



## **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 slowly from bag into tank. Avoid dumping all contents at once.
4. Allow 2-3 minutes agitation for dissolving.
5. Add registered tank-mix if required.
6. Complete filling tank.
7. NOTE: ROYAL MH already contains a surfactant, hence the addition of further wetting agents or commercial spray adjuvants is not recommended.

### **INTRODUCTION:**

ROYAL MH 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 effectively controls sprout development in potatoes and onions under proper conditions and will limit the growth of grasses, trees and shrubs, when applied according to label directions.

The effect of ROYAL MH 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 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 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.

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

### **POTATOES**

ROYAL MH 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 will control sprout development in storage by prolonging the naturally-occurring dormant state of the potato.

ROYAL MH 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

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 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 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, 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 can substantially reduce the number of undersize potatoes left in the field by harvest, by helping eliminate late season 'sets' of potatoes.

**REDUCTION OF VOLUNTEER POTATOES:** ROYAL MH 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 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 60SG at a rate of 5.65 kg, in a minimum of 300 litres of water, per hectare by ground equipment or a minimum of 100 litres, per hectare by aerial equipment. One 11.3 kg package will treat 2 hectares.

**TIMING:** Apply ROYAL MH to potatoes within the period between two - three weeks past full bloom and two weeks before expected date of topkill or first frost. When precisely the application is made, within this period, will be a management decision the grower must make based largely on tuber size and intended use for the crop.

Once ROYAL MH is translocated down to the potato tuber, further growth will be limited. Therefore, the majority of tubers must be at least 4-5 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 application and the use of a vine killer or occurrence of frost is less than 2 weeks.

**CAUTIONS:**

1. Do not apply ROYAL MH 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 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 and cause sprouting to occur earlier than desired.
4. Do not apply ROYAL MH 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. See 'USE RESTRICTIONS' for further precautions.

**ONIONS**

The use of ROYAL MH 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 will not make poor-keeping varieties equal to good-keeping varieties.

**RATE:** Apply ROYAL MH 60SG at a rate of 3.75 kg in a minimum of 300 litres of water per hectare by ground equipment or a minimum of 100 litres per hectare by aerial equipment. One 11.3 kg package treats three hectares.

**TIMING:** ROYAL MH should be applied when the bulbs are fully mature, have at least 5 - 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 days to two weeks before harvest time. Green tops are essential for the absorption of ROYAL MH.

**CAUTIONS:**

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 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. See 'USE RESTRICTIONS' for further precautions.

## **GRASS GROWTH CONTROL:**

ROYAL MH can be used to reduce mechanical mowing of various turf locations such as hard to mow areas along highways, airport property, industrial areas, golf course roughs and similar areas.

It can be used on all turf areas except:

1. On fine lawns where aesthetic appearance is more important than reducing a maintenance chore, and
2. Those areas under heavy foot traffic (such as golf course fairways and greens) where regrowth is needed to overcome physical injury to the grass.

A treatment of ROYAL MH will inhibit seed head formation, and will slow down leaf growth. If the application is timed, properly, no significant growth will occur for several weeks after treatment. As the effect gradually 'wears off' the turf may grow to 15-30 cm in height by the end of the growing season. One or more mechanical mowings may be required if grass height must be kept under 15 cm.

**TIMING:** One application per year, either in the spring or fall, should be used.

**SPRING:** The two week period in the spring when the grass has first grown 5-10 cm is ideal for applying ROYAL MH. This is normally the period when dandelion and forsythia are in full bloom. This application will curtail the normal spring flush of growth and eliminate to the need to mow for several weeks. If time or weather does not permit early application, and grass is 15 cm or higher, the product should be applied and the area mowed about 7 days later. This procedure helps to prevent 'stretching' of the seed head in the treated area. Under no conditions should grass be mown to a height of less than 7.5 cm. If mowed below this level a scalped appearance of the retarded grass may occur.

**FALL:** ROYAL MH may also be applied late in the growing season to reduce grass growth the following spring. Treatment should be made while grass is still green but not dormant (usually during October). An additional benefit of the fall treatment is control the following spring of wild onion, garlic and biennial weed such as dandelion and plantain, Since grass growth is inhibited the following spring, the area will 'green-up' about two weeks later than untreated turf.

**RATE:** Apply 6.5 - 8.0 kg of ROYAL MH 60SG in 400 litres of water per hectare. Use higher rates in fall treatments and in very rough and hard to mow areas in the spring.

**USE OF 2,4-D:** 2,4-D should be used with ROYAL MH 60SG in most spring applications. A low volatile ester or amine salt formulation is compatible with ROYAL MH. Read "MIXING INSTRUCTIONS" and follow dosage and precautionary information on the 2,4-D label. For weeds that have not emerged at time of ROYAL MH application, a separate later spray of 2,4D is recommended.

### **CAUTIONS:**

1. Apply only to green vigorous grass, free of disease and insect damage.
2. Do not use if turf is wilted, or during periods of extended drought as absorption will be poor and results will be unsatisfactory.
3. Do not apply during the summer months as most permanent grasses become partially dormant during this period.
4. All turf areas to be treated should contain well established perennial grasses at least three years old.

5. If a healthy clipped appearance is required, the ROYAL MH application should be supplemented by mowing, as even treated turf will eventually resume growth as the effect of ROYAL MH gradually 'wears off'.
6. Spraying on relatively calm days (wind velocity under 15 km/h) with equipment that will apply the product uniformly is essential for best results.
7. Turf to be treated must be free of leaf cover, clippings, or other debris which will prevent direct contact of the spray with the grass.
8. Do not treat pastures or pasture livestock in, or cut hay from, treated areas.
9. Do not use on home lawns except along edges.
10. At recommended application rates ROYAL MH should not normally affect the color of grass. However, under certain conditions of optimal absorption, color modification for a period of several weeks may be encountered. At times treated grass may appear a greener color than untreated.
11. See 'USE RESTRICTIONS' for further precautions.

## **TREE AND SHRUB GROWTH CONTROL:**

ROYAL MH can be used to suppress excessive vegetative growth and reduce the need to mechanically prune or shear tree and/or shrubs.

**RATE:** Apply 9.25 kg of ROYAL MH 60SG in 1000 litres of water. Spray this concentration to wet all surfaces of leaves and bark to the point of drip (not run-off). Direct spray pattern towards area where growth inhibition is desired. For example, apply to the upper half of the tree if the top terminal growth is to be inhibited and growth will continue in the unsprayed sections.

**TIMING:** ROYAL MH should be used only once a year either in the spring or early summer. The spring treatment should be applied to green, vigorous, new growth. New leaves should be fully expanded. For a summer application, plants should first be pruned to the desired shape. At least 5-10 cm of regrowth should then occur before treatment is applied to hide fresh cut ends of limbs and stems and prevent a barren appearance of the treated plant.

### **TREE SPECIES TREATED:**

Sycamore, willow alder, poplar, oak, mulberry, black walnut, maple, sweet gum, elm, and tamarack.

### **SHRUB SPECIES TREATED:**

Privet, pyracantha, myrtus, xylostea, viburnum, eugenia, pittosporium, cissus, Hahns ivy, Algerian Ivy, honeysuckle, forsythia and ice plant.

### **CAUTIONS:**

1. Do not spray trees or shrubs when wind velocity exceeds 15 km/hour.
2. Tree and shrub growth control is best when ROYAL MH is applied to vigorous new growth.
3. To be effective it is essential that ROYAL MH be applied uniformly to the treated area.
4. See 'USE RESTRICTIONS' for further precautions.

## USE RESTRICTIONS

1. Do not apply to crops being grown for seed.
2. Even though ROYAL MH 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.
3. Best results are obtained when ROYAL MH is applied under slow drying conditions, (i.e. during early morning hours or all day on cloudy days.)
4. ROYAL MH 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 it daily temperatures are expected to exceed 30°.
5. 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.
6. Equipment must be set up and calibrated to ensure an even uniform spray pattern is delivered to the target crop.
7. **AERIAL APPLICATION:** Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *Basic Knowledge Requirements for Pesticide Education in Canada: Applicator Core and Aerial Module*, developed by CAPCO.  
Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.  
Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

## SAFETY PRECAUTION:

May cause eye irritation.

KEEP OUT OF REACH OF CHILDREN.

CAUTION: Do not graze the treated crops or cut for hay; sufficient data are not available to support such use.

## 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.

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

## **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.

**NOTICETO 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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