

MISCANTHUS AND OTHER NON-FOOD PERENNIAL BIOENERGY CROPS

General Information

PRODUCT INFORMATION

For use only on field corn, production seed corn, silage corn, sweet corn, popcorn, Miscanthus and other non-food perennial bioenergy crops. Corn in this label refers to field corn, production seed corn, silage corn, sweet corn and popcorn.

DuPont BREAKFREE NXT ATZ may be applied to the surface or incorporated into the top 1-2 inch layer of soil. It may be used for control alone, or in tank mix combinations, for the weeds listed in the "Target Weeds" section of these use directions. BREAKFREE NXT ATZ controls weeds by interfering with normal germination and seedling development.

BREAKFREE NXT ATZ does not control established or emerged weeds present at application.

Restrictions

- Not for Sale, Sale Into, Distribution and/or Use in Nassau and Suffolk Counties of New York State.
- This chemical demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of this chemical in areas where soils are permeable, particularly where the ground water is shallow, may result in ground water contamination.
- Do not apply BREAKFREE NXT ATZ before pre-irrigation in irrigated areas.
- Do not allow BREAKFREE NXT ATZ to contaminate feed or food.
- Do not contaminate irrigation water used for crops other than corn or water used for domestic purposes.
- Do not use BREAKFREE NXT ATZ on any crop other than field corn, production seed corn, silage corn, sweet corn, popcorn, and Miscanthus or other non-food

perennial bioenergy crops.

- On the following soil types, do not apply this product within 50 feet of any well where the depth to groundwater is 30 feet or less: sands with less than 3% organic matter; loamy sands with less than 2% organic matter; or sandy loams with less than 1% organic matter. See the figure for additional clarification.
- Do not apply DuPont BREAKFREE NXT ATZ postemergence to sweet corn.
- Chemigation: Do not apply this product through any type of irrigation system, unless otherwise directed by approved supplemental labeling in possession of the user at the time of application.
- Do not use flood irrigation to apply or incorporate this product.
- Product must be used in a manner that will prevent back siphoning in wells, spills or improper disposal of excess pesticide, spray mixtures or rinsates.
- Do not apply under conditions that favor runoff or wind erosion of soil containing this product to non-target areas. To prevent off-site movement due to runoff or wind erosion:
 - Avoid treating powdery dry or light sandy soils when conditions are favorable for wind erosion. Under these conditions, the soil surface should first be settled by rainfall or irrigation.
- Do not apply to impervious substrates such as paved or highly compacted surfaces or frozen or snow covered soils.
- Do not use tailwater from the first flood or furrow irrigation of treated fields to treat non-target crops unless at least ½ inch of rainfall has occurred between application and the first irrigation.
- Aerial Application: Do not apply this product using aerial application equipment unless otherwise directed by approved supplemental labeling in possession of the user at the time of application.
- Do not apply when wind conditions favor drift to non-target sites. To minimize spray drift to non-target areas:
 - Use low-pressure application equipment capable of producing a large droplet

spray.

- Do not use nozzles that produce a fine droplet spray.
- Minimize drift by using sufficient spray volume to ensure adequate coverage with large droplet size sprays.
- Keep ground-driven spray boom as low as possible above the target surface.
- Make application when the wind velocity favors on-target product deposition (approximately 3 to 10 mph). Do not apply when wind velocity exceeds 15 mph. Avoid application when gusts approach 15 mph.
- Low humidity and high temperatures increase the likelihood of spray drift to sensitive areas. Avoid spraying during conditions of low humidity and/or high temperatures. Do not apply during inversion conditions.
- Flush sprayer with clean water after use.
- Maximum Atrazine Application Rates Per Calendar Year:

Maximum annual broadcast application rates for corn must be as follows:

- If no atrazine was applied prior to corn emergence, apply a maximum of 2.0 pounds active ingredient (3.2 quarts BREAKFREE NXT ATZ) per acre. If postemergence treatment is required following an earlier herbicide application, the total atrazine applied may not exceed 2.5 pounds active ingredient per acre per calendar year. Note:

One quart per acre BREAKFREE NXT ATZ delivers 0.625 pound active ingredient atrazine per acre.

- Apply a maximum of 2.0 pounds active ingredient (3.2 quarts BREAKFREE NXT ATZ) per acre if a single preemergence application is made on soils that are not highly erodible or on highly erodible soil if at least 30% of the soil is covered with plant residues.

- Apply a maximum of 1.6 pounds active ingredient (2.5 quarts BREAKFREE NXT ATZ) per acre as a single preemergence application on highly erodible soils if less than 30% of the soil is covered with plant residues; or 2.0 pounds active ingredient (3.2 quarts BREAKFREE NXT ATZ) per acre if only applied postemergence.

- Maximum Acetochlor Application Rates Per Calendar Year:

Maximum annual acetochlor broadcast application rates for corn must not exceed 3.0 pounds active ingredient (3.8 quarts BREAKFREE NXT ATZ) per acre. Note: One quart per acre BREAKFREE NXT ATZ delivers 0.77 pound active ingredient acetochlor per acre.

- Preharvest Interval: Do not apply BREAKFREE NXT ATZ within 60 days of harvest of field corn for field forage uses or within 45 days for sweet corn forage uses.

- Postemergence applications of DuPont BREAKFREE NXT ATZ to corn must be made before the crop reaches 11 inches in height.

Precautions

- Failure to strictly follow label directions may result in exceeding the maximum annual atrazine use rates as stipulated by the Environmental Protection Agency.

- Note: This product contains atrazine and thus may not control weeds that are known or suspected to be triazine resistant.

Following many years of continuous use of atrazine and chemically related products, biotypes of some of the weeds listed on this label have been reported which cannot be effectively controlled by atrazine and related herbicides. Where this is known or suspected and weeds controlled by atrazine are expected to be present along with resistant biotypes, it is recommended that atrazine be used in combinations or in sequence with other registered herbicides which are not triazines. If only resistant biotypes are expected to be present, use a registered non-triazine herbicide.

- BREAKFREE NXT ATZ should not be used on corn seed stock such as Breeders, Foundation, or Increase.

- BREAKFREE NXT ATZ should not be stored near seeds, fertilizers, or foodstuffs.
- All containers of BREAKFREE NXT ATZ should be kept tightly closed when not in use.
- Applied according to directions and under normal growing conditions, BREAKFREE NXT ATZ will not harm the treated crop. During germination and early stages of growth, extended periods of unusually cold and wet or hot and dry weather, insect or plant disease attack, carryover pesticide residues, the use of certain soil applied systemic insecticides, improperly placed fertilizers or soil insecticides may create abnormal conditions that weaken crop seedlings.

BREAKFREE NXT ATZ used under these abnormal conditions could result in crop injury.

Weed Resistance Management Guidelines

Acetochlor and atrazine, the active ingredients in this product, are Group 15 and Group 5 herbicides, respectively, based on the mode of action classification system of the Weed Science Society of America. Any weed population may contain plants naturally resistant to Group 15 or Group 5 herbicides. Such resistant weed plants may not be effectively managed using Group 15 or Group 5 herbicides but may be effectively managed utilizing another herbicide alone or in mixtures from a different Group and/or by using cultural or mechanical practices. However, any herbicide mode of action classification by itself may not adequately address specific weeds that are resistant to specific herbicides. Consult your DuPont representative, state cooperative extension service, professional consultants, or other qualified authorities to determine appropriate actions for treating specific resistant weeds.

Best Management Practices

Proactively implementing diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides is recommended. A diversified weed management program may include the use of multiple herbicides with different modes of action and overlapping weed spectrum with or without tillage operations and/or other cultural practices. Research has demonstrated that using full labeled rates and following directions for use is important to delay the selection for resistance. Scouting after a herbicide application is important because

it can facilitate the early identification of weed shifts and/or weed resistance and thus provide direction on future weed management practices. One of the best ways to contain resistant populations is to implement measures to avoid allowing weeds to reproduce by seed or to proliferate vegetatively. Cleaning equipment between sites and avoiding movement of plant material between sites will greatly aid in retarding the spread of resistant weed seed.

General principles of herbicide resistance management:

1. Apply integrated weed management practices. Use multiple herbicide modes-of-action with overlapping weed spectrums in rotation, sequences, or mixtures.
2. Use the full specified herbicide rate and proper application timing for the hardest to control weed species present in the field.
3. Scout fields after herbicide application to ensure control has been achieved. Avoid allowing weeds to reproduce by seed or to proliferate vegetatively.
4. Monitor site and clean equipment between sites.

For annual cropping situations also consider the following:

- Start with a clean field and control weeds early by using a burndown herbicide treatment or tillage in combination with a soil-applied residual herbicide as appropriate.
- Use cultural practices such as cultivation and crop rotation, where appropriate.
- Use good agronomic principles that enhance crop competitiveness.
- Use new commercial seed that is as free of weed seed as possible.

Report any incidence of repeated non-performance of this product on a particular weed to your DuPont representative, local retailer, or county extension agent.

Application Directions - Corn

Carriers

Liquids: Either water or liquid fertilizers such as solutions, slurries or suspensions may be used as liquid carriers. If fluid fertilizers are used, a physical compatibility

test with these must be done before combining in the spray tank. Even if DuPont BREAKFREE NXT ATZ is physically compatible with a fluid fertilizer, constant agitation is necessary to maintain a uniform mixture during application.

Dry Bulk Fertilizer: BREAKFREE NXT ATZ may be impregnated on dry bulk fertilizer and applied as the fertilizer is spread.

Volume

Liquid: Use a minimum of 10 gallons per acre in broadcast boom equipment for ground applications.

Dry Bulk Fertilizer: Use a minimum of 200 pounds of dry bulk fertilizer per acre.
Application Timing and Methods

For the optimum period of effective weed control during the time most critical to corn production, preplant applications of DuPont BREAKFREE NXT ATZ should occur as close as possible to planting. Preemergence applications should occur as close as possible to planting, but prior to weed emergence; this product will not control emerged weeds present at application.

Early Preplant Surface: On medium and fine textured soils (see Table 1), BREAKFREE NXT ATZ may be applied up to 45 days prior to planting field corn or silage corn. Split applications can be made 30 to 45 days prior to planting with 60 percent of the specified broadcast rate applied initially and the remaining 40 percent applied at planting. Applications made less than 30 days prior to planting can be made either as a split or as a single application. If weeds are present at the time of application, apply this product in a tank mixture with an appropriate contact herbicide. Observe directions for use, precautions, and restrictions on the label of the contact herbicide. During the planting operation, be careful not to move untreated soil to the surface or move treated soil out of the row, as weed control may be reduced.

Preplant Incorporation: BREAKFREE NXT ATZ and certain tank mixes may be mechanically incorporated in the top 2 inches of the soil with field cultivators, discs, or spring tooth harrows at any time within 14 days prior to planting. Improper incorporation, excessive crop residues, or poor soil tilth may result in erratic, streaked or otherwise unsatisfactory weed control. Do not mix BREAKFREE NXT ATZ deeper than 2 inches into the soil and avoid moving or shaping soil after

incorporation, as weed control may be reduced.

Preemergence Surface: BREAKFREE NXT ATZ and certain tank mixes may be applied to the soil surface as a broadcast or banded application. Precipitation or sprinkler irrigation of at least 0.25 inch is required to bring BREAKFREE NXT ATZ into contact with germinating seeds. If rain or sprinkler irrigation does not occur within 7 days after application, weed control may be improved by using a rotary hoe, or similar device, to incorporate the herbicide. The device used should be run at a shallow depth to prevent disturbing the corn seed. Do not remove BREAKFREE NXT ATZ from the weed control zone or dilute it with untreated soil. Erratic weed control resulting from exposure of untreated soil may occur if surface soil is moved or reshaped during incorporation.

Postplant-Preemergence: BREAKFREE NXT ATZ may be applied immediately after planting but prior to corn emergence. If rain or sprinkler irrigation does not occur within 7 days after application, weed control may be improved by using a rotary hoe, or similar device, to shallowly incorporate the herbicide. The device used should be run at a shallow depth to prevent disturbing the corn seed. Do not remove BREAKFREE NXT ATZ from the weed control zone or dilute it with untreated soil. Erratic weed control resulting from exposure of untreated soil may occur if surface soil is moved or reshaped during incorporation.

Banding-Preemergence: BREAKFREE NXT ATZ may be applied in a 10 to 14 inch band after corn planting but prior to corn emergence. If rain or sprinkler irrigation does not occur within 7 days after application, weed control may be improved by using a rotary hoe or similar device to incorporate the herbicide. The device used should be run at a shallow depth to prevent disturbing the corn seed. Do not remove BREAKFREE NXT ATZ from the weed control zone or dilute it with untreated soil. Erratic weed control resulting from exposure of untreated soil may occur if surface soil is moved or reshaped during incorporation.

Early Postemergence: BREAKFREE NXT ATZ may be applied early postemergence to corn up to 11" tall. Applications must be made prior to weed seedling emergence or in a tank mixture that controls the emerged weeds. Read and follow restrictions and directions on tank mix product labels.

Note: Do not make postemergence applications using sprayable liquid fertilizer as the carrier because severe crop injury may occur.

Note: Do not apply BREAKFREE NXT ATZ postemergence to sweet corn.

Sprinkler Irrigation: Do not apply BREAKFREE NXT ATZ through sprinkler irrigation systems, unless otherwise directed by approved supplemental labeling in possession of the user at the time of application. A sprinkler system may be used to incorporate BREAKFREE NXT ATZ after application. After BREAKFREE NXT ATZ has been applied, a sprinkler irrigation system set to deliver 0.25 to 0.75 inch of water per acre may be used to incorporate the product. Using more than 0.75 inch of water could result in reduced performance. On sandy soils low in organic matter, use no more than 0.5 inch of water. Do not use flood irrigation to apply or incorporate BREAKFREE NXT ATZ.

Planting

Planting should be done as close to the time of application of DuPont BREAKFREE NXT ATZ as possible. This allows BREAKFREE NXT ATZ to provide effective weed control during the time it is most critical in the production of corn.

Cultivation

Cultivation should be delayed as long as possible. If weeds emerge, a shallow cultivation or rotary hoeing will generally result in improved weed control. If BREAKFREE NXT ATZ was incorporated, cultivate to a depth of less than half the depth of incorporation.

If cultivation is necessary due to soil crusting, compaction, or escaped weeds, adjust equipment to run shallow and minimize soil movement. This will decrease the possibility of diluting or moving the herbicide from the weed control zone.

Soil Texture and Organic Matter

The specified use rate of BREAKFREE NXT ATZ is determined by a combination of two factors, soil texture and organic matter, which must be determined prior to application.

Weeds Controlled

BREAKFREE NXT ATZ applied as directed in this label will control or partially control

the weeds listed in Table 4. Additional weeds may be controlled with tank mixes. See the "Tank Mix Combinations" section of this label for tank mix directions. Always consult the tank mix product labels for specific use rates and directions. Always follow the most restrictive label when tank mixing BREAKFREE NXT ATZ with another product. BREAKFREE NXT ATZ may be tank mixed with any other registered corn product as long as compatibility is verified and tank mixing is not prohibited by the tank mix product label. Note: This product contains atrazine and may not control weeds that are known or suspected to be triazine resistant.

Limitations, Restrictions, and Exceptions

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For weed control in Miscanthus and other non-food perennial bioenergy crops, apply BREAKFREE NXT ATZ at 1.4-1.9 quarts per acre after the crop has been transplanted or after fully emerged to a height of at least 2-3 inches. Up to two applications of BREAKFREE NXT ATZ may be made each year. The total amount of this product applied each year must not exceed 3.8 quarts per acre.

Restrictions:

Do not allow the Miscanthus or other non-food perennial bioenergy crop treated with BREAKFREE® NXT ATZ to be grazed or used as animal feed.

Method

[Surface](#)

[Soil incorporation](#)

Rates

[field rates 0](#)

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Restricted Entry Interval

12 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.

Timings

[After the crop has been transplanted or after fully emerged to a height of at least 2-3 inches.](#)