

## **CORN (FIELD, POP, SEED, SWEET) - GREATER THAN 3.0 OM (MEDIUM)**

### General Information

#### GENERAL INFORMATION

HELENA PENDIMETHALIN herbicide is a selective herbicide for controlling most annual grasses and certain broadleaf weeds as they germinate. Refer to Table 1 for a complete list of controlled weeds. HELENA PENDIMETHALIN will not control established weeds.

Unusually cold, excessively wet, or hot and dry conditions that delay germination or extend germination over a long period of time can reduce weed control.

Overapplication can result in crop-stand loss, crop injury, or soil residues.

Uneven application or improper soil incorporation can decrease weed control or cause crop injury. Soil incorporation deeper than recommended can reduce weed control.

Seedling diseases, cold weather, excessive moisture, shallow or deep planting, low or high soil pH, high soil salt concentration, or drought can weaken seedlings and plants and increase the possibility of crop damage from HELENA PENDIMETHALIN. Under these conditions, crop yields can be reduced.

#### Mode of Action

HELENA PENDIMETHALIN herbicide is a meristematic inhibitor that interferes with the plant's cellular division or mitosis. This and/or other products with the meristematic inhibiting mode of action may not effectively control naturally occurring biotypes of some of the weeds listed on the label. A weed biotype is a naturally occurring plant within a given species that has a slightly different, but distinct, genetic makeup from other plants. Other herbicides with the meristematic inhibiting mode of action include other dinitroaniline herbicides, such as trifluralin. If naturally occurring meristematic inhibiting resistant biotypes are present in a field, HELENA PENDIMETHALIN and/or any other meristematic inhibiting mode of action herbicide should be tank mixed or applied sequentially with an appropriate

registered herbicide having a different mode of action to ensure control.

## Application Timings

HELENA PENDIMETHALIN will provide most effective weed control when applied by ground or aerial equipment and subsequently incorporated into soil within 7 days after application by rainfall, sprinkler irrigation, or mechanical tillage prior to weed seedling emergence from soil. HELENA PENDIMETHALIN can also be applied through chemigation, including flooded basin irrigation systems. HELENA PENDIMETHALIN is recommended for preplant surface, preplant incorporated, surface incorporated, preemergence, early postemergence, postemergence incorporated (CULTI-SPRAY) or layby treatment. See Crop-Specific Information for specific application directions by crop.

**Preplant Surface Applications:** For use in minimum tillage or no-tillage production systems, apply HELENA PENDIMETHALIN alone or in tank mixes up to 45 days before planting. When making early preplant surface applications (15 to 45 days prior to planting), HELENA PENDIMETHALIN should be tank mixed or followed by a postemergence herbicide application. Rainfall or sprinkler irrigation within 7 days after application is required to move this product into the upper soil surface where weed seeds germinate.

**Preplant Incorporated Applications:** Apply HELENA PENDIMETHALIN and incorporate into the upper (1" to 2" ) soil surface up to 60 days before planting. Use an implement capable of giving uniform incorporation; two-pass incorporation usually results in a more consistent result.

**Surface Incorporated Applications:** Uniformly apply HELENA PENDIMETHALIN as broadcast or banded treatment to soil surface underneath established trees and/or in ground areas between trees rows. Within 7 days after application, incorporate into upper (1" to 2") soil surface using either rainfall, sprinkler irrigation, or shallow mechanical incorporation using an implement capable of giving uniform incorporation; two-pass mechanical incorporation usually results in a more consistent result.

**Preemergence Surface Applications:** Broadcast treatment uniformly to the soil surface at planting and up to 2 days after planting. Rainfall, sprinkler irrigation, or shallow mechanical incorporation within 7 days after application is required to move this product into the upper soil surface where weed seeds germinate. If adequate

rainfall or irrigation does not occur and weed seedling emergence begins, a shallow cultivation or rotary hoeing will improve performance.

**Early Postemergence Applications:** HELENA PENDIMETHALIN must be applied prior to weed seedling emergence or in a tank mix with products that control the emerged weeds. Refer to Crop-Specific Information for specific postemergence application recommendations by crop.

**Postemergence Incorporated Applications (CULTI-SPRAY):** Prior to application, crop must be cultivated in such a manner as to throw at least one inch of soil over the base of the crop plants. This will prevent direct contact of HELENA PENDIMETHALIN and the zone of brace root formation. HELENA PENDIMETHALIN must be applied broadcast with a ground sprayer when crop is at least 4 inches tall up to layby. Use drop nozzles if crop foliage will prevent uniform coverage of the soil surface within the rows. Thoroughly and uniformly incorporate HELENA PENDIMETHALIN treatments into the soil with:

(1) a sweep-type or rolling cultivator set to provide thorough incorporation in the top 1 inch of soil, or

(2) adequate overhead irrigation water or rainfall. See Crop-Specific Information (Corn and Grain Sorghum) for more details on (CULTI-SPRAY) application.

**Layby Application:** Apply HELENA PENDIMETHALIN directly to the soil between rows as a directed spray following the last normal cultivation (layby). See Crop-Specific Information for more details on layby application.

**Split Applications:** HELENA PENDIMETHALIN may be applied preplant incorporated up to 60 days prior to planting and followed by a preemergence application at planting or up to 2 days after planting. The total amount of HELENA PENDIMETHALIN herbicide applied per acre per season cannot exceed the highest labeled rate for any given soil type. See Crop-Specific Information for more details on split applications.

**Fall Applications:** HELENA PENDIMETHALIN may be used in fall application programs in certain crops. See Crop-Specific Information for details on fall application timing.

### Spraying Instructions

HELENA PENDIMETHALIN may be applied using either water or sprayable fluid

fertilizer (such as straight 32-0-0 or 28-0-0) as the spray carrier. Additionally, HELENA PENDIMETHALIN may be impregnated on dry bulk fertilizer. Sprayable fluid fertilizer as a carrier is NOT recommended for use after crop emergence unless the typical fertilizer burn symptoms on the crop are acceptable.

### Aerial Applications

Uniformly apply in 5 or more gallons of water per acre. Exercise caution to minimize drift. DO NOT apply during periods of gusty winds or when wind conditions favor drifting. Spray drift can cause injury to sensitive crops. It is recommended that a flagman or an automatic mechanical flagging unit on the aircraft be used to avoid overlapping and possible crop injury.

### Ground Applications (Broadcast)

Uniformly apply with properly calibrated ground equipment in 10 or more gallons of water per acre or 20 or more gallons of liquid fertilizer per acre. Use sprayers equipped with appropriate nozzles that provide uniform and accurate spray distribution and minimize drift. Keep the bypass line on or near the bottom of the tank to minimize foaming. Nozzle and in-line screens must be no finer than 50 mesh. Application of HELENA PENDIMETHALIN during periods of gusty winds may result in uneven applications. DO NOT apply HELENA PENDIMETHALIN postemergence in liquid fertilizers.

### Restrictions and Limitations

- DO NOT exceed the maximum labeled rate for any soil type.
- HELENA PENDIMETHALIN herbicide will not control established weeds. Destroy emerged weeds prior to application.
- HELENA PENDIMETHALIN is most effective in controlling weeds mechanically incorporated or when incorporated into the weed germination zone by adequate rainfall or overhead irrigation after application.

- When using tank mixtures with HELENA PENDIMETHALIN, always read the companion product label(s) to determine the specific use rates by soil types, weed species, and weed or crop growth stage. In addition, follow all precautions and restrictions including state and local use restrictions that may apply to specific products. Always follow the most restrictive label.
- In the event of a crop loss due to adverse weather conditions or other reasons, any crop registered for a preplant incorporated application of HELENA PENDIMETHALIN can be replanted without adverse effects the same year (see Crop-Specific Information for exceptions). If replanting is necessary, DO NOT work the soil deeper than the treated zone.
- Refer to Crop-Specific Information for crop-specific preharvest intervals and feeding and grazing restrictions.

#### CROP ROTATION RESTRICTIONS

- Use of HELENA PENDIMETHALIN in accordance with label directions is expected to result in normal growth of rotational crops in most situations; however, various environmental and agronomic factors, such as arid conditions, make it impossible to eliminate all risks associated with the use of this product and, therefore, rotational crop injury is always possible. Soil characteristics and environmental conditions which may contribute to crop stress that may be accentuated by the use of HELENA PENDIMETHALIN include: coarse soils, compaction, high salinity, eroded knolls/hilltops, cold and/or wet soils, drought, and heavy rainfall soon after application.
- When HELENA PENDIMETHALIN is used in tank mix or sequential combinations, refer to labels of other herbicides for additional rotational crop restrictions.
- Restrictions for rotational cropping after the use of HELENA PENDIMETHALIN are dependent on the application use rate of HELENA PENDIMETHALIN in the primary crop. The user should thoroughly read the following restrictions to determine the rotational crops for their specific situation, according to application use rate.

#### I. Rotational Crop Restrictions Following Applications of HELENA PENDIMETHALIN to Field and Row Crops

1. Application Rate less than or equal to 4.8 pts/A (2.0 lbs ai/A):

(a) Crops which are labeled for preplant incorporated application may be planted the same season in which HELENA PENDIMETHALIN was applied.

(b) Sugar beets, Red beets and Spinach

To avoid crop injury, DO NOT plant sugar beets, red beets or spinach for 12 months following a spring application of HELENA PENDIMETHALIN or 14 months following a fall application of HELENA PENDIMETHALIN.

These crops should not be planted for 18 months following a spring application of HELENA PENDIMETHALIN or 20 months following a fall application of HELENA PENDIMETHALIN if rainfall or irrigation was not sufficient to produce a crop. To ensure thorough mixing of soil prior to planting sugar beets, red beets and spinach, land should be plowed using a moldboard plow to a depth of 12 inches.

(c) Proso millet, Sorghum (milo), and Annual or Perennial grass crops or mixtures

Proso millet, sorghum (milo), and annual or perennial grass crops or mixtures should not be planted for 10 months after a spring application of HELENA PENDIMETHALIN or 12 months after a fall application of HELENA PENDIMETHALIN except in the following conditions:

In the states of Minnesota, North Dakota and South Dakota, these crops should not be planted for 18 months following a spring application of HELENA PENDIMETHALIN or 21 months following a fall application of HELENA PENDIMETHALIN. To avoid the possibility of crop injury in areas that receive less than 20" of rainfall or irrigation to produce a crop, these crops should not be planted for 18 months following a spring application of HELENA PENDIMETHALIN or 20 months following a fall application of HELENA PENDIMETHALIN if rainfall or irrigation was not sufficient to produce a field or row crop.

(d) Wheat and Barley

Wheat and barley may be planted 4 months after an application of HELENA PENDIMETHALIN, except under the following conditions:

If less than 12" of rainfall or overhead irrigation was received between application

and rotational crop planting, wheat should not be planted before 12 months after a spring application of HELENA PENDIMETHALIN or 14 months after a fall application of HELENA PENDIMETHALIN.

In dryland areas and/or areas where irrigation is necessary to produce the crop treated with HELENA PENDIMETHALIN, DO NOT plant winter wheat or barley as a follow crop if crop failure/destruction occurs and land is fallowed during the summer.

(e) All Other Rotational Crops Not Specifically Addressed Above

Crops, other than those to which HELENA PENDIMETHALIN may be applied as a preplant incorporated treatment, may be planted the year following application of HELENA PENDIMETHALIN, except under the following condition:

If rainfall or irrigation was not sufficient to produce a crop, delay planting for 18 months following a spring application of HELENA PENDIMETHALIN herbicide or 20 months following a fall application of HELENA PENDIMETHALIN.

2. Application Rate greater than 4.8 pts/A (2.0 lbs ai/A):

In the growing season following application of HELENA PENDIMETHALIN to field and row crops at greater than 4.8 pts/A, plant only those crops for which HELENA PENDIMETHALIN is labeled for preplant incorporated treatment or crop injury may occur. DO NOT plant other crops for 24 months.

II. Rotational Crop Restrictions Following Applications of HELENA PENDIMETHALIN to Orchard, Grove, and Vineyard Crops In the growing season following application of HELENA PENDIMETHALIN to fruit and nut trees, plant only those crops for which HELENA PENDIMETHALIN is labeled for preplant incorporated treatment or crop injury may occur. DO NOT rotate to other crops (except for nut crops, fruit trees, or grapes) for 24 months following a HELENA PENDIMETHALIN application to fruit or nut trees.

Limitations, Restrictions, and Exceptions

CORN (FIELD, POP, SEED, SWEET)

HELENA PENDIMETHALIN may be applied by ground, air or chemigation.

HELENA PENDIMETHALIN may be applied in conventional, minimum, or no-till as a

preemergence, postemergence, or postemergence incorporated (CULTI-SPRAY) application in field corn.

HELENA PENDIMETHALIN may be applied in conventional tillage as a preemergence or postemergence application in sweet corn, seed corn, or popcorn.

Regardless of tillage system, plant corn at least 1-1/2 inches deep and completely cover with soil.

In conventional tillage systems, plant into a seedbed that is firm and free of clods and trash. Use only where adequate tillage is practiced to provide good soil coverage of the corn seed.

In no-till systems, utilize a no-till planter that is capable of planting through crop residue. The use of no-till planters under conditions that do not allow good soil coverage of the corn seed can result in reduced crop stand or injury if HELENA PENDIMETHALIN contacts the germinating corn seed. Check equipment to ensure good seed coverage.

HELENA PENDIMETHALIN or HELENA PENDIMETHALIN tank mix combination treatments are most effective in controlling weeds when adequate rainfall or overhead irrigation is received within 7 days after application. If cultivation is necessary because of soil crusting or weed germination, use shallow tillage and make certain corn seeds are below the tilled area.

Additional Weeds Controlled: In addition to the weeds listed in Table 1, HELENA PENDIMETHALIN will control the following weeds in corn with CULTI-SPRAY application: wild proso millet and shattercane.

#### Use Methods and Timings

Preemergence - Apply after planting but before weeds and crop emerge.

Postemergence - Apply postemergence until field corn is 30 inches tall (20 to 24 inches tall for pop, seed and sweet corn) or in the V8 growth stage, whichever is more restrictive. If the corn canopy prevents applications from reaching the soil, use drop nozzles and apply as a directed spray.

CULTI-SPRAY - Apply HELENA PENDIMETHALIN alone or HELENA PENDIMETHALIN plus atrazine when field corn is at least 4 inches tall until last cultivation (layby).



HELENA PENDIMETHALIN plus atrazine must be applied before the field corn reaches 12 inches in height.

DO NOT exceed 1.2 lbs ai per acre of atrazine, as specified on the atrazine label. Under situations of low rainfall or soil moisture when deep germinating weeds such as shattercane or field sandbur are anticipated, mechanical incorporation will provide best results. If cultivation is needed after application and incorporation of HELENA PENDIMETHALIN, the depth of cut should be no deeper than the depth of cut used to incorporate.

### Chemigation Applications

HELENA PENDIMETHALIN may be applied through sprinkler irrigation systems. Follow all recommendations, special instructions and precautions in the general section covering Chemigation in Spraying Instructions.

### Method

[Broadcast/Foliar Air](#)

[Broadcast/Foliar Ground](#)

[Broadcast/Foliar Air](#)

[Broadcast/Foliar Ground](#)

[Broadcast/Foliar Air](#)

[Broadcast/Foliar Ground](#)

### Rates

[field rates 0](#)

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### Restricted Entry Interval

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.

### Soils

[Medium](#)

### Timings

[Postemergence \(Crop\)](#)

[Preemergence \(Crop\)](#)

## Preemergence (Weed)