

SOYBEANS (CONVENTIONAL AND GMO) - SOIL ORGANIC MATTER GREATER THAN 3%

General Information

Product Information

Sonic herbicide is for preemergence control of broadleaf and grass weeds in soybeans only.

The mode of action of Sonic involves uptake by weed roots and shoots. Preemergence and preplant incorporated applications of Sonic require rainfall or irrigation to activate the herbicide. The amount of rainfall or irrigation required for activation following application depends on existing soil moisture, organic matter content and soil texture. If adequate moisture (1/2" to 1") is not received within 7 to 10 days after the treatment with Sonic, a shallow cultivation may be needed to obtain desired weed control. When sufficient moisture is received after dry conditions, Sonic will provide control of susceptible germinating weeds.

Sonic is unlikely to damage crop when used as directed on this label. Poor growing conditions, such as excessive moisture, cool temperatures, and soil compaction or the presence of various pathogens may impact seedling vigor. Under these conditions, the active ingredients in Sonic, like other soil-applied herbicides, can contribute to crop response. However, these early symptoms are short-lived.

Observe all instructions, crop restrictions, mixing directions, application precautions, replanting directions, rotational crop guidelines and other label information of each product when tank mixing with Sonic.

Weed Resistance Management Guidelines

Sonic contains sulfentrazone, a Group 14 herbicide (PPO inhibitor), and cloransulam-methyl, a Group 2 herbicide (ALS inhibitor). Any weed population may contain plants naturally resistant to Group 14 or Group 2 herbicides. Such resistant weed plants may not be effectively managed using Group 14 or Group 2 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 Dow AgroSciences 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.

Recommendations to scout for weeds before Sonic application for identification and growth stage and after, to 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.

Suspected herbicide-resistant weeds may be identified by these indicators:

- Failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds.
- A spreading patch of non-controlled plants of a particular weed species; and
- Surviving plants mixed with controlled individuals of the same species.

Report any incidence of non-performance of this product against a particular weed species to your Dow AgroSciences representative or call 1-800-992-5994. If resistance is suspected, treat weed escapes with an herbicide having a different mechanism of action and/or use non-chemical means to remove escapes, with the goal of preventing further seed production.

Contact your local sales representative, crop advisor, or extension agent to find out

if suspected resistant weeds to these MOAs have been found in your region. Do not assume that each resistant weed is being controlled by multiple mechanisms of action. Co-formulated active ingredients are intended to broaden the spectrum of weeds that are controlled. Some weeds may be controlled by only one of the active ingredient in this product.

Apply this herbicide at the correct timing and rate needed to control the most difficult weed in the field.

Use a broad spectrum soil-applied herbicide with a mechanism of action that differs from this product as a foundation in a weed-control program. Do not use more than two applications of this or any other herbicide with the same mechanism of action within a single growing season unless mixed with an herbicide with another mechanism of action with an overlapping spectrum for the difficult-to-control weeds.

If resistance is suspected, treat weed escapes with an herbicide with a different MOA or use non-chemical methods to remove escapes.

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 labeled 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.
5. Prevent an influx of weeds into the field by managing field borders.
6. To the extent possible do not allow weed escapes to produce seeds, roots or tubers. Manage weed seeds at harvest and post-harvest to prevent a buildup of the weed seedbank.
7. Difficult to control weeds may require sequential applications of herbicides with differing mechanisms of action.

For annual cropping situations, also consider the following:

- Start with a clean field and control weeds early by using a burndown treatment or tillage in combination with a preemergence residual herbicide as appropriate.
- Use cultural practices such as cultivation and crop rotation, where appropriate. Fields with difficult to control weeds should be rotated to crops that allow the use of herbicides with alternative mechanisms of action or different management practices.
- Use good agronomic principles that enhance crop competitiveness.
- Use new commercial seed that is as free of weed seed as possible.

Proper Handling Instructions

This product may not be mixed or loaded within 50 feet of any wells (including abandoned wells and drainage wells), sink holes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs. This setback does not apply to properly capped or plugged abandoned wells and does not apply to impervious pad or properly diked mixing/loading areas.

Operations that involve mixing, loading, rinsing, or washing of this product into or from pesticide handling or application equipment or containers within 50 feet of any well are prohibited unless conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be positioned on or moved across the pad. Such a pad shall be designed and maintained to contain any product spills or equipment leaks, container or equipment rinse or washwater, and rainwater that may fall on the pad. Surface water shall not be allowed to either flow over or from the pad, which means the pad must be self-contained. The pad shall be sloped to facilitate material removal. An unroofed pad shall be of sufficient capacity to contain at a minimum 110% of the capacity of the largest pesticide container or application equipment on the pad. A pad that is covered by a roof of sufficient size to completely exclude precipitation from contact with the pad shall have a minimum containment capacity of 100% of the capacity of the largest pesticide container or application equipment on the pad. Containment capacities as described above shall be maintained at all times. The above specific minimum containment capacities do not apply to vehicles when delivering pesticide shipments to the mixing/loading

site. States may have in effect additional requirements regarding wellhead setbacks and operational containment.

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

Do not use flood irrigation to apply or incorporate this product.

Product must be used in a manner which will prevent back siphoning in wells, spills or improper disposal of excess pesticide, spray mixtures or rinsates.

Rotational Crop Guidelines

Shown below are the minimum intervals in months from the time of an application of Sonic until soil treated with Sonic may be replanted with the crops listed. When Sonic is tank mixed with other herbicide(s), refer to all the labels for re-cropping instructions, following the intervals that are the most restrictive. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture. For crops not listed, the interval is 30 months and a successful field bioassay.

Replanting Instructions

If the initial planting of soybeans fails to produce a uniform stand, soybeans may be replanted in fields treated with Sonic alone. Do not re-treat fields with a second application of Sonic. When tank mixing with a labeled product, refer to the replant instructions for that product. Do not replant treated fields with any crop at intervals that are inconsistent with the rotational crop guidelines on the label for Sonic. Where a tank mix is used, refer to the product's labels for any additional replant instructions. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Application Information

Do not apply to crops other than soybeans.

Ground Application

Use a standard low pressure herbicide boom sprayer equipped with suitable nozzles and screens. Apply uniformly using properly calibrated nozzles (10 to 40 psi) and

screens and strainers no finer than 50 mesh. Use 10 to 40 gallons of spray solution per acre. Do not exceed 40 psi spray pressure unless required by the spray nozzle manufacturer.

Continuous agitation during application is required. Avoid swath overlaps. Shut off spray booms while turning, slowing or stopping as over application may result. Do not allow spray mixtures of Sonic to sit overnight as settling of product and difficulty of re-suspending may occur.

To avoid injury to sensitive crops, spray equipment used for applications of Sonic must be drained and thoroughly cleaned with water plus ammonia or detergent before being used to apply other products. See Spray Clean-Out section.

Avoid all direct and/or indirect spray contact with non-target plants. Do not apply near desirable vegetation. Allow adequate distance between target area and desirable plants to minimize exposure.

Runoff and Wind Erosion Precautions

Do not apply under conditions which favor runoff or wind erosion of soil containing Sonic 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, allow the soil surface to be settled by rainfall or irrigation.
- Do not apply to impervious substrates such as paved or highly compacted surfaces or frozen or snow covered ground.
- Do not apply to soils when saturated with water.
- Do not use tailwater from the first flood or furrow irrigation of treated fields to treat non-target crops unless at least 1/2 inch of rainfall has occurred between application and the first irrigation.

Aerial Application

Use nozzle types and arrangements that will provide optimum spray distribution and maximum coverage. To minimize spray drift, apply Sonic in a spray volume of a

minimum of 5 gallons of spray solution per acre. Increase the spray volume for fields with dense weed pressure. Aerial application is allowed only when environmental conditions prohibit ground application. For aerial applications the maximum release height must be 10 feet from the top of the crop canopy, unless a greater application height is required for pilot safety. When this product is allowed by air, applicator must use a minimum finished spray volume of 5 gallons per acre.

Sonic Applied Alone with Liquid Fertilizer

In order to add Sonic to a liquid fertilizer carrier, Sonic must be premixed in a slurry of product and clear water. Fill the spray tank one-half full with fertilizer solution. With agitator operating, add the slurry with Sonic to the spray tank. Use a minimum of one gallon of water for each container of Sonic. Stir until completely dissolved. Then add slurry to the spray tank through a 20 to 35 mesh screen. Rinse container used for premixing and add rinsate to the spray tank. Complete filling the sprayer tank with fertilizer. Maintain agitation during filling, mixing and application. Use the spray mixture of Sonic immediately after mixing. Do not store mixture.

Application with Dry Bulk Fertilizer (Soil Application Only)

Dry bulk fertilizer may be impregnated or coated with Sonic. Soil applications of dry bulk fertilizer impregnated with Sonic provides weed control equal to the same rates of Sonic applied in liquid carriers. Follow label directions for Sonic regarding rates per acre, special instructions, precautions and limitations for soil application.

Most absorbent dry fertilizers can be used for impregnation with Sonic. Pure ammonium nitrate and/or limestone will not absorb the herbicide and are not suitable for impregnation with Sonic. Absorbent fertilizer blends containing a mixture of ammonium nitrate and/or limestone as part of the fertilizer mixture may be impregnated.

Apply 200 to 250 lbs of fertilizer/herbicide mixture per acre. Various equipment can be used to impregnate Sonic onto dry fertilizers, including vertical and horizontal mixers. Apply the mixture uniformly to the soil with properly calibrated equipment immediately after blending. Uniform application of the herbicide/fertilizer mixture is essential for satisfactory weed control and to prevent possible crop injury. Non-uniform application may result in unsatisfactory weed control. In areas where conventional tillage is practiced, a shallow soil incorporation of the mixture may improve weed control.

Compliance with all federal and state regulations relating to blending pesticide mixtures with dry bulk fertilizer, registration, labeling and application are the responsibility of the individual and/or company offering the fertilizer and chemical mixture for sale.

Impregnation

Sonic must be pre-mixed with water to form a slurry prior to impregnation of dry bulk fertilizer. For best results, use a minimum of 8 fl oz or 0.5 pint of water with one acre of Sonic. Pre-mixing can be accomplished by shaking desired amount of Sonic and water together in a closed container. Once impregnated, fertilizer may be applied with either spinner, airflow, or other suitable equipment. A small amount of a silicon-based defoaming agent may also be needed. Make sure Sonic is completely and uniformly dispersed in water. Add sufficient water to adjust the total volume of the mixture to deliver a spray volume of 0.5 to 1 gallon of fertilizer per ton. Nozzles used to spray Sonic onto the fertilizer should be placed to provide uniform spray coverage. Use constant agitation to keep the spray mixture suspended.

Herbicide Combinations with Sonic on Dry Bulk Fertilizer

To prepare concentrated tank mixtures of Sonic with emulsifiable concentrate formulations, the Sonic/water pre-mix should be added to the liquid mixing tank first. If additional water is required, this should be added next, followed by the emulsifiable concentrate. Care should be taken to avoid over-saturating the dry fertilizer with liquid. For this reason the volume of water in the mixing tank should be roughly equivalent to the volume of emulsifiable concentrate added to the mixing tank. Once impregnated, fertilizer may be applied with either spinner, airflow, or other suitable equipment. Depending upon the specific dry fertilizer

blend and the emulsifiable concentrate application rates, it may be necessary to increase the fertilizer application rates to avoid over-saturating the dry fertilizer. Add drying agent as needed to prevent over-saturation of fertilizer. Over-saturation can result in a mixture with poor flow properties and increase residues of Sonic left in the blending equipment.

The spray time is no less than 3 to 5 minutes per batch. Avoid spraying mixture on side of the blender. Nozzle placement should minimize spray overlap in the blender and also avoid spraying the mixer walls. For best results, use a suitable in-line (no finer than 100 mesh) screen to avoid spray blockages. Any closed drum, belt, ribbon or other commonly used dry bulk fertilizer blender may be used. Immediately apply bulk fertilizers impregnated with Sonic. Do not store the impregnated fertilizer. All individual state regulations, including those related to dry bulk blending registration, labeling and application, are the responsibility of the individual and/or company selling mixtures of Sonic and fertilizer.

Note: Thoroughly clean dry fertilizer blending and application equipment prior to use with other herbicides. It is important to thoroughly clean the blender, herbicide spray tank, and spraying apparatus. Rinse the sides of the blender and the herbicide tank with water. Clean spraying apparatus prior to preparing fertilizer/herbicide mixtures for crops other than soybeans (see Spray Equipment Clean Out Procedures). If the following crop is soybeans, flushing may be accomplished by running one to two loads of dry fertilizer, which must be used only prior to planting soybeans. Inspect the equipment carefully for any spray build-up or deposits from earlier batches and wash or remove as appropriate.

If the following crop is not soybean, at a minimum, two dry flush batches are required. Both flushes should fill at least 50% of the blender's capacity. A third flush may be necessary if the blender batch of Sonic was "wet" due to over-saturating the fertilizer, or if the subsequent application is for a crop known to be highly sensitive to Sonic.

Alternately, an effective cleaning procedure is rinsing the blenders with a bleach or ammonia solution. The resulting rinsate can be mixed with the fertilizer used for flushing, but at no more than 1 gallon of rinsate per ton of fertilizer.

Limitations, Restrictions, and Exceptions

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Rate of Sonic (lb ai/acre)

Sulfentrazone: 0.31

Cloransulam-methyl: 0.04

- The maximum single application rate for Sonic is 8 oz/acre, the equivalent of 0.31 lb/a.i./A of sulfentrazone and 0.04 lb/a.i./A of Cloransulam-methyl.
- The maximum annual application rate for Sonic is 8 oz/acre, the equivalent of 0.31 lb/a.i./A of sulfentrazone and 0.04 lb/a.i./A of Cloransulam-methyl.

Preplant Incorporated Application

Apply Sonic alone or in tank mix combination with other herbicides registered for preplant incorporated application to soybeans. Incorporate the herbicide(s) into the top 1 to 3 inches of the final seedbed using equipment that provides thorough soil mixing. When Sonic is applied in tank mix combination with other herbicide(s), follow the incorporation directions for the tank mix partner(s). Follow applicable use instructions, including application rates, precautions and restrictions of each product used in the tank mixture.

Preplant Surface Application

Apply Sonic alone or in tank mix combination with other herbicides registered for preplant soil surface application to soybeans. If applied in tank mix combination, follow use instructions, including application rates (apply 1/2 of the maximum application rate for suppression of weeds in Roundup Ready soybeans, maintaining control with sequential application(s) of registered postemergence herbicides), precautions and restrictions of each product used in the tank mixture.

Preemergence Application

Apply at planting time or within 3 days after planting. Sonic may be applied alone or in tank mix combination with other herbicides registered for preemergence application to soybeans. When applied in a tank mix combination, follow applicable use instructions, including application rates (note: apply 1/2 of the maximum application rate for suppression of weeds in Roundup Ready soybeans, maintaining

control with sequential application(s) of registered postemergence herbicides). Observe the precautions and restrictions of each product used in the tank mixture. Apply before planting, at planting time or prior to seed germination. Properly closed seed furrows are necessary when applying at planting time or before seed germination. Do not apply later than 3 days after planting (or after seed germination) as crop injury may result.

Horseweed (marestail); ragweed, common; ragweed, giant; Will not control ALS resistant biotypes of these weed species.

Morningglory, pitted; barnyardgrass; crabgrass, southern; crowfootgrass; foxtail, giant; foxtail, yellow; johnsongrass, seedling; Provides suppression or partial control only.

Precautions

- Properly closed seed furrows are necessary when applying at planting time or within 3 days after planting.
- Maintain spray tank agitation until the spray mixture is applied.

Restrictions

- Do not apply this product through any type of irrigation system.
- Do not make more than one soil application per acre per year.
- Do not apply more than 8 oz of Sonic per acre per year as a cumulative total of soil application of Sonic and post-emergence application of FirstRate herbicide (1 oz per acre of Sonic contains 0.005 lb a.i. cloransulam-methyl and 0.3 oz per acre of FirstRate contains 0.016 lb a.i. cloransulam-methyl. Do not apply more than 0.055 lb a.i. per acre of cloransulam-methyl per year).
- Do not feed treated soybean forage or soybean hay to livestock.
- Do not harvest soybeans for 65 days after application of Sonic.
- Do not apply Sonic to soils classified as sands containing less than 1% organic matter.
- Do not drain or flush equipment on or near desirable trees or plants. Do not contaminate any body of water including irrigation water that may be used on other

crops.

Method

[Broadcast/Foliar Air](#)

[Broadcast/Foliar Ground](#)

[Surface](#)

[Soil incorporation](#)

Pre-Harvest Interval

65 days

Rates

[field_rates 0](#)

[field_rates 1](#)

[field_rates 2](#)

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Restricted Entry Interval

12 hours

Timings

[At-Plant](#)

[Preemergence \(Crop\)](#)

[Preplant](#)

[Preplant Incorporated](#)