

CLICK HERE TO JUMP TO USE DIRECTIONS



STRONGHOLD®

PLANT GROWTH REGULATOR

ACTIVE INGREDIENT:

Mefluidide, diethanolamine salt	21.45%
Imazethapyr, ammonium salt	4.09%
Imazapyr, ammonium salt	0.15%
OTHER INGREDIENTS	74.31%
TOTAL 100.00%	

THIS PRODUCT CONTAINS:

1.46 lb acid equivalent of mefluidide (N-[2,4-dimethyl-5-[[[(trifluoromethyl)sulfonyl]amino]phenyl]acetamide) per gallon or 16.02%.
0.35 lb acid equivalent of imazethapyr ((±)-2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1-H-imidazol-2-yl]-5-ethyl-3-pyridinecarboxylic acid) per gallon or 3.86%.
0.01 lb acid equivalent of imazapyr (2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1-H-imidazol-2-yl]-3-pyridinecarboxylic acid) per gallon or 0.14%.

**KEEP OUT OF REACH OF CHILDREN
CAUTION**



**READ THE ENTIRE LABEL FIRST.
OBSERVE ALL PRECAUTIONS AND
FOLLOW DIRECTIONS CAREFULLY.**

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION: Causes eye irritation. Harmful if inhaled or if absorbed through the skin. Avoid contact with skin, eyes, or clothing.

Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are natural rubber. 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,
- shoes and socks,
- chemical-resistant gloves

User Safety 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. Discard clothing and other absorbent material that have been drenched or heavily contaminated with the product's concentrate. Do not reuse them.

User Safety Recommendations

- Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Users should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Users should 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 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. <p style="text-align: right;"><i>(cont. on next column)</i></p>
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First Aid (cont.)	
If inhaled:	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. • Call a poison control center or doctor for treatment advice.
If swallowed:	<ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If on skin or on 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.
<p>Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact 1-877-800-5556 for emergency medical treatment advice.</p>	

Environmental Hazards

This product is toxic to plants. Drift and run-off may be hazardous to plants 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 wash waters or rinsate. See Directions for Use for additional precautions and requirements.

This chemical (mefluidide) has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

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

DIRECTIONS FOR USE

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

APPLICATION RESTRICTIONS:

- 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.
- Do not enter or allow others to enter treated areas until sprays have dried.
- Not for use on turf being grown for sale or other commercial use as sod, or for commercial seed production, or for research purposes.

NOT FOR SALE, DISTRIBUTION OR USE IN NASSAU OR SUFFOLK COUNTIES IN NEW YORK STATE.

STRONGHOLD Plant Growth Regulator (PGR) can be incorporated into highway vegetation management programs to eliminate seedhead production and to reduce the mowing requirements. STRONGHOLD PGR may be useful in the following noncropland areas:

- Highway rights-of-way (principal, interstate, state, and county highways), interchange ramps, waysides, service areas, and unpaved roads.
- Municipal, state, and federal lands such as airports, military installations, schools/universities, libraries, and hospitals.
- Commercial/Industrial areas including industrial parks, tank farms, plant sites, storage areas, fencerows, and utility rights-of-way.

STRONGHOLD PGR may be used in established turfgrass maintained under high levels of cultural management. Examples of these sites include improved sections of industrial grounds, athletic fields, cemeteries, parks, golf course roughs, and institutional grounds.

STRONGHOLD PGR inhibits the growth of bahiagrass, tall fescue, smooth bromegrass, orchardgrass, and Kentucky bluegrass. All established stands of these grasses should be at least one year old.

SPRAY EQUIPMENT AND MIXING INSTRUCTIONS

SPRAY EQUIPMENT:

Use conventional power spray equipment with bypass or mechanical agitation and fitted with a spray boom, off-center nozzles, or a spray gun.

It is essential that the spray equipment is properly adjusted and calibrated to assure proper dosage and uniform spray coverage. Follow the spray

equipment manufacturer's directions for cleaning, adjusting pressure and selecting appropriate nozzles.

SPRAY VOLUMES:

Spray volumes of 15 to 150 gallons per acre are recommended. Uniform applications are essential. Avoid spray overlaps that will increase the dosage above those recommended.

SURFACTANTS AND SPRAY COLORANTS:

The use of a nonionic surfactant is recommended to increase the extent and consistency of the growth regulation. The suggested surfactant rate is 0.25 to 0.50% vol/vol or 1 to 2 quarts per 100 gallons of spray solution. Temporary, slight discoloration of the turf may increase with the use of a surfactant.

The use of Gordon's Spray Colorant is recommended to allow the applicator to make uniform applications.

SPRAY PREPARATION FOR STRONGHOLD PGR ALONE:

1. Pour the required amount of STRONGHOLD PGR into the spray tank containing approximately one-half the required amount of water.
2. When thoroughly mixed, add the measured amount of nonionic surfactant.
3. Add Gordon's Professional Spray Colorant to the spray tank to ensure the uniformity of the application. Refer to instructions for this colorant for the proper concentration.
4. Fill the tank as required with water and spray as recommended.

SPRAY PREPARATION FOR STRONGHOLD PGR TANK MIXTURES:

STRONGHOLD PGR may be applied in combination with one or more of the specified herbicides or plant growth regulators. These tank mixtures must be used according to the most restrictive label limitations and precautions. No label dosage rate should be exceeded. Follow the labeling of each companion product for precautionary statements, directions for use, dosage rates, and application schedules. Tank mixture recommendations are for use only in states where the companion products and application site are registered.

Follow these guidelines and refer to the labeling of the companion product for further instructions.

1. Add one-half to two-thirds of the required amount of water into the spray tank.
2. Add the appropriate amount of the companion product (dispersible granules or dimethylamine salt formulations) into the spray tank with agitation.
3. Pour the appropriate amount of STRONGHOLD PGR into the spray tank.
4. Continue agitation while adding the remainder of water and add the measured amounts of nonionic surfactant and spray colorant.
5. Continue agitation throughout the spraying operation.

SEEDHEAD SUPPRESSION

The application window or timing is critical for the optimum seedhead control.

Generally the application window for the best results will range from 2 to 3 weeks for the cool season grasses. The beginning of the application window for the cool season grasses occurs in the spring after full green-up with rapid vertical growth. The end of the application window occurs approximately 2 weeks prior to the seedhead appearance or when the seedhead can be felt at the base of the stem. Applications of STRONGHOLD PGR after the optimum window will result in reduced seedhead suppression.

STRONGHOLD PGR must be applied prior to the seedhead appearance at the stem apex. Application of STRONGHOLD PGR after the seedhead emergence will suppress only the later forming seedheads.

Bahiagrass seedheads are produced from late spring until early fall. An application of STRONGHOLD PGR in the spring will provide seedhead inhibition for 6 to 10 weeks and will suppress the vegetative growth for 4 to 5 weeks. Apply STRONGHOLD PGR after full green-up of the bahiagrass with at least two inches of vertical growth (April to May). Applications of STRONGHOLD PGR must be made prior to seedhead (boot) emergence.

STRONGHOLD PGR should be used according to the instructions on this label. Refer to Table 1 for the application rate recommended for established turfgrass in noncropland sites.

VEGETATIVE GROWTH SUPPRESSION

STRONGHOLD PGR will provide growth inhibition for cool season grasses 6 to 8 weeks under favorable growing conditions. Apply STRONGHOLD PGR with a nonionic surfactant after full green-up of turfgrass in the spring. At the time of treatment, turf should have developed the desired appearance, the desired height, and sufficient leaf area for uptake.

Apply 12 to 16 fluid ounces of STRONGHOLD PGR per acre with a nonionic surfactant to actively growing turf for growth suppression up to 8 weeks. Refer to Table 1 for the use rates for tank mixtures applied to low

maintenance turf. Refer to Table 2 for the use rates appropriate for turfgrass with intensive management care.

STRONGHOLD PGR will suppress the vegetative height of bahiagrass for 4 to 5 weeks. Tank mixtures of STRONGHOLD PGR and Oust® Herbicide Dispersible Granules will extend the period of growth suppression up to 8 to 10 weeks. Refer to Table 1 for the use rates for bahiagrass.

Limitations on broadcast treatments:

The maximum application rate is 38 fl. oz. of product per acre per application. The maximum seasonal rate is 88 fl. oz. of product per acre.

Table 1. Use Rates for STRONGHOLD PGR and Tank Mixtures For Established Turfgrasses in Noncropland Sites.			
Product Name	Amount of Product	Nonionic Surfactant, % vol/vol	Comments
A. BAHIAGRASS			
STRONGHOLD PGR	28 to 38 fl. oz./acre	0.250	For growth suppression, apply after grasses are at 100 percent green-up with at least two inches of vertical growth. Use the higher dosage rate for more extended periods of foliar growth suppression. For seedhead suppression, apply prior to seedhead (boot) emergence. Do not use this product with Telar® Herbicide Dispersible Granules on bahiagrass turf because severe injury will occur. STRONGHOLD PGR may be used prior to or sequential to all currently registered herbicides EXCEPT there must be a three month interval of grass growth between applications of STRONGHOLD PGR and sulfonyleurea and imidazolinone herbicide applications.
STRONGHOLD PGR plus Oust® Herbicide Dispersible Granules	24 to 26 fl. oz./acre plus 1/8 to 1/4 oz./acre	0.250	For growth suppression, apply after grasses are at 100 percent green-up with at least two inches of vertical growth. Use the higher dosage rate for more extended periods of foliar growth suppression. For seedhead suppression, apply prior to seedhead (boot) emergence. STRONGHOLD PGR may be used prior to or sequential to all currently registered herbicides EXCEPT there must be a three month interval of grass growth between applications of STRONGHOLD PGR and sulfonyleurea and imidazolinone herbicide applications.
B. TALL FESCUE, KENTUCKY BLUEGRASS, AND MIXED STANDS OF FESCUE/BLUEGRASS			
STRONGHOLD PGR	12 to 16 fl. oz./acre	0.250	Apply after grasses are at 100 percent green-up with at least two inches of vertical growth. On finer turfgrass areas where more uniform quality is desired, apply after two mowings. For seedhead suppression, apply prior to the seed stalk elongation and seedhead emergence. STRONGHOLD PGR may be used prior to or sequential to all currently registered herbicides EXCEPT there must be a three month interval of grass growth between applications of STRONGHOLD PGR and sulfonyleurea and imidazolinone herbicide applications.
STRONGHOLD PGR plus Telar® Herbicide Dispersible Granules	6 to 8 fl. oz./acre plus 1/8 oz./acre	0.250	Do not apply Telar® Herbicide Dispersible Granules plus STRONGHOLD PGR to turf that is under stress from drought, insects, disease, cold temperatures or poor fertility, as injury may result. Do not apply to turf less than 1 year old. Do not exceed 1/2 ounce Telar® Herbicide Dispersible Granules per acre within a 12 month period.
STRONGHOLD PGR plus Hi-Dep® Broadleaf Herbicide, 3.8# a.e./gal.	12 to 16 fl. oz./acre plus 64 fl. oz./acre	0.250	Do not apply this tank mixture to turf that is under stress from drought, insects, disease, cold temperatures, or poor fertility, as injury may result. Do not apply to turf less than 1 year old.
C. MIXED STANDS OF FESCUE/BLUEGRASS, SMOOTH BROMEGRASS, AND ORCHARDGRASS.			
STRONGHOLD PGR plus Arsenal® Herbicide, 2.0# a.e./gal.	12 to 16 fl. oz./acre plus 1.5 fl. oz./acre	0.250	Differential responses of mixed turf species may occur with STRONGHOLD PGR and may result in a non-uniform appearance. Determine the predominant species in the mixed turf and follow the application schedule/window for the species most commonly found.

Table 2. Application Rate Recommendations For STRONGHOLD PGR For Established Kentucky Bluegrass And Fescues That Are Maintained With Intensive Cultural Practices.			
Product Name	Amount of Product	Nonionic Surfactant, % vol/vol	Comments
A. KENTUCKY BLUEGRASS AND FESCUES			
STRONGHOLD PGR	2.2 to 4.35 fl. oz./acre (0.05 to 0.10 fl. oz./ 1000 sq. ft.)	—	This application rate will provide vegetative growth suppression for up to 5 weeks. Apply after grasses are at 100 percent green-up with at least two inches of vertical growth. On finer turfgrass areas where more uniform quality is desired, apply after two mowings. For seedhead suppression, apply prior to the seed stalk elongation. STRONGHOLD PGR may be used prior to or sequential to all currently registered herbicides EXCEPT there must be a three month interval of grass growth between applications of STRONGHOLD PGR and sulfonyleurea and imidazolinone herbicide applications.

IRRIGATION AND RAINFALL:

To prevent product run-off, do not apply when raining or when rain is expected within 8 hours. Do not irrigate for 8 hours after application.

STRESSES:

Applications of STRONGHOLD PGR to turfgrass that is stressed because of high air temperatures, drought, excessive soil water, diseases, or insects may cause temporary discoloration. Management practices to promote the health and vigor of the turfgrass should be continued on the treated areas.

PRECAUTIONS AND LIMITATIONS:

1. Turf treated with STRONGHOLD PGR may appear less dense and temporarily discolored when compared with untreated, actively growing turf.
2. Do not apply to any body of water such as lakes, streams, rivers, canals, ponds, reservoirs, or bays. Also, do not apply to areas where water is present on the soil surface such as swamps, bogs, potholes, or marshes. However, it is allowable to treat seasonally dry swamps, bogs, potholes, or marshes, berms of ditches, and road shoulders.
3. STRONGHOLD PGR may be tank mixed with methylarsonate herbicides such as MSMA or DSMA. Do not tank mix with other postemergence grass herbicides labeled for use in turfgrass.
4. Do not use on newly established stands less than 1 year old.
5. Do not reseed before three months following an application of STRONGHOLD PGR.
6. Do not use on ornamental plants as injury may result.
7. Do not contaminate food or feed.
8. Do not contaminate water intended for irrigation or domestic purposes.
9. Do not feed clippings to livestock. Do not graze livestock in treated areas.
10. Keep out of lakes, streams, and ponds.
11. Do not apply through any type of irrigation system.

Spray Drift Requirements

Wind direction

Only apply this product if the wind direction favors on target deposition.

Wind Speed

Do not apply when the wind velocity exceeds 10 mph.

Temperature Inversions

Do not make ground spray applications into temperature inversions. Inversions are characterized by stable air and increasing temperatures with height above the ground. Mist or fog may indicate the presence of an inversion in humid areas. The applicator may detect the presence of an inversion by producing a smoke layer near the ground surface.

Droplet Size

Use Coarse or coarser droplet size (ASAE S572) or, if specifically using a spinning atomizer nozzle, applicators are required to use a volume mean diameter (VMD) of 385 microns or greater.

Additional Requirements for Groundboom Applications

All ground boom application equipment must be properly maintained and calibrated using appropriate carriers or surrogates. Do not apply with a nozzle height greater than 4 feet above the ground or foliage canopy.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Keep from freezing.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER HANDLING: Nonrefillable container. Do not reuse or refill this container. 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.

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.

LIMITED WARRANTY AND DISCLAIMER

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