

Specimen Label



Vindicate™

Optinyte™ technology

NITROGEN STABILIZER

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Use to delay nitrification of ammoniacal and urea nitrogen fertilizer compositions in the soil by controlling the nitrification process.

Active Ingredient:

nitrapyrin: 2-chloro-6-(trichloromethyl)pyridine.....	17.67%
Other Ingredients.....	82.33%
Total.....	100.00%

Contains petroleum distillates

Contains 1.85 lb of active ingredient per gallon.

Precautionary Statements

Hazards to Humans and Domestic Animals

EPA Reg. No. 62719-684

Keep Out of Reach of Children

CAUTION

Avoid contact with skin or clothing.

Personal Protective Equipment (PPE)

Mixers, loaders, applicators and other handlers must wear:

- Coveralls worn over short-sleeved shirt and short pants
- Chemical-resistant gloves made of barrier laminate, butyl rubber ≥14 mils, nitrile rubber ≥14 mils, neoprene rubber ≥14 mils, polyvinyl chloride (PVC) ≥14 mils, or Viton ≥14 mils
- Chemical-resistant footwear plus socks
- When mixing and loading, or cleaning equipment, wear a chemical-resistant apron

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.

User Safety Recommendations

Users should:

- Wash hands thoroughly with soap and water after handling and 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.

First Aid

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

First Aid (Cont.)

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

NOTE TO PHYSICIAN: May pose an aspirational pneumonia hazard. Contains petroleum distillate.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-992-5994 for emergency medical treatment information.

Environmental Hazards

This pesticide is toxic to oysters/shrimp. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. 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 washwaters or rinsate.

This product may contaminate water through runoff. This product has a high potential for runoff for several weeks after application. Poorly draining soils and soils with shallow water tables are more prone to produce runoff that contains this product.

A level well-maintained vegetative buffer strip between areas to which this product is applied and surface water such as ponds, streams, and springs will reduce the potential for contamination of water from rainfall runoff. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours. Sound erosion control practices will reduce this product's contribution to surface water contamination.

Non-target Organism Advisory Statement

It is unclear how this product may impact the forage and habitat of non-target organisms, including pollinators, in areas adjacent to the treated area. Protect the forage and habitat of non-target organisms by minimizing spray drift. For further guidance and instructions on how to minimize spray drift, refer to the Spray Drift Advisories section of this label.

Directions for Use

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

Read all Directions for Use carefully before applying.

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, restricted-entry interval, and notification to workers (as applicable). 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.

Exception: If the product is soil-injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

For early entry into 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, wear:

- Coveralls
- Chemical-resistant gloves made of barrier laminate, butyl rubber ≥14 mils, nitrile rubber ≥14 mils, neoprene rubber ≥14 mils, polyvinyl chloride (PVC) ≥14 mils, or Viton ≥14 mils
- Shoes plus socks
- Protective eyewear

Storage and Disposal

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

Pesticide Storage: Do not freeze.

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

Nonrefillable containers 5 gallons or less:

Container Handling: Nonrefillable container. Do not reuse or refill this container.

Storage and Disposal (Cont.)

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank 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. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Refillable containers 5 gallons or larger:

Container Handling: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water and, if possible, spray all sides while adding water. If practical, agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Nonrefillable containers 5 gallons or larger:

Container Handling: Nonrefillable container. Do not reuse or refill this container.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank 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. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Product Information

Vindicate™ nitrogen stabilizer is a water-based microencapsulated formulation of nitrapyrin that may be used in the application of ammoniacal dry fertilizers (such as urea, MAP, DAP), aqua ammonia, other liquid ammoniacal or urea nitrogen fertilizer compositions (such as 28%, 30% or 32% UAN), or manure. Vindicate is not a substitute for fertilizer.

Vindicate may be mixed with liquid fertilizer, insecticides, fungicides, herbicides, and/or water and applied as a preplant incorporated, preemergence, or postplant application. Vindicate may be applied postemergence when permitted under crop-specific Use Site directions. Incorporation may occur at any time up to 10 days after application and may be either by mechanical means or by moisture (rainfall or overhead irrigation). For moisture incorporation, a minimum of 0.5 inch of moisture is necessary. If 0.5 inch of moisture does not occur within the 10-day window, incorporate mechanically with light tillage.

Vindicate is no more corrosive to standard liquid fertilizer equipment than liquid fertilizer alone.

Restrictions

- **Rotational Crop Restrictions:** All crops that are not registered for nitrapyrin use, except Crop Subgroup 1B Root Vegetables**, may be planted 30 days or more after the last application of this product. Crop

Subgroup 1B Root Vegetables may be planted 12 months or more after the last application.

** beet, garden; burdock, edible; carrot; celeriac; chervil, turnip-rooted; chicory; ginseng; horseradish; parsley, turnip-rooted; parsnip; radish; radish, oriental (daikon); rutabaga; salsify; salsify, black; salsify, Spanish; skirret; turnip

Spray Drift Advisories

THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT.

BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

IMPORTANCE OF DROPLET SIZE

An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

Controlling Droplet Size – Ground Boom

- Volume – Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
- Pressure – Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.
- Spray Nozzle – Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

BOOM HEIGHT – Ground Boom

Use the lowest boom height that is compatible with the spray nozzles that will provide uniform coverage. For ground equipment, keep the boom level with the crop and minimize bounce.

SHIELDED SPRAYERS

Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.

TEMPERATURE AND HUMIDITY

When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

TEMPERATURE INVERSIONS

Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or 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. Avoid applications during temperature inversions.

WIND

- Drift potential generally increases with wind speed. AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS.
- Applicators must be familiar with local wind patterns and terrain that could affect spray drift.

Application Directions

Aerial Application: Vindicate may be applied by aircraft in a liquid carrier such as liquid fertilizer or pesticides, or as impregnated on a granular fertilizer. See Spray Drift Advisories for information to reduce likelihood of drift on other crops or non-target areas.

Ground Application: Vindicate may be applied through ground application equipment that may be used in the application of ammoniacal dry or liquid fertilizers, or liquid manure.

Chemigation Application: Vindicate may be applied through properly equipped chemigation systems. Unless otherwise indicated in specific use directions, the application rates for chemigation are the same as those specified for broadcast applications.

Directions for Chemigation: This product may be applied through the following irrigation systems: sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, micro sprinkler, or hand move; or drip (trickle) irrigation and system(s).

Chemigation Equipment Preparation: Thoroughly clean the chemigation system and tank of any fertilizer or chemical residues, and dispose of the residues according to state and federal laws. Flush the injection system with soap and/or a cleaning agent and water. Determine the amount of Vindicate needed to cover the desired acreage. Mix according to

instructions in the Mixing Direction section and bring mixture to desired volume. Maintain continuous agitation during mixing and throughout the application period.

Chemigation Equipment Calibration: In order to calibrate the irrigation system and injector to apply the mixture containing Vindicate, determine the following.

- Calculate the number of acres irrigated by the system.
- Calculate the amount of Vindicate required and other crop inputs such as fertilizers, insecticides, or herbicides
- Determine the irrigation rate and determine the number of minutes for the system to cover the intended treatment area.
- Divide the total gallons of Vindicate mixture needed by the number of minutes (minus time to flush out) to cover the treatment area. The following value equals the gallons per minute output that the injector or inductor must deliver. Convert the gallons per minute to milliliters or ounces per minute, if needed.
- Calibrate the injector pump with the system in operation at the desired irrigation rate. It is suggested that the timed output of the injector pump be checked at least twice before operation and the system monitored during operation.

Chemigation Equipment Requirements

- Systems using a gravity flow dispensing system must meter the product into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from back flow if water flow stops.
- Systems utilizing a pressurized water and pesticide injection system must meet the following requirements:
 - The system must contain an air gap, an approved backflow prevention device, a functional check valve, vacuum relief valve (including inspection port), and/or low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from back flow. Refer to the American Society of Agricultural Engineer's Engineering Practice 409 for more information or state specific regulations.
 - The Vindicate mixture injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
 - The Vindicate mixture injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
 - The system must contain functional interlocking controls to automatically shut off the Vindicate mixture injection pump when the water pump motor stops.
 - The irrigation line or water pump must include a functional pressure switch that will stop the water pump when the water pressure decreases to the point where the Vindicate mixture distribution is adversely affected.
 - Systems must use a metering pump, such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with the Vindicate mixture and capable of being fitted with a system interlock.
- To ensure uniform mixing of the Vindicate mixture into the water line, inject the mixture through a nozzle placed in the fertilizer injection port or just ahead of an elbow or tee in the irrigation line so that the turbulence will assist in mixing. The injection point must be located after all back-flow prevention devices on the water line.
- The tank holding the Vindicate mixture must be free of rust, sediment, and foreign material and equipped with an in-line strainer situated between the tank and the injector point.

Chemigation Operation: Start the water pump and irrigation system and let the system achieve the desired pressure and speed before starting the injector. Check for leaks and uniformity and make repairs before any chemigation takes place. Start the injector system and calibrate according to manufacturer's specifications. This procedure is necessary to deliver the desired rate per acre in a uniform manner. When the application is finished, flush and clean the entire irrigation and injector system prior to shutting down the system to remove any Vindicate, herbicide, fungicide, insecticide or fertilizer residue from the chemigation system.

Chemigation Precautions

- Crop injury, lack of effectiveness, or illegal pesticide residues in crop can result from non-uniform distribution of treated fertilizer or water.
- If you have questions about calibration, contact state extension service specialist, equipment manufacturers, or other experts.
- A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall operate the system and make necessary adjustments should the need arise and continuously monitor the injection.

Chemigation Restrictions

- Do not apply when wind speed favors drift beyond the area intended for treatment.
- Do not allow irrigation water to collect or runoff and pose a hazard to livestock, wells, or adjoining crops.
- Do not apply through sprinkler systems that deliver a low coefficient of uniformity such as certain water drive units.
- Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

Mixing Directions

Mix or shake well before use.

For large containers, use a cage mixer/motor for 30 to 60 minutes to improve product uniformity.

This product may be applied alone or in combination with dry fertilizers (such as urea, MAP, or DAP), liquid fertilizers (such as UAN, aqua ammonia, other liquid ammoniacal, or urea nitrogen fertilizers), liquid manures, fungicides, insecticides, herbicides, and/or water at the use rates specified for each crop.

Liquid Fertilizers

Vindicate may be applied with liquid fertilizers such as UAN, aqua ammonia or other liquid ammoniacal or urea nitrogen fertilizers. Vindicate can be added to urea ammonium nitrate liquid fertilizer without a compatibility agent, although when mixing Vindicate with fertilizer plus herbicides, fungicides, or insecticides, a jar test may indicate that a compatibility agent is needed.

There are two methods which may be used to create a stable emulsion with Vindicate plus a compatibility agent in liquid fertilizer:

Premix Method: The compatibility agent and Vindicate may be mixed together in a separate container and then added to the liquid fertilizer. Continuously agitate as the mixture is added to the fertilizer.

Sequential Method: The compatibility agent may be added to the fertilizer and thoroughly agitated. While the agitation continues, the required amount of Vindicate may be added to the tank.

Most phosphate ester types of compatibility agents are suitable for use in these mixtures. Follow the label directions for the compatibility agent to determine rates and any use precautions.

Liquid Manure

Vindicate may be applied with liquid manure at the specified rates outlined within a given crop use section on the label.

This product may be applied with liquid manure. Apply to the field or directly to the manure immediately prior to or during application. Ensure that this product is uniformly blended with the manure prior to application or properly injected with the manure application equipment to deliver the targeted rate per acre. The best practice for fertilization using manure is to inject the liquid manure into the soil ensuring soil coverage or surface application followed by immediate incorporations. Check local laws and regulations on acceptable manure practices and applicability for a given crop and for the area where manure is to be applied for a given crop.

Granular Ammonium and Urea

This product may be applied by impregnation on urea, most dry ammoniacal fertilizers, or fertilizer blends containing ammoniacal fertilizers (MAP, DAP, or others). Uniform impregnation on fertilizer and uniform application in the field is necessary to ensure optimum results.

Various types of equipment can be used to impregnate Vindicate onto dry fertilizers, including vertical and horizontal mixers. Once impregnated, fertilizer may be applied with either spinner, airflow, or other suitable equipment.

Use a minimum of 100 lb of dry fertilizer per acre. With lower rates of fertilizer (higher concentrations of Vindicate), the fertilizer may not readily absorb all of the liquid. For a suitable free-flowing mixture, add a drying agent to the mixture. Use a minimum of 1 lb of drying agent per pint of Vindicate unless experience indicates a different amount works well. Do not apply more than 1 lb ai nitrapyrin per acre per year.

Apply bulk fertilizers impregnated with Vindicate within 24 hours of impregnation for optimal results. Do not store the impregnated fertilizer. Following all individual state regulations, including those related to dry bulk blending registration, labeling, and application, is the responsibility of the individual and/or company selling mixtures of Vindicate and fertilizer.

Do not mix seed with dry fertilizers impregnated with Vindicate.

Tank Mixing

Vindicate may also be applied in tank mixtures with herbicides, fungicides, or insecticides registered for use on the labeled crop. The tank mixes may be in water or in most urea-ammonium nitrate solutions, N-P-K solutions,

slurries, or suspensions. Check the physical compatibility of tank mixtures as indicated below before mixing in the tank. Maintain constant agitation during both mixing and application processes to ensure uniformity of the spray mixture. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

For best results, add the herbicide(s) to the tank after Vindicate and the compatibility agent (if used) have been thoroughly mixed. Add wettable powders or flowables before emulsifiable concentrates. Continuously agitate during the mixing cycle.

Tank Mix Compatibility Test: To test the compatibility of Vindicate with liquid fertilizers and/or herbicide, fungicide, or insecticide mixes, add proportionate amounts of each ingredient to a small jar, then cap, shake, and let stand for 15 minutes. Formation of precipitates or layers that do not readily redisperse indicates an incompatible mixture that must not be used.

Note: Vindicate has shown incompatibility with some ammonium thiosulfate and liquid fertilizers containing boron.

Allow time for complete dispersion/mixing before adding another product to the spray mixture. Add products to the tank mixture in the following order:

- To start, add one-half of the required amount of liquid fertilizer, water, or other urea-ammonium nitrate solutions. Begin agitation.
- Add Vindicate (compatibility agent if needed)
- Products in water soluble packaging. Important: Products in water soluble packaging must be premixed with water (slurried) prior to addition to the spray tank
- Wettable powders or dry flowables (slurry if recommended by tank-mix product label)
- Liquid flowables
- Emulsifiable concentrates
- Suspension concentrates
- Soluble liquids
- Add other nutrients
- Finish filling spray tank to required spray volume.

Note: For all tank-mixtures, maintain agitation during mixing. Some tank-mixtures may require agitation throughout application to ensure spray mixture remains, uniformly suspended. If spray mixture is allowed to settle at any time, thorough agitation is required to re-suspend the mixture before application is resumed.

Use Sites

Brassica Head and Stem Vegetables (Crop Group 5-16)¹

¹ Brassica head and stem vegetables (Crop Group 5-16) including broccoli, Brussels sprouts, cabbage, cauliflower, Chinese cabbage (napa), including cultivars, varieties, and/or hybrids of these.

Preplant, At Plant, or Preemergence Applications

Use Vindicate at the rate of 35 fl oz (0.5 lb ai) per acre applied as a broadcast, band, soil injection, or chemigation application prior to planting or at a preemergence timing.

Postplant or Transplant Applications: Apply Vindicate at the rate of 35 fl oz (0.5 lb ai) per acre from crop emergence or transplant up to 30 days prior to harvest as a sidedress, soil-injection, or chemigation application.

The rates specified are on a broadcast per acre basis. For application methods other than broadcast, per-acre rates must be concentrated in the treatment area such as the bed or band. The 35 fl oz (0.5 lb ai) total may be split into two separate applications of 18 fl oz (0.25 lb ai) per acre.

Restrictions

- **Preharvest Interval:** Do not apply within 30 days before harvest.
- Do not apply more than a total of 35 fl oz (0.5 lb ai) per acre per crop.

Bulb Vegetables (Crop Group 3-07)¹

¹ Bulb vegetables (Crop Group 3-07) including chive, fresh leaves; chive, Chinese, fresh leaves; daylily, bulb; elegans hosta; fritillaria, bulb; fritillaria, leaves; garlic, bulb; garlic, great-headed, bulb; garlic, serpent, bulb; kurrat; lady's leek; leek; leek, wild; lily, bulb; onion, Beltsville bunching; onion, bulb; onion, Chinese, bulb; onion, fresh; onion, green; onion, macrostem; onion, pearl; onion, potato, bulb; onion, tree, tops; onion, Welsh, tops; shallot, bulb; shallot, fresh leaves; including cultivars, varieties, and/or hybrids of these.

Use Vindicate at 35 to 70 fl oz (0.5 to 1.0 lb ai) per acre applied as a broadcast or banded application applied to the soil or through chemigation equipment as outlined in this label, up to 45 days prior to harvest. Alternatively, apply one application at 35 fl oz up to 75 days prior

to harvest followed by one application of 35 fl oz up to 45 days prior to harvest.

The rates specified are on a broadcast per acre basis. For application methods other than broadcast, per-acre rates must be concentrated in the treatment area such as the bed or band.

Restrictions

- **Preharvest Interval:** Do not apply within 45 days before harvest.
- Do not apply more than a total of 70 fl oz (1.0 lb ai) per acre per year.

Canola

Preplant, At-Plant, Postplant, Preemergence, or Postemergence Application

Apply this product at the rate of 35 fl oz (0.5 lb ai) per acre from preplant up to the 6-leaf canola growth stage.

Split Application

This product may be applied twice, each at 18 to 35 fl oz (0.25 to 0.5 lb ai) per acre. Make the first application prior to canola emergence and the second application after emergence.

Restrictions

- Do not apply more than 35 fl oz of this product (0.5 lb ai) per acre per application.
- Do not apply more than a total of 70 fl oz of this product (1.0 lb ai) per acre per year.
- Do not apply past the 6-leaf canola growth stage.
- Do not make more than one postemergence application.

Citrus Fruits (Crop Group 10-10)¹

¹ Citrus fruits (Crop Group 10-10) including Australian desert lime; Australian finger-lime; Australian round lime; Brown River finger lime; calamondin; citron; citrus hybrids; grapefruit; Japanese summer grapefruit; kumquat; lemon; lime; Mediterranean mandarin; mount white lime; New Guinea wild lime; orange, sour; orange, sweet; pummelo; Russell River lime; satsuma mandarin; sweet lime; tachibana orange; Tahiti lime; tangelo; tangerine (mandarin); tangor; trifoliolate orange; unqi fruit; including cultivars, varieties, and/or hybrids of these.

Use Vindicate at 70 fl oz (1.0 lb ai) per acre applied as a broadcast or banded application applied to the soil or through chemigation equipment as outlined in this label, to orchard floors prior to bloom through fruit development but no later than 30 days prior to harvest. The 70 fl oz rate may be split into two, three, or four separate applications (two applications at 35 fl oz each, three applications at 23 fl oz each, or four applications at 18 fl oz each).

The rates specified are on a broadcast per acre basis. For application methods other than broadcast, per-acre rates must be concentrated in the treatment area such as the bed or band.

Restrictions

- **Preharvest Interval:** Do not apply within 30 days before harvest.
- Do not apply more than 70 fl oz (1.0 lb ai) per acre per application.
- Do not apply more than a total of 70 fl oz (1.0 lb ai) per acre per year.

Corn (field corn, seed corn, silage corn, sweet corn, popcorn)

Preplant, At-Plant, Postplant, or Preemergence Application

Apply this product at the rate of 35 fl oz (0.5 lb ai) per acre from preplant up to the V6 corn growth stage. Greater rates from 35 to 70 fl oz (0.5 to 1.0 lb ai) per acre may be applied with liquid nitrogen fertilizer prior to corn emergence or with liquid manure in the fall prior to spring corn planting when a greater duration of activity is desired.

Postemergence

This product may be sidedress applied at the rate of 35 fl oz (0.5 lb ai) per acre from crop emergence up to the V6 corn growth stage. Reduced rates of 18 to 35 fl oz (0.25 to 0.50 lb ai) per acre may be applied at the V4 to V6 corn growth stage when severe nitrate leaching and or denitrification are less likely to occur. Applications with liquid fertilizers may be injected, dribbled, or applied as a sidedress band. Applications with dry fertilizers may be broadcast, injected (knived), or banded.

Split Application

A second application may be made postplant following a preplant or at-plant application at 18 to 35 fl oz (0.25 to 0.5 lb ai) per acre. The 35 fl oz rate may be used where nitrogen fertilization is intended for high yield production. The total amount of this product applied in a split application program involving a preplant or at-plant treatment followed by a postplant treatment must not exceed 70 fl oz (1.0 lb ai) per acre per year.

Restrictions:

- Do not apply more than 70 fl oz of this product (1.0 lb ai) per acre per application prior to crop emergence.
- Do not apply more than 35 fl oz of this product (0.5 lb ai) per acre per application after crop emergence.

- Do not apply more than a total of 70 fl oz of Vindicate (1.0 lb ai) per acre per year on corn.
- Do not apply past V6 corn growth stage.

Leafy Vegetables (Crop Group 4-16)¹ and Leaf Petiole Vegetables (Crop Subgroup 22B)²

¹ Leafy vegetables (Crop Group 4-16) including amaranth, Chinese; amaranth, leafy; arugula; aster, Indian; blackjack; broccoli, Chinese; broccoli raab; cabbage, Abyssinian; cabbage, Chinese, bok choy; cabbage, seakale; cat's whiskers; cham-chwi; cham-na-mul; chervil, fresh leaves; chipilin; chrysanthemum, garland; cilantro, fresh leaves; collards; corn salad; cosmos; cress, garden; cress, upland; dandelion, leaves; dang-gwi, leaves; dillweed; dock; dol-nam-mul; ebolo; endive; escarole; farnetflower; feather cockscomb; good king henry; Hanover salad; huauzontle; jute, leaves; kale; lettuce, bitter; lettuce, head; lettuce, leaf; maca, leaves; mizuna; mustard greens; orach; parsley, fresh leaves; plantain, buckhorn; primrose, English; purslane, garden; purslane, winter; radicchio; radish, leaves; rape greens; rocket, wild; shepherd's purse; spinach; spinach, Malabar; spinach, New Zealand; spinach, tanier; Swiss chard; turnip greens; violet, Chinese, leaves; including cultivars, varieties, and/or hybrids of these.

² Leaf petiole vegetables (Crop Subgroup 22B) including cardoon; celery; celery, Chinese; fuki; rhubarb; udo; zuiki; including cultivars, varieties, and/or hybrids of these.

Preplant, At-Plant, or Preemergence Applications

Use Vindicate at the rate of 35 fl oz (0.5 lb ai) per acre applied as a broadcast, band, soil injection, or chemigation application prior to planting or at a preemergence timing.

Postplant or Transplant Applications: Apply Vindicate at the rate of 35 fl oz (0.5 lb ai) per acre from crop emergence or transplant up to 30 days prior to harvest as a sidedress, soil injection, or chemigation application.

The rates specified are on a broadcast per acre basis. For application methods other than broadcast, per-acre rates must be concentrated in the treatment area such as the bed or band. The 35 fl oz (0.5 lb ai nitrpyrin) total may be split into two separate applications of 18 fl oz (0.25 lb ai) per acre.

Restrictions

- **Preharvest Interval:** Do not apply within 30 days before harvest.
- Do not apply more than 35 fl oz (0.5 lb ai) per acre per application.
- Do not apply more than a total of 35 fl oz (0.5 lb ai) per acre per crop.

Sorghum

Preplant or At-Plant Application

Apply this product at the rate of 35 fl oz (0.5 lb ai) per acre as a row or band injection application. Greater rates from 35 to 70 fl oz (0.5 to 1.0 lb ai) per acre may be broadcast applied. The higher rate may be used when fall applications are made to spring-planted crops and a greater duration of activity is desired.

Restrictions

- Do not apply more than a total of 70 fl oz of this product (1.0 lb ai) per acre per application.
- Do not apply more than a total of 70 fl oz of this product (1.0 lb ai) per acre per year.

Sugar Beets and Potatoes

Preplant, At-Plant, Postplant, Preemergence, or Postemergence Application

Apply this product at the rate of 35 fl oz (0.5 lb ai) per acre from preplant up to 60 days prior to harvest.

Split Application: This product may be applied twice, each at 18 to 35 fl oz (0.25 to 0.5 lb ai) per acre from preplant up to 60 days prior to harvest. If applied twice, the first application may be any time from preplant up to 6 weeks after emergence and the second application no later than 60 days before harvest.

Restrictions

- **Preharvest Interval:** Do not apply within 60 days before harvest.
- Do not apply more than 35 fl oz of this product (0.5 lb ai) per acre per application.
- Do not apply more than a total of 70 fl oz of this product (1.0 lb ai) per acre per crop.

Tree Nuts (Crop Group 14-12)¹

¹ Tree nuts (crop group 14-12) including almonds, beech nut, Brazil nut, cashew, chestnut, Chinquapin, filbert (hazelnut), hickory nut, macadamia nut, pecan, pistachio, walnut.

Apply this product at 35 to 70 fl oz (0.5 to 1.0 lb ai) per acre per year. The amount applied may be split into two or more applications per year with each application at least 18 fl oz (0.25 lb ai) per acre. Apply banded, broadcast, or through chemigation equipment to orchard floors prior to bloom through nut development up to 30 days prior to harvest.

Restrictions:

- Do not apply more than 70 fl oz (1.0 lb ai) per acre per application.
- Do not apply more than 70 fl oz (1.0 lb ai) per acre per year.
- **Preharvest Interval:** Do not apply within 30 days before harvest.

Wheat (including Spring and Winter)

Preplant, At-Plant, Preemergence, or Postemergence Application

Apply this product at the rate of 35 to 70 fl oz (0.5 to 1.0 lb ai) per acre from prior to planting up to the 1st detectable joint (Feekes 6 or Zadoks 31 wheat growth stage). Applications with liquid fertilizers may be injected, dribbled, or broadcast applied to the crop. Liquid fertilizers broadcast across actively growing wheat can cause leaf necrosis.

Restrictions:

- Do not apply more than 70 fl oz (1.0 lb ai) per acre per application.
- Do not apply more than a total of 70 fl oz (1.0 lb ai) per acre per year on wheat.
- Any postplant application of Vindicate must be applied prior to 1st detectable joint (Feekes 6 or Zadoks 31 growth stage).

Terms and Conditions of Use

If terms of the following Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies are not acceptable, return unopened package at once to the seller for a full refund of purchase price paid. To the extent permitted by law, otherwise, use by the buyer or any other user constitutes acceptance of the terms under Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies.

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It is impossible to eliminate all risks associated with use of this product. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of Corteva Agriscience or the seller. To the extent permitted by law, all such risks shall be assumed by buyer.

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To the extent permitted by law, the exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at Corteva Agriscience's election, one of the following:

1. Refund of purchase price paid by buyer or user for product bought, or
2. Replacement of amount of product used

To the extent permitted by law, Corteva Agriscience shall not be liable for losses or damages resulting from handling or use of this product unless Corteva Agriscience is promptly notified of such loss or damage in writing. To the extent permitted by law, in no case shall Corteva Agriscience be liable for consequential or incidental damages or losses.

The terms of the Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of Corteva Agriscience or the seller is authorized to vary or exceed the terms of the Warranty Disclaimer or this Limitation of Remedies in any manner.

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**Produced for
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Indianapolis, IN 46268**

Label Code: CD02-920-021

Replaced Label: CD02-920-020

EPA accepted 09/01/2020

Revisions:

1. PPE / Gloves updated
2. Added "Mix or shake well before use."
3. Restrictions: added Rotational Crop Restrictions
4. Mixing Directions: added "For large containers, use a cage mixer/ motor for 30 to 60 minutes..."
5. Brassica Head and Stem: deleted replant restriction for root/tuber crops
6. Bulb Vegetables: deleted replant restriction for root/tuber crops
7. Canola: added use
8. Citrus Fruits: deleted replant restriction for root/tuber crops
9. Corn: added "Do not apply more than 70 fl oz of this product (1.0 lb ai) per acre per application prior to crop emergence."; relocated the Replant Restriction to general Restrictions section.
10. Leafy Vegetables: added "Do not apply more than 35 fl oz (0.5 lb ai) per acre per application."; deleted replant restriction for root/tuber crops
11. Sorghum: added use
12. Sugar Beets and Potatoes: added use
13. Tree Nuts: added "Do not apply more than 70 fl oz (1.0 lb ai) per acre per application."
14. Wheat: added "Do not apply more than 70 fl oz (1.0 lb ai) per acre per application;" revised restriction for postplant timing; relocated the Replant Restriction to the general Restrictions section.
15. Branding updated.