



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

May 17, 2017

Mr. Montague Dixon
Sr. Regulatory Product Manager Herbicides
Syngenta Crop Protection, LLC
P.O. Box 18300
Greensboro, NC 27419

Subject: Notification per PRN 98-10 – Change to nominal % active ingredient consistent with repackaged product, and other minor clarifications
Product Name: Vanquish Herbicide
EPA Registration Number: 100-884
Application Date: February 27, 2017
Decision Number: 526943

Dear Mr. Dixon:

The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 for the above referenced product. The Registration Division (RD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action requested falls within the scope of PRN 98-10. The label submitted with the application has been stamped “Notification” and will be placed in our records.

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

If you have any questions, you may contact Kathryn Montague at 703-305-1243 or via email at montague.kathryn@epa.gov.

Sincerely,

A handwritten signature in black ink that reads "Kathryn V. Montague".

Kathryn Montague, Product Manager 23
Herbicide Branch
Registration Division (7505P)
Office of Pesticide Programs

NOTIFICATION

100-884

The applicant has certified that no changes, other than those reported to the Agency have been made to the labeling. The Agency acknowledges this notification by letter dated:

05/17/2017

Vanquish® Herbicide

Herbicide

For selective broadleaf weed and brush control on noncrop lands in the following uses: established turf grasses (including golf courses) and lawns, rights-of-way (including roadways, utility, railroad, highway, pipeline, and rights-of-way that run through pasture and rangeland), utility facilities (including substations, pipelines, tankfarms, pumping stations, parking and storage areas, nonirrigated ditchbanks, and fencerows), fencerows and forest site preparation.

Active Ingredient:

Diglycolamine® salt of 3,6-dichloro-*o*-anisic acid 56.858.1%

Other Ingredients: 43.241.9%

Total: 100.0%

This product contains 38.539.4% 3,6-dichloro-*o*-anisic acid or 4 pounds per gallon (480 g/L).

KEEP OUT OF REACH OF CHILDREN.

CAUTION

See additional precautionary statements and directions for use inside booklet.

EPA Reg. No. 100-884

EPA Est.

Net Contents

FIRST AID	
If in eyes	<ul style="list-style-type: none">• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.• Call a poison control center or doctor for treatment advice.
If on skin or clothing	<ul style="list-style-type: none">• Take off contaminated clothing.• Rinse skin immediately with plenty of water for 15-20 minutes.• Call a poison control center or doctor for treatment advice.
If swallowed	<ul style="list-style-type: none">• Call a poison control center or doctor immediately for treatment advice.• Have a person sip a glass of water if able to swallow.• Do not induce vomiting unless told to do so by a poison control center or doctor.• Do not give anything by mouth to an unconscious person.
If inhaled	<ul style="list-style-type: none">• Move person to fresh air.• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.• Call a poison control center or doctor for treatment advice.
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

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

Personal Protective Equipment

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

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

- Long-sleeved shirt and long pants
- Chemical-resistant gloves made of any waterproof material
- Shoes plus socks

See engineering controls for additional requirements.

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

Engineering Control Statements

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

Pilots must use cockpits in a manner that meets the requirements listed in the Worker Protection Standard 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

Keep out of lakes, streams, or ponds. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash water or rinsate.

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. Ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, 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 the 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 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
- Chemical-resistant gloves made of any waterproof material
- Chemical-resistant footwear
- Protective eyewear
- Chemical-resistant headgear for overhead exposure

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 others to enter until sprays have dried.

Before applying Vanquish, read all directions and precautions appearing on the container label and in this booklet.

FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN POOR WEED CONTROL, CROP INJURY, OR ILLEGAL RESIDUES.

PRODUCT INFORMATION

The following directions apply to all uses of Vanquish. Additional precautions and restrictions will be found in each specific use section.

Do not treat irrigation ditches or water used for crop irrigation or domestic uses.

Do not apply this product through any type of irrigation system.

Sensitive Crop Precautions

Vanquish 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 Vanquish during their development or growing stage. Injury to desirable broadleaf plants will occur if spray is allowed to contact their foliage, stems, or roots. Do not allow spray to drift away from target area. FOLLOW THE PRECAUTIONS LISTED BELOW WHEN USING VANQUISH.

Do not treat areas where either downward movement into the soil or surface washing may cause contact of Vanquish with the roots of desirable plants such as trees and shrubs.

To avoid injury to desirable plants, equipment used to apply Vanquish should be thoroughly cleaned (see **Procedure for Cleaning Spray Equipment** section) before reusing to apply any other chemicals.

Management of Off-Site Movement

The following spray drift management precautions should be followed to avoid off-target movement of Vanquish during applications. Avoid making applications when spray particles can be carried by wind to sensitive off-site areas. Avoid making applications in gusty wind conditions or if wind is moving in the direction of sensitive crops. The potential for injury increases with higher wind speed.

Aerial application should be avoided in the vicinity of sensitive off-site crops and plants.

Consult your local or state authorities for possible application restrictions and advice concerning these and other special local use situations. **Tank mix recommendations are for use only in states where the tank mix product and application site are registered.**

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

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops.

APPLICATION PROCEDURES

Aerial Application

1. The distance of the outermost nozzles on the boom must not exceed $\frac{3}{4}$ the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downward more than 45 degrees.

Where states have more stringent regulations, they should be observed.

The applicator should be familiar with and take into account the information covered below.

Information on Droplet Size

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see **Wind, Temperature and Humidity**, and **Temperature Inversions** sections).

Controlling Droplet Size

- **Volume** – Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** – Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets.

When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.

- **Number of Nozzles** – Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Orientation** – Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- **Nozzle Type** – Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

Boom Length

For some use patterns, reducing the effective boom length to less than $\frac{3}{4}$ of the wingspan or rotor length may further reduce drift without reducing swath width.

Application Height

Applications should not be made at a height greater than 10 ft. above the top of the largest plants, unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment

When applications are made with a crosswind, the swath will be displaced downward. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase with increasing drift potential (higher wind, smaller drops, etc.).

Wind

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

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

Temperature and Humidity

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

Temperature Inversions

Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas

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

Ground Application

Information on Droplet Size

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if

applications are made improperly, or under unfavorable environmental conditions (see **Wind, Temperature and Humidity**, and **Temperature Inversions** sections).

Controlling Droplet Size

- **Volume** – Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** – Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets.

When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.

- **Number of Nozzles** – Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Type** – Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles.

Examples of nozzles designed to produce coarse sprays for ground applications are the Radiarc Sprayer; Delavan Raindrops, Raindrop Flood, or Flooding Spray nozzles; Spraying Systems, Drift Guard DG TeeJets, Turbo TeeJets, or Turbo FloodJet nozzles or large volume flat fan nozzles used with low pressure. Nozzles that produce a narrow angle spray pattern will generally have larger droplets.

Boom Height

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

Swath Adjustment

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

Wind

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

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

Temperature and Humidity

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

Temperature Inversions

Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas

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

Approved drift reducing agents may be used.

SPRAY EQUIPMENT

Procedure for Cleaning Spray Equipment

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

1. Hose down thoroughly the inside as well as outside surfaces of equipment while filling the spray tank half full of water. Flush by operating sprayer until the system is purged of the rinse water.
2. Fill tank with water while adding 1 ~~qt.~~ ^{qt.} of household ammonia for every 25 ~~gals.~~ ^{gal} of water. Operate the pump to circulate the ammonia solution through

the sprayer system for 15-20 minutes and discharge a small amount of the ammonia solution through the boom and nozzles. Let the solution stand for several hours, preferably overnight.

3. Flush the solution out of the spray tank through the boom.
4. Remove the nozzles and screens and flush the system with two full tanks of water.

The steps listed below are suggested for thorough cleaning of spray equipment used to apply Vanquish as a tank mix with wettable powders (WP), emulsifiable concentrates (EC), or other types of water-dispersible formulations. Vanquish tank mixes with water-dispersible formulations require the use of a water/detergent rinse.

5. Complete step 1.
6. Fill tank with water while adding 2 **lbs. lb** of detergent for every 40 **gals. gal** of water. Operate the pump to circulate the detergent solution through the sprayer system for 5-10 minutes and discharge a small amount of the solution through the boom and nozzles. Let the solution stand for several hours, preferably overnight.
7. Flush the detergent solution out of the spray tank through the boom.
8. Repeat step 1, and follow with steps 2, 3, and 4.

MIXING PROCEDURES

Compatibility Test

Before mixing in the spray tank, it is advisable to test compatibility by mixing all components in a small container in proportionate quantities (see following table).

Amount of Herbicide to Add to One **Pt. Pt of Spray Carrier
(Assuming Volume is 25 **Gals. Gal/A**)**

Herbicide Formulation	Rate Per Acre	Level Tsp. Tsp
Dry	1 lb. lb	1½
Liquid	1 pt. pt	½

If herbicide(s) do not ball-up or form flakes, sludge, gels, oily films, layers, or other precipitates, then the tested spray mix is compatible. Usually, incompatibility in any of the above described forms will occur within 5 minutes after mixing.

If components are incompatible, the use of a compatibility agent is recommended. Rerun the above compatibility test with a suitable compatibility agent ($\frac{1}{4}$ tsp. **tsp** is equivalent to 2 pts. **pt**/100 gals. **gal** of fluid fertilizer).

CROP USE DIRECTIONS

General Weed List

This is a general list of weeds which may be treated with Vanquish in accordance with this label, as specified under the **Rates and Timings** sections of the individual use headings. Proper usage of this product will give control or growth suppression of many annual, biennial, and perennial broadleaf weeds, and many woody brush and vine species including:

Annuals

Amaranth, Spiny (Spiny Pigweed)	Nightshade, Black
Aster, Slender	Pennycress, Field (Fanweed, Frenchweed, Stinkweed)
Bedstraw	Pepperweed, Virginia (Peppergrass)
Beggarweed, Florida	Pigweed, Prostrate
Broomweed, Common	Pigweed, Redroot (Carelessweed)
Buckwheat, Wild	Pigweed, Rough
Buffalobur	Pigweed, Smooth
Burclover, California	Pigweed (triazine resistant)
Burcucumber	Pigweed, Tumble
Buttercup, Roughseed	Poorjoe
Carpetweed	Puncturevine
Catchfly, Nightflowering	Purslane, Common
Chamomile, Corn	Pusley, Florida
Chickweed, Common	Radish, Wild
Clovers (Annual)	Ragweed, Common
Cockle, Corn	Ragweed, Giant (Buffaloweed)
Cockle, Cow	Ragweed Lance-Leaf
Cocklebur, Common	Rubberweed, Bitter (Bitterweed)
Croton, Tropic	Senna, Coffee
Croton, Woolly	Sesbania, Hemp
Daisy, English	Shepherdspurse
Eveningprimrose, Cutleaf	Sicklepod
Fleabane, Annual	Sida, Prickly (Teaweed)
Goosefoot, Nettleleaf	Smartweed, Green
Henbit	Smartweed, Pennsylvania
Jimsonweed	Sneezeweed, Bitter
Knotweed	Sowthistle, Annual
Kochia	Sowthistle, Spiny
Kochia (triazine resistant)	Spanishneedles
Ladysthumb	Spikeweed, Common
Lambsquarters, Common	

Annuals

Lambsquarters (triazine resistant)	Spurge
Lettuce, Prickly	Spurry, Corn
Mallow, Common	Starbur, Bristly
Mallow, Venice	Sumpweed, Rough
Marestail (Horseweed)	Sunflower, Common (Wild)
Mayweed	Sunflower, Volunteer
Medic, Black	Thistle, Russian
Morningglory, Ivyleaf	Velvetleaf
Morningglory, Tall	Waterhemp
Mustard, Tansy	Waterprimrose, Winged
Mustard, Wild	Wormwood, Annual
Mustard (Yellowtops)	

Biennials

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

Perennials

Alfalfa*	Milkweed, Climbing
Artichoke, Jerusalem	Milkweed, Common
Aster, Spiny	Milkweed, Honeyvine
Aster, Whiteheath	Milkweed, Western Whorled
Bedstraw, Smooth	Nettle, Stinging
Bindweed, Field	Nightshade, Silverleaf (White Horsenettle)
Bindweed, Hedge	Onion, Wild
Blueweed, Texas	Plantain, Broadleaf*
Bursage* (Bur Ragweed, Lakeweed, Povertyweed)	Plantain, Buckhorn
Bursage, Woollyleaf (Lakeweed)	Pokeweed
Buttercup, tall	Ragweed, Western
Campion, Bladder	Sericia Lespedeza
Chickweed, Field	Redvine
Chickweed, Mouseear (Canada)	Smartweed, Swamp
Chicory	Snakeweed, Broom
Clover, Hop*	Sorrel, Red* (Sheep Sorrel)
Dandelion, Common*	Sowthistle
Dock, Broadleaf* (Bitterdock)	Sowthistle, Perennial
Dock, Curly*	Spurge, Leafy
	Sundrop, Halfshrub (Eveningprimrose)

Perennials

Dogbane, Hemp	Thistle, Canada
Dogfennel* (Cypressweed)	Toadflax, Dalmatian
Fern, Bracken	Tropical Soda Apple
Garlic, Wild	Trumpet creeper (Buckvine)
Goldenrod, Canada	Vetch
Goldenrod, Missouri	Violet, Wild
Goldenweed, Common	Waterhemlock
Hawkweed	Waterprimrose, Creeping
Henbane, Black	Woodsorrel, Creeping* (Common Yellow)
Horsenettle, Carolina	Wormwood, Common
Ironweed	Wormwood, Louisiana
Ivy, Ground	Yankee weed*
Knapweed, Black	Yarrow, Common
Knapweed, Russian	

*Noted perennials may be controlled using Vanquish at rates lower than those listed for other listed perennial weeds. (See **Rates and Timings** section.)

Woody

Ailanthus (Tree of Heaven)	Ivy, Poison
Alder	Kudzu
Ash	Locust, Black
Aspen	Maple*
Basswood	Mesquite
Beech	Oak*
Birch	Oak, Poison
Blackberry*	Olive, Russian
Blackgum*	Persimmon, Eastern
Brazilian Pepper	Pine
Cedar*	Plum, Sand* (Wild Plum)
Cherry	Poplar
Chinquapin	Rabbitbrush
Cottonwood	Redcedar, Eastern
Creosotebush*	Rose, McCartney*
Cucumbertree	Rose, Multiflora
Dewberry*	Sagebrush, Fringe
Dogwood*	Sassafras
Elm	Serviceberry
Gallberry	Spicebush
Grape	Spruce
Hackberry	Sumac
Hawthorn* (Thornapple)	Sweetgum*
Hemlock	Sycamore
Hickory	Tarbrush
Honeylocust	Wax Myrtle

Woody

Honeysuckle	Willow
Hornbeam	Witchhazel
Huckleberry	Yaupon*
Huisache	Yucca*

*Tank mixtures may be needed for optimal control.

RIGHTS-OF-WAY, UTILITY AND INDUSTRIAL AREAS, AND FENCEROWS

Vanquish is recommended for use on general farmstead weed and brush control and for use on noncrop land areas such as rights-of-way (such as roadways, rest areas, utility, railroad, highway, pipeline, and rights-of-way that run through pasture and rangeland); utility facilities (such as substations, pipelines, tankfarms, pumping stations, parking and storage areas, fencerows, and nonirrigated ditchbanks); brush control for forest site preparation or maintenance.

Observe all **Precautions and Restrictions** on this label. Read and follow the **Mixing and Application** section.

General Farmstead

Vanquish can be used on or around farms and farmstead for control of many broadleaf weeds and brush in noncrop land areas only.

Rights-of-Way

Vanquish can be used to control many broadleaf weeds on rights-of-way. This use includes applications to roadside, roadway and highways; to areas along utilities such as cable and powerlines; railroad track and embankment; highways, highway medians, bridge abutments, pipelines, and rights-of-way that run through pasture and rangeland. Use controlled application techniques that minimize the risk of off-target movement.

Utility and Industrial Areas

Vanquish can be used to control many broadleaf weeds and brush in noncrop areas on or surrounding substations, pipelines, tankfarms, pump stations, production facilities, and bare ground situations. It may also be used on parking and storage areas (refer to **Best Stewardship Practices** to avoid direct runoff from impervious surfaces).

Fencerows

Vanquish can be used to control many broadleaf weeds and brush in fencerows.

Mixing and Application

Read and observe **Management of Off-Site Movement** recommendations in this label.

Vanquish can be applied using water, oil in water emulsions including invert systems, or sprayable fluid fertilizer as a carrier. A compatibility test (see **Compatibility Test** section) should be made prior to tank mixing.

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 herbicidal 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.

Vanquish may be applied broadcast using either ground or aerial application equipment. When using ground equipment, apply low or high volume sprays of between 3-600 gals./gal of diluted spray per treated acre. 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. When using aerial equipment, apply 5-40 gals./gal of diluted spray per treated acre.

Vanquish may be applied to individual clumps or small areas (spot treatment) 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.

Herbicide adjuvants or other spray additives (emulsifiers, spreader stickers, surfactants, wetting agents, drift control agents, or penetrants) may be used for wetting, penetration, or drift control. Spray additives must be agriculturally approved when used in pasture applications. If spray additives are used, read and follow all use restrictions and precautions on product label.

Weeds and Brush Controlled

Vanquish, when applied at listed rates, will give control of many annual, biennial, and perennial broadleaf weeds, and many woody brush and vine species commonly found in noncropland areas. (Refer to **General Weed List**.) Noted (*) perennial weeds may be controlled with lower rates of either Vanquish or Vanquish plus tank mix combinations. See **Rates and Timings** below.

Table 1: Rates and Timings

Application rates and timings of Vanquish are given below. Use the higher level of listed rate ranges when treating dense or tall vegetative growth.

Weed Stage and Type	Amount of Product Per Acre	Gals. Gal of Spray Mixture Per Acre**	Spray Concentration for Use with Low Volume Application**** (% vol/vol)
Annual			
Small, Actively Growing	½-1 pt.pt	25-50	3
Established weed growth	1-1½ pts.pt	50-75	3
Biennial* – Rosette diameter			
Less than 3"	½-1 pt.pt	25-50	3-4
3" or more	1-2 pts.pt	50-100	3-4
Bolting	2 pts.pt	100-150	3-4
Perennial			
Suppression or top growth control	½-1 pt.pt	50-100	4
Noted (*) Perennials	2 pts.pt	100-200	4
Other Perennials	2 pts.pt	200	5
Woody Brush and Vines***			
Top Growth	½-2 pts.pt	50-200	5
Stems and Roots	2 pts.pt	200	5

*For best performance, make application when biennial weeds are in the rosette stage.

** Assuming typical application rate of 1 qt.qt of Vanquish /100 gals.gal

***Tank mixes may be required for optimal control. Refer to **General Weed List**.

****Low volume rates must not exceed 2 pts.pt of Vanquish maximum per acre per year (5% volume/volume = 10 gals.gal maximum solution per acre per year).

Retreatments may be made as needed; however, do not exceed a total of 4 pts.pt (2 lbs.lb a.i.ai) of Vanquish per treated acre during a growing season.

TANK MIX OPTIONS

Vanquish may be tank mixed with other herbicides for additional weed control. The following table lists example options, but does not limit tank mix options.

READ AND FOLLOW THE LABEL OF EACH TANK MIX PRODUCT USED FOR PRECAUTIONARY STATEMENTS, DIRECTIONS FOR USE, APPLICATION RATES, AND OTHER RESTRICTIONS. Consult product labels for rate limitations for tank mix partners.

Table 2: Tank Mixes

Herbicide	Rates Per Treated Acre (lbs. a.i./a)
norflurazon (Predict®)	Consult product labels for rate limitations.
prodiamine (Endurance®)	
glufosinate (Finale®)	
glyphosate (Roundup®, Accord®)	
metsulfuron methyl (Escort®)	
pendimethalin (Pendulum®)	
triclopyr (Redeem®, Garlon®)	
clopyralid (Transline®)	
bromacil (Hyvar®)	
chlorsulfuron (Telar®)	
diquat (Reward®)	
simazine (Princep®)	
diuron (Karmex®)	
DSMA	
fosamine ammonium (Krenite®)	
hexazinone (Velpar®)	
imazapyr (Arsenal®)	
imazameth (Plateau®)	
MSMA	
sulfometuron methyl (Oust®)	
sulfosate (Touchdown®)	
tebuthiuron (Spike®)	
2,4-D	

Due to the differences that may occur between specific formulated products and specific use ingredients (e.g., water supplies), a compatibility test (see **Compatibility Test** section) is recommended prior to actual tank mixing.

CUT SURFACE TREE TREATMENTS

Vanquish may be applied as a cut surface treatment for control of unwanted trees and prevention of sprouts of cut trees. A mix of 1 part Vanquish with 1-3 parts water should be used in application; surfactants or oil may be added to potentially enhance control. Use the lower dilution when treating difficult-to-control species. Applications work best if made within 30 minutes of cutting.

Frill or Girdle Treatments: Make a continuous cut or a series of overlapping cuts using an axe to girdle tree trunk. Spray or paint cut surface with the Vanquish/water mix.

Stump Treatments: Spray or paint freshly cut surface with the water mix. The area adjacent to the bark should be thoroughly wet.

DORMANT APPLICATIONS FOR CONTROL OF MULTIFLORA ROSE

Vanquish can be applied when plants are dormant as an undiluted **Spot-Concentrate** directly to the soil or as a **Lo-Oil Basal Bark** treatment using an oil-water emulsion solution.

Spot-Concentrate applications of Vanquish should be applied directly to the soil as close as possible to the root crown, but within 6-8 inches of the crown. On sloping terrain, application should be made to the uphill side of the crown. Do not make application when snow or water prevents applying Vanquish directly to the soil. The use rate of Vanquish is dependent on the canopy diameter of the multiflora rose. Examples: Use Vanquish at $\frac{1}{4}$, 1, or $2\frac{1}{4}$ fl.-oz. fl. oz of product respectively for 5, 10, or 15 ft. ft canopy diameters. Do not exceed a total of 2 qts. qt of Vanquish per acre per year.

Lo-Oil Basal Bark applications of Vanquish should be applied to the basal stem region from the ground line up to a height of 12-18 inches. Spray until runoff, with special emphasis on covering the root crown. For best results, make application when plants are dormant. Do not make application after bud break or when plants are showing signs of active growth. Do not make application when snow or water prevents applying Vanquish to the ground line. Refer to the **Mixing and Application** section for method of preparing oil-in-water emulsion. Example for making approximately 2 gals. gal of a Lo-Oil spray solution mixture: combine $1\frac{1}{2}$ gals. gal of water plus 1 oz. fl. oz of emulsifier plus 1 pt. pt of Vanquish plus $2\frac{1}{2}$ pts. pt of No. 2 diesel fuel. Adjust amounts of materials used proportionately to the amount of final spray solution desired. Do not exceed 8 gals. gal of spray solution mix applied per acre per year.

FOREST SITE PREPARATION

Use Information

Vanquish may be used for control of undesirable conifers as well as many broadleaf weeds, vines, brambles, hardwood brush, and trees in forest site preparation. Vanquish may be applied as broadcast foliar sprays from ground or aerial equipment. Vanquish is absorbed through the leaf surfaces quickly after spraying and will also be absorbed from the soil by the roots. Translocation through the leaves, stems, and roots provides control of undesirable young conifer and broadleaf species. Woody plants, brush, and trees may not display the full extent of herbicide efficacy until several months following treatment. Vanquish provides application flexibility for extended windows of application and tank mix options (refer to **Mixing and Application Procedures** and **Tank Mix Options**).

Mixing and Application Instructions

Ground Operated Spray Equipment

Thoroughly mix and apply the recommended amount of Vanquish (2 ~~qts.~~qt/A maximum) in a minimum of 15 ~~gals.~~gal of water per acre. Spray solution should uniformly cover undesirable foliage for best results. A suitable nonionic surfactant should be added to the spray solution to enhance foliage wetting, spreading, and solution absorption. Drift control and foam reducing agents may be added at recommended rates, if needed. Spray pattern indicator agents may also be added at recommended rates, if desired. **DO NOT** spray under windy or gusty conditions. Maintain proper buffer zones to ensure drift does not reach off-target vegetation.

Aerial Spray Equipment

Thoroughly mix the specified amount of Vanquish (2 ~~pts.~~pt/A maximum) in a minimum of 10 ~~gals.~~gal of water per acre and uniformly apply with properly calibrated aerial equipment. A suitable nonionic surfactant should be added to the spray solution to enhance wetting, spreading, and solution absorption. All precautions should be taken to minimize or eliminate spray drift. Drift control and foam control agents may be added at recommended rates, if needed.

Tank Mix Options

For extended range of species control, tank mix Vanquish with other forest site preparation products such as Arsenal, Garlon, Accord, etc. Observe all precautions and restrictions on the product labels. Always follow the most restrictive label in a tank mix.

TURF AND LAWNS

Including Golf Course (Fairways, Aprons, Tees, and Rough), Parks, Recreational areas, Lawn care application, Sod farms

IMPORTANT: Observe all **Precautions** on this label. Read and follow **Mixing and Application Procedures**.

Established grass stands growing under stress can exhibit various injury symptoms that may be more pronounced if herbicides are applied. To avoid injury to newly seeded grasses, application of Vanquish should be delayed until after the second mowing. Furthermore, application rates in excess of 1 ~~pt.~~pt (½ ~~lb.~~lb ~~a.i.~~a.i) per treated acre may cause noticeable stunting or discoloration of sensitive grass species such as bentgrass, carpetgrass, buffalograss, and St. Augustinegrass.

In areas where roots of sensitive plants extend, do not apply in excess of ¼ ~~pt.~~pt (1/8 ~~lb.~~lb ~~a.i.~~a.i) of Vanquish per treated acre on coarse-textured (sandy-type) soils, or in excess of ½ ~~pt.~~pt (¼ ~~lb.~~lb ~~a.i.~~a.i) per treated acre on fine-textured (clay-type) soils. Do

not make repeat applications in these areas for 30 days and until previous applications of Vanquish have been activated in the soil by rain or irrigation.

Weeds Controlled

Vanquish, when applied at listed rates, will give control of many annual, biennial, and noted (*) perennial broadleaf weeds commonly found in turf. Vanquish will also give growth suppression of many other listed perennial broadleaf weeds and woody brush and vine species. (Refer to **General Weed List.**)

Mixing and Application

Apply 30-200 gals.gal of diluted spray per treated acre (3 qts.qt-4¼ gals.gal/1,000 sq.ft.ft), depending on density or height of weeds treated and on the type of equipment used.

Rates and Timings

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

Table 3: Vanquish Broadcast Application Rates

Weed Stage and Type	Pts.Pt Per Treated Acre	Lbs.Lb a.i.ai Per Treated Acre	Tsp.Tsp Per 1,000 sq ft.ft
Annual			
Small, actively growing	½-1 pt.pt	¼-½	1-2¼
Established weed growth	1-1½ pts.pt	½ -¾	2¼-3¼
Biennial* – Rosette diameter			
Less than 3 inches	½-1 pt.pt	¼-½	1-2¼
3 inches or more	1-2 pts.pt	½-1	2¼-4½
Perennial, Woody Brush, and Vines	1-2 pts.pt	½-1	2¼-4½

*For best performance, make application when biennial weeds are in the rosette stage.

For best performance, apply when weeds are emerged and actively growing.

A second application may be made 30 days after the initial treatment; however, do not exceed a total of 4 pts.pt (2 lbs.lb dicamba) of Vanquish per treated acre per year.

Tank Mix Treatments

READ AND FOLLOW THE LABEL OF EACH TANK MIX PRODUCT USED FOR PRECAUTIONARY STATEMENTS, DIRECTIONS FOR USE, APPLICATION RATES AND TIMINGS, AND OTHER RESTRICTIONS. Consult product labels for rate limitations for tank mix partners. OBSERVE ALL PRECAUTIONS AND

RESTRICTIONS ON THE PRODUCT LABELS. ALWAYS FOLLOW THE MOST RESTRICTIVE LABEL IN A TANK MIX.

Tank mix treatments of Vanquish may be made with 2,4-D, MCPA, MCPP, or Confront® for control of additional weeds listed on the tank mix product label.

Apply $1/5-1/2$ pt.-pt. ($1/10-1/4$ lb.-lb a.i.-ai) of Vanquish per treated acre with $1/2-1 1/2$ lbs.-lb acid equivalent of 2,4-D, MCPA, or MCPP, or with 1-2 pts.-pt of Confront. Use the higher level of the listed rate ranges when treating established weeds. A second application may be made 30 days after the initial treatment; however, do not exceed a total of 4 pts.-pt (2 lbs.-lb dicamba) of Vanquish per treated acre per year.

STORAGE AND DISPOSAL

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

Pesticide Storage

Store in original container in a well-ventilated area separately from fertilizer, feed, and foodstuffs. Avoid cross-contamination with other pesticides. Spillage or leakage should be contained and absorbed with clay granules, sawdust, or equivalent material for disposal.

Pesticide Disposal

Pesticides wastes may be hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Handling [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 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 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 [Greater 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 a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container $\frac{1}{4}$ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use 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.

Refillable container. Refill this container with pesticide only. Do not reuse the container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from container into application equipment or mix tank. Fill 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, if allowed by state and local authorities, by burning. If burned, stay out of smoke. If the container is damaged, leaking or obsolete, contact Syngenta Crop Protection, LLC at 1-800-888-8372.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire, or other emergency, call 1-800-888-8372, day or night.

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For non-emergency (e.g., current product information) call
Syngenta Crop Protection at 1-800-334-9481.

Manufactured for:
Syngenta Crop Protection, LLC
P.O. Box 18300
Greensboro, North Carolina 27419-8300

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