GROWTH REGULATOR—WITH SORBATRAN®
CONTROLS TOBACCO SUCKER GROWTH
GROWTH REGULATOR FOR POTATOES AND ONIONS

ACTIVE INGREDIENT: (% by weight)
maleic hydrazide, potassium salt (CAS No. 28382-15-2) .......................... 30.3%*
(1,2-dihydro-3,6-pyridazinedione, potassium salt) .......................... 69.7%
TOTAL 100.0%

*Contains 2.25 pounds of maleic hydrazide per gallon

KEEP OUT OF REACH OF CHILDREN
CAUTION

IF ON SKIN OR ON CLOTHING
- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15 to 20 minutes.
- Call a poison control center or doctor for treatment advice.

IF IN EYES
- Hold eye open and rinse slowly and gently with water for 15 to 20 minutes.
- Remove contact lens, if present, after the first 5 minutes, then continue rinsing eye.
- Call a poison control center or doctor for treatment advice.

FOR A MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL:
1-800-301-7976.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

EPA REG. NO. 400-452-34704
EPA EST. NO. 7874-NC-1
NET CONTENTS 1 GAL. (3.78 L)

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
CAUTION: Causes moderate eye injury. Harmful if absorbed through skin. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling.

Personal Protective Equipment:
Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category A on an EPA chemical-resistance category selection chart.

Applicators and other handlers must wear:
- Long-sleeved shirt and long pants;
- Chemical-resistant gloves made of any waterproof material, such as polyethylene or polyvinyl chloride;
- Shoes plus socks.

Follow manufacturer’s instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems or enclosed cabs or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS
Users should:
- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

ENVIRONMENTAL HAZARDS
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 by disposal of equipment washwaters.

DIRECTIONS FOR USE
It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read all label directions carefully before use.

Do not apply this product through any type of irrigation system.
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. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS
Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours. PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is: coveralls, chemical-resistant gloves made of any waterproof material, shoes plus socks.

DIRECTIONS FOR USE: TOBACCO
To prevent sucker development on flue-cured, burley, dark, Maryland and cigar (Pennsylvania and Wisconsin) tobacco.

GENERAL INFORMATION
This product is a potassium salt formulation of maleic hydrazide used to prevent sucker development in tobacco. Because Maleic Hydrazide High Concentrate is absorbed and moves inside the tobacco plant, spraying the whole plant is not necessary. See APPLICATION NOTES for important additional information.

APPLICATION EQUIPMENT
Best results are obtained when Maleic Hydrazide High Concentrate is applied to the upper 1/3 to ½ of the plant. To obtain satisfactory control, it is very important to apply equal amounts of Maleic Hydrazide High Concentrate to each plant, at the correct time.

Flue-Cured Tobacco
Apply Maleic Hydrazide High Concentrate with powered spray equipment. Sprayers with 3 full cone nozzles per row, applying either a coarse spray (i.e., 20 to 30 psi) or a fine spray (40 to 50 psi), will give equivalent sucker control. Do not use drop nozzles, since such systems can deposit undesired spray on the underside of the leaves or on the lowest leaves, which are harvested first.

Burley, Maryland, Dark and Cigar (Pennsylvania and Wisconsin) Tobacco
Apply Maleic Hydrazide High Concentrate with motorized field sprayers (high-clearance or tractor-mounted) equipped with solid cone nozzles that deliver a coarse spray at 20 to 30 psi in a uniform spray pattern. For example, application may be made with a broadcast arrangement over the row on 25 to 24 inch boom spacings, or with a three solid cone nozzle arrangement directed over the row. With any sprayer setup, the application must provide good, uniform coverage of the crop.

Maleic Hydrazide High Concentrate may also be applied with hand-held equipment, provided that a uniform spray pattern is delivered.

RATE AND TIMING OF APPLICATION
Apply the higher rate of Maleic Hydrazide High Concentrate when plants are very vigorous. Always remove any suckers present at topping time.
For use on Potatoes East of the Rocky Mountains

Benefits

Sprout Control
Maleic Hydrazide High Concentrate will control sprouting of potatoes in storage. However, this product will not make a poor-keeping potato such as Norgold or Norchip into a good-keeping potato.

Reduction of Volunteer Potatoes
Maleic Hydrazide High Concentrate will reduce the number of volunteer potatoes if applied during the following sprouting season because of its ability to control sprouting.

May Improve Grade
Maleic Hydrazide High Concentrate may improve the grade of potatoes, especially Russet Burbank variety, if the application is made prior to any secondary tuber formation.

Undersize Potatoes
Maleic Hydrazide High Concentrate will help reduce any additional “sets” of potatoes, thus decreasing the number of undersized potatoes in the field at harvest.

Reduces Shrinkage
Maleic Hydrazide High Concentrate applications can reduce shrinkage in storage up to 15 percent.

TIMING OF APPLICATION
Timing of application may occur as early as 2 to 3 weeks past full bloom when the primary and secondary inflorescences have lost most of their flowers and a few third order inflorescences and buds are present. This occurs when a few lower leaves show a yellow color. APPLICATION PRIOR TO THIS TIME MAY RESULT IN PHYTOTOXICITY AND REDUCED TUBER SIZE. The following tuber sizes may also be used as a guide, provided the above conditions have been met:

- Russet Burbank and other Russet (elongated) types
  - The smallest tubers that will reach the harvestable size should be 1.5 to 2 inches in diameter and elongating at the time of spraying, except for Norgold, which must be at least 2 inches in diameter at the time of spraying.
- Other varieties (round types)
  - The smallest tubers that will reach the harvestable size should be 1.5 inch in diameter at the time of spraying, except for Norchip, which must be at least 2 inches in diameter at the time of spraying.

Rate of Application

Ground Application
Use 1 to 1.33 gallon of Maleic Hydrazide High Concentrate per acre in a minimum of 30 gallons of water per acre. Use the 1.33 gallon rate when vines are robust and in areas where the vines stay green and vigorous up through the time of crop desiccation. The higher rate should also be used on varieties that sprout readily in storage (such as Norgold) or when potatoes will be stored under extended high temperatures. Do not fly at heights of less than 8 to 12 feet. Maintaining this height will give more uniform coverage and aid in preventing excessive buildup of chemical on the lower portion of the treated swath. These heights should be reduced if cross-wind velocities exceed 2 to 4 MPH.

Aerial Application
Use 1 to 1.33 gallon of Maleic Hydrazide High Concentrate per acre in a sufficient quantity of water to gain complete and uniform coverage. Use the 1.33 gallon rate when vines are robust and in areas where the vines stay green and vigorous up through the time of crop desiccation. The higher rate should also be used on varieties that sprout readily in storage (such as Norgold) or when potatoes will be stored under extended high temperatures. Do not fly at heights of less than 8 to 12 feet. Maintaining this height will give more uniform coverage and aid in preventing excessive buildup of chemical on the lower portion of the treated swath. These heights should be reduced if cross-wind velocities exceed 2 to 4 MPH.

For use on Potatoes West of the Rocky Mountains

Benefits

Sprout Control
Maleic Hydrazide High Concentrate will control sprouting of potatoes in storage. However, this product will not make a poor-keeping variety store as well as a good-keeping variety.

Reduction of Volunteer Potatoes
Maleic Hydrazide High Concentrate will reduce the number of volunteer potatoes if applied during the following sprouting season because of its ability to control sprouting.

Reduces Shrinkage
Maleic Hydrazide High Concentrate applications can reduce shrinkage in storage up to 15 percent.

May Improve Grade
Maleic Hydrazide High Concentrate may improve grade of potatoes if the application is made prior to any secondary tuber growth.

Timing of Application
Maleic Hydrazide High Concentrate should be applied when the smallest tubers that you want to harvest are 2 to 2.5 inches in diameter or about 2 to 2.5 ounces in weight. This usually occurs about 3 to 4 weeks after full bloom or 11 to 12 weeks after emergence on the Russet Burbank variety. The smallest tubers that are required to reach marketable size should be starting to elongate on Russet Burbank or similar varieties at the time of treatment. APPLICATION PRIOR TO THIS TIME MAY RESULT IN PHYTOTOXICITY AND REDUCED TUBER SIZE. If vines are to be desiccated, apply Maleic Hydrazide High Concentrate at least 2 weeks prior to vine desiccation for good sprout control and storage benefits. DO NOT APPLY TO POTATO PLANTS THAT ARE UNDER STRESS.
RATE OF APPLICATION

Ground Application
Use 1 to 1.33 gallons of Maleic Hydrazide High Concentrate per acre in a minimum of 30 gallons of water per acre. Use the 1.33 gallon rate when vines are robust and in areas where the vines stay green and vigorous up through the time of crop desiccation.

Aerial Application
Use 1 to 1.33 gallon of Maleic Hydrazide High Concentrate per acre in a minimum of 10 gallons of water per acre. Use the 1.33 gallon rate when vines are robust and in areas where the vines stay green and vigorous up through the time of crop desiccation. Do not fly at heights of less than 8 to 12 feet. Maintaining this height will give more uniform coverage and aid in preventing excessive build up of chemical on the left side of the treated swath. These heights should be reduced if cross-wind velocities exceed 2 to 4 MPH.

ONION VARIETIES
Use of Maleic Hydrazide High Concentrate should be applied when the bulbs are fully mature, have at least 5 to 8 green leaves, and necks soft enough for the tops to fall if they have not already done so. The spray is often applied when 50 percent of the tops have fallen but all tops are still green. This condition usually occurs about 10 to 14 days before harvest time. Green tops are essential for the absorption and effectiveness of this product.

NOTE: Avoid spraying edible onions too early. If spraying is done earlier than two weeks before maturity, spongy bulbs may result.

RATE OF APPLICATION

Ground Application
Use 7 pints of Maleic Hydrazide High Concentrate per acre in a minimum of 30 gallons of water per acre.

Aerial Application
Use 7 pints of Maleic Hydrazide High Concentrate per acre in a minimum of 10 gallons of water per acre. Do not fly at heights of less than 8 to 12 feet. Maintaining this height will give more uniform coverage and aid in preventing an excessive build up of chemical on the left side of the treated swath. These heights should be reduced if cross-wind velocities exceed 2 to 4 MPH.

ONION VARIETIES
Use of Maleic Hydrazide High Concentrate should be combined with selection of a good-keeping variety. Do not apply to onion varieties with poor-keeping quality. This product will not make poor-keeping varieties equal to good-keeping varieties.

SPRAY ADJUVANTS FOR ONIONS

West of the Rocky Mountains: Use a commercial non-ionic surfactant similar to X-77® or R-11® at the rate of 1 quart per 100 gallons of spray solution in and sections of the U.S. Such products may help provide better coverage and aid in translocation of Maleic Hydrazide High Concentrate. The commercial surfactant must be cleared for application to growing crops.

East of the Rocky Mountains: Use of surfactants is not normally recommended.

APPLICATION NOTES: POTATOES AND ONIONS

1. Always follow dosage recommendations carefully and spray field uniformly. Uniform and complete coverage is essential for satisfactory results.

2. Uneven application may result in bud end cracking and/or ‘elephant hide’ on potato tubers.

3. To obtain desired results, plants should not be stressed from either too little or excessive water before or after application.

4. Do not use on potato plants grown for seed production.

5. Use only one application of Maleic Hydrazide High Concentrate per year.

6. Spray potatoes or onions at least 24 hours before applying overhead irrigation. Rain or overhead irrigation occurring within 24 hours after application may reduce effectiveness.

7. At least a 2-week interval should be allowed between a Maleic Hydrazide High Concentrate application to potatoes and the use of a vine desiccant.

8. Although this product is non-volatile, no drift should be permitted onto near by crops. Particular care should be taken to prevent drift when aerial applications are being made.

9. SURFACE WATER ADVISORY: Under some conditions, maleic hydrazide may have a significant potential for runoff into surface water (primarily via dissolution in runoff water), for several days post-application. Conditions favoring runoff include poorly draining soils or wet soils with readily visible slopes, frequently flooded areas, areas where an intense or sustained rainfall forecast to occur within 48 hours, areas overlying extremely shallow ground water, and areas overlying tile drainage systems that flow to surface water.

10. TEMPERATURE: This product should be applied at temperatures below 85°F or at temperatures below 60°F if the temperature is expected to exceed 85°F later that day. This product is water soluble and under high temperature and low humidity conditions it will crystallize on the leaf surface and will not be readily absorbed into the plant.

STORAGE AND DISPOSAL

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

STORAGE: Store in original container only. After partial use, replace lid and close tightly. Store in a secure place that is temperate, dry, and out of direct sunlight. Store this product at temperatures above 32°F; storage above 40°F is preferred. The active ingredient in this product will separate from the surfactant at temperatures above 134°F. If containers have been exposed to high temperatures, the contents can be remedied by lowering the temperature of the entire formulation below 134°F and applying agitation. ALWAYS SHAKE OR STIR WELL BEFORE USE.

PESTICIDE DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture or rinseate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL: Plastic Containers: Triple rinse (or equivalent). Pressure rinse is preferred. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

EQUIPMENT CLEANING: This product is not corrosive to spray equipment. Following applications, all spray equipment should be thoroughly rinsed with water. Do not contaminate water by disposal of equipment washwaters.

Minibulk Containers: Return empty containers for reuse.

WARRANTY DISCLAIMER AND NOTICE

THE DIRECTION FOR USE OF THIS PRODUCT ARE BELIEVED TO BE ADEQUATE AND SHOULD BE FOLLOWED CAREFULLY. IT IS IMPOSSIBLE TO ELIMINATE ALL RISKS INHERENTLY ASSOCIATED WITH THE USE OF THIS PRODUCT. CROP INJURY, INEFFECTIVENESS, OR OTHER UNINTENDED CONSEQUENCES MAY RESULT DUE TO SUCH FACTORS AS WEATHER CONDITIONS, PRESENCE OR ABSENCE OF OTHER MATERIALS, OR THE MANNER OF USE OR APPLICATION, ALL OF WHICH ARE BEYOND THE CONTROL OF LOVELAND PRODUCTS, INC., THE MANUFACTURER OR SELLER.

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@X-77 is a registered trademark of Loveland Industries, Inc.
@R-11 is a registered trademark of Wilbur-Ellis Company

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