

# **NON-CROP AREAS - GRASSHOPPER AND MORMON CRICKET**

## General Information

### PRODUCT INFORMATION

MICROMITE 2L is an insect growth regulator which is effective on a wide variety of insect pests, predominately from the families Lepidoptera and Diptera. Because of its mode of action, which results in a disruption of the normal molting process of the insect larvae, the action of MICROMITE 2L is slow and several days may elapse before the full effect is seen. Because of its specificity, MICROMITE 2L is an excellent product for use in IPM programs.

**RESISTANCE MANAGEMENT:** When used as directed MICROMITE 2L provides control of a number of important insect pests as well as providing a margin of safety to beneficial insects and pollinators. MICROMITE 2L should be part of an IPM program that follows good management practices that include:

- Scouting regularly and use MICROMITE 2L against early immature stages for best results.
- Always follow the label rate and timing directions.
- Use chemical alternatives such as oil and preserve beneficial arthropods as part of an IPM program.
- Maintain good coverage of all leaf surfaces with adequate water volume.
- Alternate treatments to classes of insecticides with different modes of action.

### USE RESTRICTIONS

- Do not apply this product to bodies of water where swimming is likely to occur.
- For Carrots: Do not apply this product to carrots grown for seed.
- For Field Crops, Row Crops, Orchard Uses, Grassland and Non- Crop Areas: Do not apply within 25 feet by ground or 150 feet by air of bodies of water such as lakes, reservoirs, rivers, permanent streams, natural ponds, marshes or estuaries. All applications must include a 25-foot vegetative buffer strip within the buffer zone to decrease runoff.

**RESTRICTIONS ON ROTATIONAL CROPS:** Do not plant food or feed crops in MICROMITE 2L treated soils within 1 month following last application, unless

MICROMITE 2L is authorized for use on these crops.

## APPLICATION INSTRUCTIONS

### USE AND MIXING DIRECTIONS IF USED WITH WATER:

1. Fill tank with half of the required amount of water.
2. Begin agitation and add required amount of MICROMITE 2L.
3. Continue agitation while adding remainder of water.
4. If permitted for the use site, add proper quantity of oil slowly. To avoid formation of an invert emulsion, use at least 2 parts of water for each part of oil.

### USE AND MIXING DIRECTIONS IF USED WITHOUT WATER:

Always evaluate any potential mixture for compatibility and sprayability. To ensure thorough mixing of MICROMITE 2L with insecticides or other carriers, premix ingredients in a nurse tank prior to being transferred to aerial or ground ULV application equipment. If nurse tank is not available, or unable to simultaneously mix:

1. Fill tank with the required amount of oil and/or oil based insecticide.
2. Begin agitation and add required amount of MICROMITE 2L.
3. After the contents of the tank have been thoroughly agitated, a volume of carrier sufficient to fill the booms and piping system should be drained and then added back to the tank.

## APPLICATION THROUGH IRRIGATION SYSTEMS - CHEMIGATION

MICROMITE 2L may be applied through properly equipped chemigation systems for insect control in grassland and row crops. Apply this product only through sprinkler (including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move) irrigation systems. Do not apply this product through any other type of irrigation system.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.

In order to calibrate the irrigation system and injector to apply the mixture, determine the following: 1) Calculate the number of acres irrigated by the system; 2) Set the irrigation rate and determine the number of minutes for the system to cover the intended treatment area; 3) Calculate the total gallons of the mixture

needed to cover the desired acreage. Divide the total gallons of mixture needed by the number of minutes to cover the treated area. This value equals the gallons per minute that the injector must deliver. Convert the gallons per minute to ounces per minute. Calibrate the injector pump with the system in operation at the desired irrigation rate. It is suggested that the injector pump be calibrated at least twice before operation, and the system be monitored during operation.

If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers, or other experts.

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.

A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

#### CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS

If the chemigation system is connected to a public water supply, the following conditions must also be met:

- Public water systems mean a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
- Chemigation systems connected to public water systems must contain a functional reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from a point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the flow outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
- The pesticide injection pipeline must 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 shutdown.

- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide 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 pesticides and capable of being fitted with a system interlock.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.
- Upon completion of insecticide application, remove scale, pesticide residues, and other foreign matter from the supply tank and entire injector system. Flush thoroughly with clean water.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

#### SPRINKLER CHEMIGATION

For continuously moving systems, the mixture containing MICROMITE 2L must be injected continuously and uniformly into the irrigation water line as the sprinkler is moving. If continuously moving irrigation equipment is used, apply in no more than 0.25 inch of water. For sprinkler systems that do not move during operation, apply in no more than 0.25 inch of irrigation immediately before the end of the irrigation cycle.

Maintain continuous agitation of the pesticide supply tank for the duration of the application period.

To apply a pesticide using sprinkler chemigation, the chemigation system must meet the following specifications:

- The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide 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 pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch, which will stop the water pump motor when the water pressure decreases to the point where pesticide 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 pesticides and capable of being fitted with a system interlock.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

#### Limitations, Restrictions, and Exceptions

##### NON-CROP AREAS

(includes field border, fence rows, roadsides, farmsteads, ditchbanks, wasteland, Conservation Reserve Program CRP Land)

- Not registered for use in New York.

NON-CROP AREA RESTRICTIONS: Do not apply more than a total of 2 fl oz of MICROMITE 2L (0.5 oz diflubenzuron ai) per acre per cutting. Do not apply more than 6 fl oz of MICROMITE 2L (1.5 oz diflubenzuron ai) per acre per calendar year. Allow at least 1 day after treatment before cutting grass. Apply only when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

##### Application Timing

- Apply MICROMITE 2L to manage these insects in their breeding areas before they move into cropland. See Grassland section for timing of application.

Apply MICROMITE 2L at 2 fl oz/acre to biofuel, biomass, or bioenergy grown grasses/forages/cellulosic crops (such as switchgrass, miscanthus sp., etc.) for control of Lepidopteran foliage feeding caterpillars (armyworms, grass looper, etc.), grasshoppers, or Mormon crickets.

Aerial application: For low/high volume application, apply in 2 to 10 gallons of water per acre. For rangeland ULV application, apply in a minimum of 12 fl oz total volume per acre.

Ground application: For low/high volume application, apply in 2 to 30 gallons of water per acre. For rangeland ULV application, apply in a minimum of 12 fl oz total volume per acre.

Regardless of application type, total spray volume used must ensure thorough coverage of the target crop. For aerial and ULV spray mixtures include an evaporation/drift retardant product at use rates prescribed on the specific product label, particularly when conditions are favorable for water evaporation (e.g., high air temperature and/or low humidity). When using oil type evaporation/drift retardant products, be sure to maintain a ratio of at least 2 parts water to 1 part oil. For low volume and ULV applications, make sure that the spray mixture in the boom contains the correct concentration of MICROMITE 2L before application begins, and be sure that good agitation is maintained throughout mixing and application. Higher listed rates and gallonages are suggested for areas with dense vegetation, when nymphs are beyond the 3rd instar stage, and when climatic conditions are favorable for grasshopper/Mormon cricket survival and increase.

Apply any time after eggs begin to hatch through early instars. MICROMITE 2L remains active on the foliage and will continue to control larvae and grasshoppers/Mormon crickets that hatch later in the season. MICROMITE 2L is not effective in controlling larvae and grasshoppers/Mormon crickets once they have reached the adult stage. Since it is an insect growth regulator, effects may not be seen until these insects have molted at least once. If adult grasshoppers/Mormon crickets from early hatching and/or overwintering species are present, tank-mix MICROMITE 2L with a registered adulticide to control later hatching species.

Check mixing compatibility and sprayability prior to transferring to the main spray tank.

Besides a fatal incomplete molting, adult grasshoppers/Mormon crickets may exhibit missing posterior legs, hernias, abdominal segments malformed, twisted antennae, hemolymph exudation, and wrinkled wings. Additionally, they may move slower, have limited jumps and unsteady landings, show a reduction in feeding, have atrophy of posterior legs or be unable to fly. Any nymph/adult possessing these symptoms is likely more susceptible to predatory insects, birds and mammals.

Method

[Broadcast/Foliar Air](#)

Broadcast/Foliar Ground

Rates

field\_rates 0

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Restricted Entry Interval

12 hours

Timings

Apply in their breeding areas before they move into cropland.