	<i>Asclepias syriaca</i>
, Honeyvine	<i>Ampelamus albidus</i>
, Western Whorled	<i>Asclepias subverticillata</i>

Pests listed in this label	
Common Name	Scientific Name
PERENNIALS <i>continued</i>	
Nettle, Stinging	<i>Urtica dioica</i>
Nightshade, Silverleaf (White Horsenettle)	<i>Solanum elaeagnifolium</i>
Onion, Wild	—
Plantain, Broadleaf	<i>Allium canadense</i>
, Buckhorn	<i>Plantago major</i>
Pokeweed	<i>Plantago lanceolata</i>
Ragweed, Western	<i>Phytolacca americana</i>
Redvine	<i>Ambrosia psilostachya</i>
Sericea Lespedeza	<i>Brunnichia ovata</i>
Smartweed, Swamp	<i>Lespedeza cuneata</i>
Snakeweed, Broom	<i>Polygonum coccineum</i>
Sorrel, Red (Sheep Sorrel)	<i>Gutierrezia sarothrae</i>
Sowthistle, Perennial	<i>Rumex acetosella</i>
Spurge, Leafy	<i>Sonchus arvensis</i>
Sundrops	<i>Euphorbia esula</i>
Thistle, Canada	<i>Oenothera perennis</i>
, Scotch	<i>Cirsium arvense</i>
Toadflax, Dalmatian	<i>Onopordum acanthium</i>
Tropical Soda Apple	<i>Linaria genistifolia</i>
Trumpetcreeper (Buckvine)	<i>Solanum viarum</i>
Vetch	<i>Campsis radicans</i>
Waterhemlock, Spotted	<i>Vicia</i> spp.
Waterprimrose, Creeping	<i>Cicuta maculata</i>
Woodsorrel, Creeping	<i>Ludwigia peploides</i>
, Yellow	<i>Oxalis corniculata</i>
Wormwood, Absinth	<i>Oxalis stricta</i>
, Louisiana	<i>Artemisia absinthium</i>
Yankeeeweed	<i>Artemisia ludoviciana</i>
Yarrow, Common	<i>Eupatorium compositifolium</i>
	<i>Achillea millefolium</i>

Pests listed in this label	
Common Name	Scientific Name
WOODY SPECIES	
Alder	<i>Alnus</i> spp.
Ash	<i>Fraxinus</i> spp.
Aspen	<i>Populus</i> spp.
Basswood	<i>Tilia americana</i>
Beech	<i>Fagus</i> spp.
Birch	<i>Betula</i> spp.
Blackberry	<i>Rubus</i> spp.
Blackgum	<i>Nyssa</i> spp.
Cedar	<i>Cedrus</i> spp.
Cherry	<i>Prunus</i> spp.
Chinquapin	<i>Chrysolepis chrysophylla</i>
Cottonwood	<i>Populus deltoides</i>
Creosotebush	<i>Larrea tridentata</i>
Cucumbertree	<i>Magnolia acuminata</i>
Dewberry	<i>Rubus caesius</i>
Dogwood	<i>Cornus</i> spp.
Elm	<i>Ulmus</i> spp.
Grape	<i>Vitis</i> spp.
Hawthorn (Thornapple)	<i>Crataegus</i> spp.
Hemlock	<i>Tsuga</i> spp.
Hickory	<i>Carya</i> spp.
Honeylocust	<i>Gleditsia triacanthos</i>
Honeysuckle	<i>Lonicera</i> spp.
Hornbeam	<i>Carpinus</i> spp.
Huckleberry	<i>Vaccinium arboreum</i>
Huisache	<i>Acacia farnesiana</i>
Ivy, Poison	<i>Rhus radicans</i>
Kudzu	<i>Pueraria lobata</i>
Locust, Black	<i>Robinia pseudoacacia</i>
Maple	<i>Acer</i> spp.
Mesquite	<i>Prosopis ruscifolia</i>

Pests listed in this label	
Common Name	Scientific Name
WOODY SPECIES <i>continued</i>	
Oak	<i>Quercus</i> spp.
Oak, Poison	<i>Rhus toxicodendron</i>
Olive, Russian	<i>Elaeagnus angustifolia</i>
Persimmon, Eastern	<i>Diospyros virginiana</i>
Pine	<i>Pinus</i> spp.
Plum, Sand (Wild Plum)	<i>Prunus amygdalus</i>
Poplar	<i>Populus</i> spp.
Rabbitbrush	<i>Chrysothamnus pulchellus</i>
Redcedar, Eastern	<i>Juniperus virginiana</i>
Rose, McCartney	<i>Rosa bracteata</i>
, Multiflora	<i>Rosa multiflorum</i>
Sagebrush, Fringed	<i>Artemisia frigida</i>
Sassafras	<i>Sassafras albidum</i>
Serviceberry	<i>Amelanchier sanguinea</i>
Spicebush	<i>Lindera benzoin</i>
Spruce	<i>Picea</i> spp.
Sumac	<i>Rhus</i> spp.
Sweetgum	<i>Liquidambar styraciflua</i>
Sycamore	<i>Platanus occidentalis</i>
Tarbrush	<i>Flourensia cernua</i>
Willow	<i>Salix</i> spp.
Witchhazel	<i>Hamamelis macrophylla</i>
Yaupon	<i>Ilex</i> spp.
Yucca	<i>Yucca</i> spp.

Crops

This product can be used on the following crops:

Asparagus

Conservation Reserve Program (CRP)

Corn

Cotton

Fallow Systems (Between Crop Applications)

Proso Millet

Pastures, Rangeland, General Farmstead

Small Grains (Barley, Oat, Triticale and Wheat)

Sod Farms and Farmstead Turf

Sorghum

Soybean

Sugarcane

Look inside for complete
Restrictions and Limitations and
Application Instructions.

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