

ROYAL MH-30 XTRA[®]

A plant growth regulator containing maleic hydrazide to control sprouting and shrinkage in storage (potatoes and onions), and to improve grade and reduce undersized tubers.

SOLUTION

COMMERCIAL

GUARANTEE: Maleic hydrazide (present as potassium salt)..... 22.7%

REGISTRATION NO. 29607
PEST CONTROL PRODUCTS ACT

WARNING – EYE IRRITANT

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

NET CONTENTS 2 x 10 L

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INTRODUCTION:

ROYAL MH-30 XTRA is a plant growth regulator. When applied to healthy growing plants the active ingredient, maleic hydrazide, is absorbed by the plant and will affect plant growth by stopping cell division, but not cell expansion. Through such action, ROYAL MH-30 XTRA effectively controls sprout development in potatoes and onions. When used on potatoes grown under proper growing conditions it will improve grade and reduce the number of undersized tubers.

The effect of ROYAL MH-30 XTRA is, however, temporary and the length of growth control obtained will be a function of rate, accuracy of application and crop conditions before, during and following time of application.

Optimal results can only be obtained when ROYAL MH-30 XTRA is applied to healthy plants which are free from damage from insects or disease and other forms of stress. These other forms of stress include items such as weeds, extremes (either high or low) of temperature, moisture, light intensity, or soil fertility either during the growing season and/or at the time of application.

Applications of ROYAL MH-30 XTRA to plants experiencing any such stress conditions may lead to a lack of efficacy and/or accentuate the symptoms of these conditions in the plant.

Uniform and complete coverage is essential for satisfactory results. Although ROYAL MH-30 XTRA is best applied via ground equipment, there may be times when it is necessary to apply through aerial application, for instance, when the potato vines have grown across the rows. **Aerial application may result in reduced performance.**

All users are reminded of the necessity of reading the complete label carefully before using ROYAL MH-30 XTRA and of taking particular note of the sections entitled USE PRECAUTIONS and USE RESTRICTIONS.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's website at www.croplife.ca.

DIRECTIONS FOR USE:

MIXING INSTRUCTIONS:

1. Be sure sprayer is clean and not contaminated with any material.
2. Fill tank 3/4 full with clean water and start agitation.
3. Pour ROYAL MH-30 XTRA slowly from jug into tank.
4. Allow 2-3 minutes agitation for complete dispersion.
5. Complete filling tank.
6. NOTE: ROYAL MH-30 XTRA already contains a surfactant; hence the addition of further wetting agents or commercial spray adjuvants is not recommended.

USE PRECAUTIONS:

- KEEP OUT OF REACH OF CHILDREN.
- Causes eye irritation. DO NOT get in eyes.
- **DO NOT** enter or allow worker entry into treated areas for 12 hours following application.
- Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.
- Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/hr at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

PERSONAL PROTECTIVE EQUIPMENT:

- Wear a long-sleeved shirt, long pants, shoes and socks during mixing, loading, application, cleanup and repair, for all methods of application. In addition, wear chemical-resistant gloves during mixing/loading and when applying by hand-held equipment.
- Wear a dust mask during mixing/loading activities.

BUFFER ZONES:

Use of the following spray methods or equipment **DO NOT** require a buffer zone:
Hand-held or backpack sprayer and spot treatment

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerowns, riparian areas and shrublands).

Method of Application	Crop		Buffer Zones (metres) Required for the Protection of Terrestrial Habitat
Field Sprayer	Potato, onion (sprout inhibition)		1
Aerial (potatoes only)	Potato	Fixed or rotary wing	20

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

POTATOES

ROYAL MH-30 XTRA is a valuable component of a comprehensive potato program which has, as its main objective, the production and maintenance of quality potatoes both in the field and during the storage period.

SPROUT CONTROL: A single field treatment of ROYAL MH-30 XTRA will control sprout development in storage by prolonging the naturally-occurring dormant state of the potato.

ROYAL MH-30 XTRA will control sprout development in all potato varieties, however the length of control obtained in a given season will be a function of several factors including variety, growing conditions, application accuracy, length of storage period and conditions during the storage period. ROYAL MH-30 XTRA will not make a poor-keeping potato into a good-keeping potato. For example, varieties that break dormancy rapidly (such as Norchip) will sprout sooner than varieties such as Russet Burbank, which characteristically hold for a longer period of time. While ROYAL MH-30 XTRA can be effectively used on Norchips, growers should not expect this variety to hold as well as treated Russet Burbanks.

ADDITIONAL BENEFITS: In addition to sprout control, ROYAL MH-30 XTRA can help reduce storage losses and improve potato quality through a number of additional effects on the potato. Both the extent and number of these benefits obtained will depend on several factors such as variety and local growing conditions. These additional benefits will not always be achieved, therefore a grower should concentrate on obtaining good sprout control with ROYAL MH-30 XTRA, accepting these others as add -on bonuses when they are realized.

MAY IMPROVE GRADE: May improve grade by reducing roughness of potatoes, especially Russet Burbanks, if application is made prior to any secondary tuber formation.

REDUCES NUMBER OF UNDERSIZED POTATOES:

Timely applications of ROYAL MH-30 XTRA can substantially reduce the number of undersize potatoes left in the field at harvest, by helping eliminate late season 'sets' of potatoes.

REDUCTION OF VOLUNTEER POTATOES: ROYAL MH-30 XTRA application can reduce the number of volunteer potatoes the following spring by reducing the number of late season sets left in the field.

REDUCES SHRINKAGE: With ROYAL MH-30 XTRA inside the tuber, potatoes do not respond as readily to external stimuli. As a result, potato respiration rates do not accelerate as quickly in storage, hence shrinkage can be reduced by up to 15 percent.

RATE: Apply ROYAL MH-30 XTRA at a rate of 12.6 L, in a minimum of 300 litres of water, per hectare by ground equipment or a minimum of 100 litres, per hectare by aerial equipment. **Aerial application may result in reduced performance.**

TIMING: Apply ROYAL MH-30 XTRA when the smallest tubers that will reach harvestable size are at least 5 cm in diameter. The timing of application may occur within the period between two - three weeks past full bloom and two weeks before expected date of topkill or first frost. Apply no later than 10 days before topkill.

Once ROYAL MH-30 XTRA is translocated down to the potato tuber, further growth will be limited. Therefore, the majority of tubers must be at least 5 cm in diameter if they are to reach a minimum size of 110-170 grams at harvest.

Under conditions where secondary tuber sets are common, the grower may choose to delay application until these smaller tubers have also sized. Care must be exercised that application is not delayed too long so that the interval between ROYAL MH-30 XTRA application and the use of a vine killer or occurrence of frost is less than 2 weeks.

POTATO PRECAUTIONS:

1. Do not apply ROYAL MH-30 XTRA to potatoes to be used for seed purposes.
2. Uneven or excessive application may result in reduced efficacy and physical disorders such as bud end cracking and/or elephant hide on potatoes tubers.
3. The use of ROYAL MH-30 XTRA on potatoes must be combined with management practices, both in the field and in storage, conducive to the production of quality potatoes. Less than optimal conditions, either in the field or during storage, may overcome the effect of ROYAL MH-30 XTRA and cause sprouting to occur earlier than desired.
4. Do not apply ROYAL MH-30 XTRA after the upper leaves have turned from dark green to a light green or yellow colour as insufficient material will be absorbed and translocated from the leaves to the tubers - thus giving unsatisfactory sprout control.
5. Do not apply too early. Applications made prior to proper sizing of tubers can reduce yields and result in plant injury.
6. Use only one application of ROYAL MH-30 XTRA per year.
7. See 'USE RESTRICTIONS' for further precautions.
8. Warning: May cause sunburn in larger tuber varieties such as Shepody.

ONIONS

The use of ROYAL MH-30 XTRA for sprout control in onions should be combined with the selection of management practices both in the field and in storage, conducive to the production of quality onions. Length of control obtained will vary with field and storage conditions. The better these conditions, the better the results obtained. ROYAL MH-30 XTRA will not make poor-keeping varieties equal to good-keeping varieties.

RATE: Apply ROYAL MH-30 XTRA at a rate of 8.36 L in a minimum of 300 litres of water per hectare by ground equipment only. DO NOT APPLY BY AIR.

TIMING: ROYAL MH-30 XTRA should be applied when the bulbs are fully mature, have at least 5 - 8 green leaves, and have necks soft enough for the tops to fall over 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 days to two weeks before harvest time. Green tops are essential for the absorption of ROYAL MH-30 XTRA. Apply no later than 10 days before harvest.

ONION PRECAUTIONS:

1. Avoid spraying onions too early. Spongy hollow necked bulbs may result if spraying is done earlier than two weeks before maturity.
2. Apply to healthy plants. If tops fall irregularly due to thrips or blight damage, spraying with ROYAL MH-30 XTRA may give unsatisfactory results.

3. Apply to healthy plants. Do not apply to fields badly infested with weeds, insects, or disease as absorption and translocation may not occur, and results will be less than optimal.
4. Use only one application of ROYAL MH-30 XTRA per year.
5. See 'USE RESTRICTIONS' for further precautions.

USE RESTRICTIONS

1. Do not apply to crops being grown for seed.
2. Do not graze the treated crops or cut for hay; sufficient data are not available to support such use.
3. Even though ROYAL MH-30 XTRA is non-volatile, care should be taken during application to prevent drift onto nearby crops. Do not spray when wind velocity exceeds 15 km/hour.
4. Best results are obtained when ROYAL MH-30 XTRA is applied under slow drying conditions, (i.e. during early morning hours or all day on cloudy days.)
5. ROYAL MH-30 XTRA is water-soluble and under high temperatures and low humidity conditions will crystallize on the leaf surface and not be absorbed into the plant. Do not apply if daily temperatures are expected to exceed 30°C.
6. Apply at least 24 hours before or after rain or applying overhead irrigation. Rain or overhead irrigation occurring within 24 hours will reduce effectiveness by affecting absorption into the plant. For optimum uptake, plants should not be under water stress (either too much or too little) before or after application of ROYAL MH-30 XTRA.
7. Equipment must be set up and calibrated to ensure an even uniform spray pattern is delivered to the target crop.

ENVIRONMENTAL HAZARDS:

- TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.
- Do not contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
- To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted or fine textured such as clay).
- Avoid application of this product when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

FIRST AID:

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

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

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

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION: Treat symptomatically.

STORAGE AND DISPOSAL:

STORAGE: Store product in original container only away from other pesticides, fertilizer, food or feed. Keep container closed.

DISPOSAL:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instruction for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.
5. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offense under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product

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