

2019-0300
2019-05-22

GROUP	3	INSECTICIDE
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MAKO™ INSECTICIDE

Emulsifiable concentrate containing Cypermethrin for insect control

ACTIVE INGREDIENT Cypermethrin 407 grams per litre

REGISTRATION NO. 30316 PEST CONTROL PRODUCTS ACT



CAUTION

POISON

READ THE LABEL AND PAMPHLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

***IN CASE OF EMERGENCY INVOLVING A POISONING OR MAJOR SPILL, CALL
1-866-336-2983***

NET CONTENTS: 1 Litre

Belchim Crop Protection Canada Inc.
104 Cooper Drive, Unit 3
Guelph ON N1C 0A4
1-866-613-3336

MAKO™ is a trademark of Belchim Crop Protection Canada Inc.

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN. Harmful or fatal if swallowed. Maybe harmful if absorbed through the skin. Severely irritating to eyes. Causes skin irritation and sensitization. Avoid contact with eyes, skin and clothing. Avoid breathing spray mist. Wear long-sleeved shirt, long pants, chemical-resistant gloves, socks, and shoes during mixing, loading, application, cleanup and repair. In addition, wear goggles or face shield during mixing and loading. Gloves are not required during application within a closed cab. Wash thoroughly after using and before eating or smoking.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

Keep in original container during storage. Do not contaminate or store near feed or foodstuffs. Keep product away from fire, open flame, lighted electric bulbs and other sources of heat.

This product contains a petroleum distillate which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning equipment.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

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 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 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

The treatment of systemic intoxication should be primarily symptomatic and supportive. In cases of ingestion, carry out gastric lavage with care to prevent aspiration. Skin exposure may cause transient sensations (tingling, burning, itching, numbness). Treat symptomatically.

ENVIRONMENTAL HAZARDS

Toxic to aquatic organisms. Observe buffer zones and vegetative filter strips specified under DIRECTIONS FOR USE.

TOXIC to bees. Bees may be exposed through direct spray, spray drift, and residues on leaves, pollen and nectar in flowering crops and weeds. Minimize spray drift to reduce harmful effects on bees in habitats close to the application site. Avoid applications when bees are foraging in the treatment area in ground cover containing blooming weeds. To further minimize exposure to pollinators, refer to the complete guidance “Protecting Pollinators during Pesticide Spraying – Best Management Practices” on Canada.ca (www.canada.ca/pollinators). Follow crop specific directions for application timing.

For applications on crops that are highly attractive to pollinators [canola, rapeseed, sunflowers, apples, peaches, nectarines, pears, evening primrose, CG12-09A cherries, CG13-07B bushberries, 13-07A - caneberries, low growing berries, excluding grape and strawberry] or when using managed bees for pollination services: DO NOT apply during the crop blooming period.

For applications on all other pollinator attractive crops [strawberry, grape, corn, potato, tobacco, tomato, summer fallow, roadsides, headlands]: Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to evening when most bees are not foraging. Toxic to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application site such as hedgerows and woodland.

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

To reduce risk to aquatic organisms from runoff, a vegetative filter strip of at least 10 metres wide between the field edge and adjacent, downhill aquatic habitats must be observed, as specified under DIRECTIONS FOR USE.

DISPOSAL

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements. 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

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Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

Keep in original container during storage. Do not contaminate or store near feed or foodstuffs. Keep product away from fire, open flame, lighted electric bulbs and other sources of heat.

This product contains a petroleum distillate which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning equipment.

CAUTION: Unless otherwise stated, do **not** graze the treated crops or cut for hay; there are not sufficient data to support such use.

TOXIC TO FISH. Do not apply where streams, lakes, ponds, water used by livestock, or water used for domestic purposes may be contaminated. Do not apply within 15 metres of productive fishery waters. An untreated border of 15 metres for ground applications and 100 metres for aerial applications, must always be left around environmentally sensitive areas such as sloughs, streams, rivers, dugouts and wetlands. MAKO Insecticide is very toxic to aquatic organisms and fish, and overspray or drift into these areas must be avoided. Toxic to bees and other beneficial insects. Avoid spraying when bees are foraging.

AERIAL APPLICATION

Directions for Use

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Use Precautions

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 National Aerial Pesticide Application Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

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 shelterbelt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call Belchium Crop Protection Canada Inc. at 1-866-613-3336 or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

Volume: Apply the recommended rate in a minimum spray volume of 11 - 22 litres of water per hectare.

For aerial application, an untreated border of 100 m must always be left around environmentally sensitive areas such as sloughs, streams, rivers, dugouts and wetlands. Spray only when winds are less than 8 km per hour. Use spray nozzle tips and spray pressure which provide small droplets. If the 100 m buffer zone cannot be maintained, then ground application must be followed and the 15 m setback observed.

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ENVIRONMENTAL HAZARDS

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For applications on all other pollinator attractive crops [strawberry, grape, corn, potato, tobacco, tomato, summer fallow, roadsides, headlands]: Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to

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Avoid application when heavy rain is forecast.

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INTRODUCTION

MAKO Insecticide is a highly active synthetic pyrethroid insecticide with low mammalian toxicity. It works by contact and stomach action. It is recommended for the control of many insects which attack fruit, vegetables, field crops and tobacco.

Crop Rotation: Rotational crops may not be planted within 30 days after the last application, except crops on which cypermethrin is registered (listed on this label). A 30-day plant-back interval must be observed for all unlabelled crops.

Except grape (as listed on this label), observe the restricted entry interval of 12 hours for all activities for all crops.

FIELD CROPS

DIRECTIONS FOR USE

For control of grasshoppers and flea beetles use a minimum of 110 litres of water per hectare. Use a spray pressure of 250 - 300 kPa.

CROP	INSECT	DOSAGE	USE INSTRUCTIONS
Wheat Barley Summer Fallow Roadsides Headlands	Grasshoppers	50 - 70 mL/ha (one litre bottle treats 14.3 to 20 hectares) Use the lower rates for small grasshoppers (5 mm long) and when soil temperatures are cool (15° - 20°C)	<u>GROUND APPLICATION ONLY</u> Apply when insects or signs of insect damage first appear. Repeat treatment as necessary. Use the higher rate for older insects or severe infestations.
Toxic to bees. Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to evening when most bees are not foraging. When using managed bees for pollination services, DO NOT apply during the crop blooming period. Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.			
Canola	Grasshoppers	50 - 70 mL/ha (one litre bottle treats 14.3 to 20 hectares) Use the lower rates for small grasshoppers (5 mm long) and when soil temperatures are cool (15° - 20°C)	
Toxic to bees. DO NOT apply during the crop blooming period. Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.			
Research clearly indicates that MAKO Insecticide activity is inversely temperature dependent. Activity on grasshoppers is reduced as soil temperatures increase. Leave a 15 m buffer zone between sprayed area and any body of water.			
<u>Grasshoppers</u>			
Apply during early stage of insect development - up to the fourth instar (approximately 15 mm and			

before wing development).

Temperature

Avoid spraying when temperatures are above 25°C. Above 25°C delay spraying until evening.

Critical temperatures often occur on light, sandy loam soils after June 10th and on heavy clay loam soils after June 15th.

If these high temperatures continue for 2-4 days, the use of MAKO Insecticide for grasshopper control should be discontinued.

Note: The above label directions are for grasshoppers only. No other insects have been identified that show this inverse temperature dependency.

Allow 30 days between the last treatment and harvest for wheat. Allow 45 days for barley.

Allow 30 days for rapeseed.

CROP	INSECT	DOSAGE	USE INSTRUCTIONS
Canola	Flea Beetles	50 mL/ha (one litre bottle treats 20 hectares)	<u>GROUND APPLICATION ONLY</u> Apply when insects or signs of insect feeding first appear. Repeat treatment as necessary. Use a minimum of 110 L of water per hectare.
Toxic to bees. DO NOT apply during the crop blooming period. Allow 30 days between the last treatment and harvest. Leave a 15 m buffer zone between sprayed area and any body of water. Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.			
Canola	Bertha Armyworm	70 mL/ha for <u>ground</u> use (one litre bottle treats 14.3 hectares) 90 mL/ha for <u>aerial</u> use	<u>GROUND OR AERIAL APPLICATION</u> Apply when insects or signs of insect feeding first appear or follow provincial authority's recommendations. For <u>ground</u> equipment use a minimum of 110 litres of water per hectare. Repeat treatment if needed. For <u>aerial</u> application, use a minimum of 11-22 L of water/ha. One aerial application per year. Follow "Special Instructions for Aerial Use" maintaining a 100 m setback.
Toxic to bees. DO NOT apply during the crop blooming period. Allow 30 days between the last treatment and harvest. Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.			
Sunflowers	Sunflower Beetle Sunflower Seed Weevil	70 mL/ha (one litre bottle treats 14.3 hectares)	<u>GROUND OR AERIAL APPLICATION</u> Apply when insects or signs of insect feeding first appear. For <u>ground</u> equipment use a minimum of 110 litres of water per hectare. A second treatment may be required after 5 days. For <u>aerial</u> application use a minimum of 11-22 L of water per ha. One aerial application per season. Follow "Special Instructions for Aerial Use" maintaining a 100 m setback.
Toxic to bees. DO NOT apply during the crop blooming period. Allow 70 days between the last treatment and harvest. Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.			

Crop	Spray Volume (Litres/ha)	Maximum Number of Applications	Minimum Interval between Applications (days)
Wheat	110	3	7
Barley	100	3	7

Summer fallow, headlands	110	3	7
Roadsides	110	3	7
Canola	100-500	3	7
Sunflower	100-120	2	5

VEGETABLE CROPS

DIRECTIONS FOR USE

CROP	INSECT	DOSAGE	USE INSTRUCTIONS
Corn	Corn borer Corn Earworm	175 mL/ha (one litre bottle treats 5.7 hectares)	<p><u>GROUND APPLICATION</u> For control of corn borer, apply when egg masses begin to hatch but no later than when first feeding is seen on foliage. For second brood borers in late planting, apply before tassels show. For control of corn earworm, spray directly to ensure good coverage of ears and silks. Use 300-500 L water per hectare. Consult provincial recommendations for timing and number of repeat applications. Maximum 3 ground applications per year.</p> <p><u>AERIAL APPLICATION</u> Apply twice per season by air if required using a minimum of 11 - 22 L of water/ha. Follow "Special Instructions for Aerial Use". Observe 100 m setback.</p>
<p>Toxic to bees. Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to evening when most bees are not foraging. When using managed bees for pollination services, DO NOT apply during the crop blooming period. Allow 5 days between the last treatment and harvest. Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours .</p>			
Asparagus	Asparagus Beetle	86 mL/ha	<p><u>GROUND APPLICATION ONLY</u> Apply MAKO Insecticide to spears and ferns when insects are first observed. Repeat as required.</p>
<p>Allow 1 day between the last treatment and harvest. Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours .</p>			
Celery	Potato Leafhopper	86 mL/ha	<p><u>GROUND APPLICATION ONLY</u> Apply MAKO Insecticide in 500 L of water per hectare when insects are first noticed. Repeat as required up to 3 applications per season.</p>
<p>Allow 7 days between the last treatment and harvest. Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours .</p>			

CROP	INSECT	DOSAGE	USE INSTRUCTIONS
Cole Crops (such as cabbage, cauliflower, broccoli and Brussels sprouts)	Imported Cabbage Worm Cabbage Looper Diamond-back Moth Larvae Flea Beetles Thrips	87.5 - 125 mL/ha (one litre bottle treats 8 to 11.4 hectares)	<u>GROUND APPLICATION ONLY</u> Begin treatment when insects or signs of insect feeding appear. Repeat every 10 - 14 days if necessary, up to 3 applications per season. For caterpillars, use the high rate if larvae are large (greater than 2 cm). Use 300 - 500 L of water per hectare. DO NOT use on muck soils.
Allow 3 days between the last treatment and harvest. Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours .			
Carrot	Carrot Rust Fly	175 mL/ha	<u>GROUND APPLICATION ONLY</u> For control of carrot rust fly, apply 175 mL of product per hectare in 550 L of water when insect monitoring indicates that the treatment threshold is exceeded or at the recommendation of local agricultural authorities based on insect monitoring. Do not apply more than 3 times per season.
Allow 35 days between the last treatment and harvest. Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.			
Lettuce	Aster Leafhopper	125 mL/ha	For control of aster leafhopper (a vector for aster yellows virus), apply up to 4 applications of MAKO Insecticide at 7 - 14 day intervals, beginning when damage or insects are first noticed.
Allow 14 days between the last treatment and harvest. NOT FOR GREENHOUSE USE. Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.			
Onions Windrow onions	Onion Maggot Flies Thrips	175 mL/ha (one litre bottle treats 5.7 hectares)	<u>GROUND APPLICATION ONLY</u> For control of flies after a granule material has been used. Apply MAKO Insecticide every 7 to 10 days as necessary, up to 3 applications per season. Use a minimum of 110 L of water per hectare. Certain regions have provincial monitoring programs to assist growers in timing applications. For Thrips – Apply at 10-day intervals as advised by local agricultural authorities, up to 3 applications per season.
Allow 3 days between the last treatment and harvest. (Removal from field). Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.			

CROP	INSECT	DOSAGE	USE INSTRUCTIONS
Potatoes	Colorado Potato Beetle Flea Beetles Leafhoppers Tarnished Plant Bug	62.5 - 125 mL/ha (one litre bottle treats 8 to 16 hectares) 125 mL/ha (one litre bottle treats 8 hectares)	<u>GROUND APPLICATION</u> Apply when insects or signs of insect feeding appear. Repeat at 10 -12 day intervals if needed. Use the high rate for severe infestations and for control of tarnished plant bug. Use 300 - 500 L of water per hectare. <u>AERIAL APPLICATION</u> Apply twice per season by air if required, using a minimum of 11- 22 L of water/ha. Follow "Special Instructions for Aerial Use". Observe 100 m setback between treated crop and any body of water.
Toxic to bees. Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to evening when most bees are not foraging. When using managed bees for pollination services, DO NOT apply during the crop blooming period. Allow 7 days between the last treatment and harvest. Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.			
Rutabagas and Turnips	Crucifer Flea Beetle	123 mL/ha (one litre bottle treats 8 hectares)	<u>GROUND APPLICATION ONLY</u> Apply when insects appear. Repeat as required.
Allow 21 days between the last treatment and harvest. Roots and tops may be fed to lactating dairy animals after the spray/harvest interval.			

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS. The DIRECTIONS FOR USE for this product for the use below were developed by persons other than Belchim Crop Protection Canada Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Belchim Crop Protection Canada Inc. itself makes no representation or warranty with respect to performance (efficacy) or crop tolerance (phytotoxicity) claims for this product when used on the crops listed below. Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Belchim Crop Protection Canada Inc. harmless from any claims based on efficacy or phytotoxicity in connection with the uses described below.			
Rutabagas and Turnips (British Columbia Only)	Cabbage Root Maggot Flies (<i>Delia radicum</i>) Suppression only	123 mL/ha (one litre bottle treats 8 hectares)	<u>GROUND APPLICATION ONLY</u> Timing of applications should be based on the presence of adult (flies) as determined by local monitoring (yellow sticky traps). This use should only be used in conjunction with an active integrated pest management program supported by the Provincial Specialists in British

CROP	INSECT	DOSAGE	USE INSTRUCTIONS
			Columbia.
<p>Apply every 7 to 10 days as necessary up to 4 applications per crop per year.</p> <p>Use sufficient water for thorough coverage, 100 to 550 L/ha by ground sprayer is recommended.</p> <p>Allow 21 days between the last treatment and harvest. Roots and tops may be fed to lactating dairy animals after the spray/harvest interval.</p> <p>Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours</p>			

Tomatoes	Colorado Potato Beetle Potato Flea Beetle Potato Leaf Hopper	85 mL/ha	Apply when first signs of insects appear and damage is visible. Repeat as required.
<p>NOT FOR GREENHOUSE USE.</p> <p>Toxic to bees. Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to evening when most bees are not foraging. When using managed bees for pollination services, DO NOT apply during the crop blooming period.</p> <p>Allow 3 days between the last treatment and harvest. Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.</p>			
Evening Primrose	Seed Weevil Tarnished Plant Bug and <i>Microlepi-doptera</i> spp.	175 mL/ha (one litre bottle treats 5.7 hectares)	GROUND APPLICATION ONLY Apply at 2 to 3 week intervals when an insect population reaches an economic (significant) level. Apply a maximum of 3 applications per year. Use a minimum of 300 L of water per hectare.
<p>Toxic to bees. DO NOT apply during the crop blooming period. Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.</p>			
Conifer Seedling (Nursery)	Tarnished Plant Bug (<i>Lygus</i> spp.)	172 mL/ha	Apply in sufficient water for good coverage. Maximum of 3 applications per growing season. NOT FOR GREENHOUSE USE. Do not apply using back pack sprayers. Do not apply before stock thinning.

Crop	Spray Volume (Litres/ha)	Maximum Number of Applications	Minimum Interval between Applications (days)
Corn	300-500	3	7
Asparagus	100-500	3	7
Celery	500	3	7
Cole Crops (such as cabbage, cauliflower,	100-500	3	14

broccoli and Brussels sprouts)			
Rutabagas and Turnips	100-500	3	7
Tomato	100-500	3	7
Conifer seedling (Nursery)	100 – 500	3	7
Potato	200 – 500	2	10
Carrot	550	3	7
Lettuce	100 – 500	4	7
	200 – 500	3	7
Onions	100 – 500	3	7

TOBACCO

DIRECTIONS FOR USE

Ground Application Only

For control of dark-sided cutworm and white cutworm in tobacco, apply MAKO Insecticide in 200 - 500 L of water per hectare using a spray pressure of 175 – 300 kPa.

CROP	INSECT	DOSAGE	USE INSTRUCTIONS
Cover Crop	Cutworms**	Apply once at 90 mL per hectare (One litre will treat 11.1 hectares)	For best results spray on a warm evening about 5 days before plough down.
Preplant Soil Treatment	Cutworms**	Under normal soil moisture condition apply once at 175 mL per hectare (One litre will treat 5.7 hectares.) Under very dry soil conditions, apply once at 350 mL per hectare. (One litre will treat 2.9 hectares.)	Spray under warm, moist conditions no less than 5 days prior to transplanting tobacco. Do not disturb the soil surface for at least 5 days following treatment, since mixing with the soil will de-activate the material.
Post-Transplanting Treatment	Cutworms**	Apply once at 175 mL per hectare to transplants	Apply as soon as cutworms appear.
Greenhouse Treatment	Greenhouse Cutworms**	Use 3 mL per 15 L of water	To control cutworms that feed on transplants, use 3 mL of MAKO Insecticide once in 15 L of water per 100 square metres. Do not apply by fogger or hand-held mistblower.”

Toxic to bees. Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to evening when most bees are not foraging. When using managed bees for pollination services, DO NOT apply during the crop

blooming period. Allow 60 days between the last treatment and harvest. Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.
Field applications should be made to fence rows and a 15 m strip into adjacent cover crops.

Crop	Spray Volume (Litres/ha)	Maximum Number of Applications	Minimum Interval between Applications (days)
Tobacco – Post-plant treatment	150-300	2	7

NOTES FOR USE IN TOBACCO

** MAKO Insecticide is not very effective against cutworms that feed below the soil surface, e.g., the so-called sand-hill cutworm. These worms may be controlled, although usually after the damage is done.

Do not disturb the soil surface for at least 5 days following soil treatment.

CUTWORMS IN OTHER CROPS

DIRECTIONS FOR USE

Ground Application Only

Use 200 - 500 L of water per hectare using a spray pressure of 175 - 300 kPa.

CROP	INSECT	DOSAGE	USE INSTRUCTIONS
For seedling or transplants of lettuce, Carrots Onions Cole crops (such as cabbage, cauliflower, broccoli, and Brussels sprouts) Wheat Barley	<u>Cutworms</u> - black, white, darksided, redbacked, army and pale western	175 mL/ha when cutworms or signs of cutworm feeding appear (One litre treats 5.7 hectares)	Spray under warm moist conditions and do not disturb the soil surface for at least 5 days. Applications may be made to adjacent fence rows, but do not allow drift to contaminate adjacent crops.
Allow 21 days between last treatment and harvest. Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.			
Potatoes Corn	<u>Cutworms</u> - black, white, darksided, redbacked, army and pale western	175 mL/ha when cutworms or signs of cutworm feeding appear (One litre treats 5.7 hectares)	Spray under warm moist conditions and do not disturb the soil surface for at least 5 days. Applications may be

			made to adjacent fence rows, but do not allow drift to contaminate adjacent crops.
<p>Toxic to bees. Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to evening when most bees are not foraging. When using managed bees for pollination services, DO NOT apply during the crop blooming period.</p> <p>Allow 21 days between last treatment and harvest. Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.</p>			
Potatoes	Variegated (climbing cutworms)	175 mL/ha (one litre treats 5.7 hectares)	Apply when cutworms or signs of cutworm feeding appear. Ensure good penetration of dense foliage.
<p>Toxic to bees. Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to evening when most bees are not foraging. When using managed bees for pollination services, DO NOT apply during the crop blooming period.</p> <p>Allow 7 days between last treatment and harvest. Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.</p>			

Note: MAKO Insecticide will only control climbing cutworms or cutworms which surface to feed.

Crop	Spray Volume (Litres/ha)	Maximum Number of Applications	Minimum Interval between Applications (days)
Wheat	200 – 500	1	N/A
Barley	200 - 500	1	N/A
Corn – Seedlings	200 – 500	1	N/A
Carrot – Seedlings	200 – 500	3	7
Cole crops (such as cabbage, cauliflower, broccoli, and Brussels sprouts)	200 – 500	1	N/A
Potatoes	200 – 500	2	10
Lettuce	200 – 500	3	7

FRUIT CROPS

DIRECTIONS FOR USE

Ground Application Only

MAKO Insecticide may be applied 2 to 3 times per season for orchard use. Consult provincial spray calendars for timing.

Note: This product is toxic to predacious mites and other beneficial predacious arthropods. Use

with caution in orchards where integrated pest management principles are in effect.

CROP	INSECT	DOSAGE	USE INSTRUCTIONS
Apples	Tentiform Leafminer	250 mL/ha (75 mL/1000 L of water)	<u>First Generation:</u> Adults - Apply when adults are present at the tight cluster to pink-bud stages. <u>Later Generations:</u> Adults - Apply when miners are seen on the leaves and moths are abundant.
	Pale Apple Leafroller Eyespotted Bud Moth	250 mL/ha (75 mL/ 1000 L of water)	Apply when caterpillars or signs of feeding first appear.
	Winter Moth (Nova Scotia only)	125 - 250 mL/ha (37.5 - 75 mL/1000 L of water) <u>OR</u> 12.5 mL/ha MAKO Insecticide (4.0 mL/ 1000 L of water) + 560 g/ha DIPEL® WP (180 g/1000 L of water)	Apply at the tight cluster to pink bud stages. <u>ONLY ONE APPLICATION PER YEAR</u> Apply pre-bloom, at 1.3 cm green to pink stage using an air-blast sprayer. This tank-mix also requires a sticker/spreader to ensure good coverage of the foliage by DIPEL <u>NOTE: THIS TANK-MIX IS FOR CONTROL OF WINTER MOTH IN NOVA SCOTIA ONLY.</u>
	Green Fruit Worm	250 mL/ha (75 mL/1000 L of water)	Apply at the pink-bud or calyx stage.
	Tarnished Plant Bug	250 mL/ha (75 mL/1000 L of water)	Apply pre-bloom and/or at calyx.
	Plum Curculio Mullein Bug Apple Brown Bug and White Apple Leafhopper Apple Leafcurling Midge	250 mL/ha (75 mL/1000 L of water)	Apply at the calyx stage if necessary.
	Codling Moth Apple Maggot	250 mL/ha (75 mL/1000 L of water)	Apply as necessary. Consult provincial recommendations for timing.
Allow 7 days between last treatment and harvest. Leave a 15 m buffer zone between sprayed area and any body of water. Toxic to bees. DO NOT apply during the crop blooming period. Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.			

CROP	INSECT	DOSAGE	USE INSTRUCTIONS
Peaches, Nectarines	Oriental Fruit Moth Tarnished Plant Bug Oak Plant Bug	175 mL/ha (52.5 mL/1000 L of water)	Apply at 175 mL/ha with 550 L of water per hectare. Do not apply more than 2 applications per season.
Allow 7 days between last treatment and harvest. Leave a 15 m buffer zone between sprayed area and any body of water. Toxic to bees. DO NOT apply during the crop blooming period. Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.			
Pears	Pear Psylla Over-Wintering Adults (B.C. only)	250 mL/ha (75 mL/1000 L of water)	Begin treatment when overwintering densities are highest. This usually occurs from silver tip to green tip. <u>Nymphs and Adults</u> Follow calendar recommendations. Apply when these first appear. MAKO Insecticide does not control the hard shell of Pear Psylla.
	Pear Psylla Nymphs and Adults (Eastern Canada)	175 mL/ha (52.5 mL/ 1000 L of water)	Follow spray calendar recommendations when pest first appears.
	Plum Curculio Green Fruit Worm Tarnished Plant Bug and Leafrollers	250 mL/ha (75 mL/1000 L of water)	Apply as necessary following provincial recommendations.
	Codling Moth	250 mL/ha (75 mL/1000 L of water)	Apply when necessary. Consult provincial recommendations for timing.
Allow 7 days between last treatment and harvest. Do not apply more than two treatments/season due to possible mite buildup. Leave a 15 m buffer zone between sprayed area and any body of water. Toxic to bees. DO NOT apply during the crop blooming period. Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.			
Strawberries	Tarnished Plant Bug	250 mL/ha (one litre bottle treats 4 hectares)	<u>GROUND APPLICATION ONLY</u> Apply at early bloom (approximately 10%) and repeat in 10 to 12 days at the end of full bloom. Use 300 - 500 L of water per hectare.
	Strawberry (clipper) Weevil	175 mL/ha (one litre bottle treats 5.7 hectares)	
	Meadow Spittlebug	175 mL/ha (one litre bottle treats 5.7 hectares)	Apply when first buds show white. Do not exceed 3 applications per season.
Allow 7 days between last treatment and harvest. Leave a 15 m buffer zone between sprayed area and any body of water. Toxic to bees. Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to evening when most bees are not			

CROP	INSECT	DOSAGE	USE INSTRUCTIONS	
foraging. When using managed bees for pollination services, DO NOT apply during the crop blooming period. Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.				
Grapes	Multicolored Asian lady beetle	150 mL/ha	GROUND APPLICATION ONLY (foliar spray using airblast equipment) Apply in no less than 400 L water per hectare. Ensure enough water volume is used to provide thorough coverage of grapevine foliage. Apply prior to harvest when treatment thresholds have been reached, as determined by local monitoring. Consult local spray calendars or extension specialists for timing. Repeat application if required.	
	Yellow Jackets			
	Post Application Activity			Restricted Entry Interval
	Girdling			7 days
	Turning			7 days
All other activities		12 hours		
<p>DO NOT USE ON TABLE GRAPES. For hand harvest, a maximum of 2 applications are permitted with a pre-harvest interval of 7 days. For mechanical harvest, a maximum of 3 applications are permitted with a pre-harvest interval of 2 days. Not all grape varieties have been tested. A small area should be treated before widespread sprays are applied. Leave a 15-metre buffer zone between sprayed area and any body of water.</p> <p>Toxic to bees. Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to evening when most bees are not foraging. When using managed bees for pollination services, DO NOT apply during the crop blooming period.</p>				

CROP	SPRAY VOLUME (Litres/ha)	MAXIMUM NUMBER OF APPLICATIONS	MINIMUM INTERVAL BETWEEN APPLICATIONS (Days)
Apples	3333 for dilute sprays	3	7
Grape (excluding table grapes) – Hang harvest	400 or more	2	7
Grape (excluding table grapes) – Mechanical harvest	400 or more	3	7
Grapes	100 – 500	3	7
Peach	550 for airblast sprayer	2	7

CROP	SPRAY VOLUME (Litres/ha)	MAXIMUM NUMBER OF APPLICATIONS	MINIMUM INTERVAL BETWEEN APPLICATIONS (Days)
	3333 for dilute sprayer		
Nectarine	550 for airblast sprayer 3333 for dilute sprayer	2	7
Pear	3333 for dilute sprayer	2	7
Strawberry	300 – 500	3	7

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

To protect pollinators, follow the instructions regarding bees in the Environmental Precautions section.

Vegetative Filter Strips:

A Vegetative Filter Strip (VFS) of at least 10 metres wide must be constructed and maintained. The VFS is required between the field edge and adjacent, downhill aquatic habitats to reduce risk to aquatic organisms from runoff. Aquatic habitats include, but are not limited to, lakes, reservoirs, rivers, permanent streams, marshes or natural ponds, and estuaries.

The VFS is to be composed of grasses and may also include shrubs, trees, or other vegetation. Additional guidance can be found on the PMRA Environmental Risk Mitigation webpages. Both VFS and spray drift buffer zones must be observed.

Spray Drift Buffer Zones:

Spray drift buffer zones are to protect terrestrial and aquatic habitats from spray drift in the air. Spray drift buffer zones are a separate requirement from VFS which are required to mitigate risks from runoff on the ground.

Field sprayer 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 8 km/h at the site of application. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) medium classification. Air-induction nozzles must be used for the

ground application of this product. Boom height must be 60 cm or less above the crop or ground.

Airblast application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. Turn off outward pointing nozzles at row ends and outer rows. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side.

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 8 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) medium-coarse classification. **DO NOT** apply under weather conditions of less than 50% relative humidity and temperatures greater than 20°C. Reduce drift caused by turbulent wingtip vortices. Nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

Buffer zones:

Spot treatments using hand-held equipment **DO NOT** require a buffer zone.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Buffer Zones Required

Method of application	Crop		Buffer Zones (metres) Requires for the protection of:			
			Freshwater Habitat		Estuarine/Marine Habitat	
			Depths:		Depths:	
		Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Field Sprayer	Tobacco pre-plant		20	10	100	45
	Tobacco seedling		15	5	85	40
	Corn		20	10	55	25
	Conifer seedling, canola, tobacco post-treatment, potato, carrot, lettuce, onions, strawberry		15	5	55	25
	Barley, wheat, evening primrose		10	4	55	25
	Cole crops (cabbage, broccoli, cauliflower, Brussels sprouts), rutabaga, turnip		10	5	40	20
	Asparagus, celery, tomato		10	4	30	15
	Tobacco cover crop		5	3	30	15
	Roadside, summer fallow, headland, sunflower		5	3	25	10
	Bushberries (Crop Subgroup 13-07B)		15	5	55	25
	Caneberries (Crop Subgroup 13-07A)					
Low growing berries (excluding lowbush blueberries)						
Airblast	Apple, pear	Early growth stage	75	65	90	80
	Grape, peach, nectarine	Early growth stage	70	60	85	75
	Cherries (Crop Subgroup 12-09A)	Early growth stage	70	60	90	80
	Bushberries (Crop Subgroup 13-07B)	Early growth stage				
	Caneberries (Crop	Early growth	75	65	90	85

	Subgroup 13-07A)	stage				
	Low growing berries (excluding lowbush blueberries)	Early growth stage				
Aerial	Corn	Fixed Wing	800	625	800	800
		Rotary	800	500	800	800
	Canola	Fixed Wing	775	475	800	800
		Rotary	425	200	800	800
	Sunflower	Fixed Wing	750	450	800	800
		Rotary	350	175	800	800
	Potato	Fixed Wing	800	600	800	800
		Rotary	725	325	800	800

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for airblast application of this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the PMRA web site. Buffer zones for field sprayer or aerial application CANNOT be modified using the Buffer Zone Calculator.

NOTICE TO BUYER/USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR SPECIAL USE APPLICATIONS:

The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Belchim Crop Protection Canada Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion Program. Belchim Crop Protection Canada Inc. itself makes no representation or warranty with respect to performance (efficacy) or crop tolerance (phytotoxicity) claims for this product when used on the crops listed below.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Belchim Crop Protection Canada Inc. harmless from any claims based on efficacy or phytotoxicity in connection with the uses described below.

CROP	INSECT	DOSAGE	USE INSTRUCTIONS
Bushberries (Crop Subgroup 13-07B*)	Spotted Wing Drosophila (<i>Drosophila suzukii</i>)	150-175 mL/ha	GROUND APPLICATION ONLY DO NOT APPLY BY AIR Timing of applications should be based on the presence of adult pest (flies) as determined by local monitoring. Do not enter or allow worker

			entry into treated areas during the REI of 12 hours.
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Allow a minimum of 7 days between treatments. Do not apply more than two treatments. Use sufficient water for thorough coverage. Allow a preharvest interval of 2 days. It is recommended that use of Mako for spotted wing drosophila be part of an integrated pest management program. Leave a 15 meter buffer between the sprayed area and any body of water. Toxic to bees. DO NOT apply during the crop blooming period.

*Crop Subgroup 13-07B: Aronia berry (*Aronia spp.*), Blueberry, highbush (*Vaccinium spp.*), Blueberry, lowbush (*Vaccinium angustifolium*), Buffalo currant (*Ribes aureum*), Chilean guava (*Myrtus ugni*), Currant, black (*Ribes nigrum*), Currant, red (*Ribes rubrum*), Elderberry (*Sambucus spp.*), European barberry (*Berberis vulgaris*), Gooseberry (*Ribes spp.*), Highbush cranberry (*Viburnum opulus var. americanum*), Honeysuckle, edible (*Lonicera caerulea var. emphyllocalyx*), Huckleberry (*Gaylussacia spp.*), Jostaberry (*Ribes x nidigrolaria*), Juneberry (Saskatoon berry) (*Amelanchier spp.*), Lingonberry (*Vaccinium vitis-idaea*), Native currant (*Acrotriche depressa*), Salal (*Gaultheria shallon*), Sea buckthorn (*Hippophae rhamnoides*), Cultivars, varieties and/or hybrids of these

CROP	INSECT	DOSAGE	USE INSTRUCTIONS
Cherries (Crop Subgroup 12-09A*)	Spotted Wing Drosophila (<i>Drosophila suzukii</i>) European paper wasp (<i>Polistes dominulus</i>) Yellow jacket wasp (<i>Vespula spp.</i>)	150-175 mL/ha	GROUND APPLICATION ONLY DO NOT APPLY BY AIR For control of spotted wing drosophila, timing of applications should be based on the presence of adult pest (flies) as determined local monitoring. For control of European paper wasp or yellow jacket, applications should be made prior to harvest. Do not enter or allow worker entry into treated areas during the REI of 12 hours.

Allow a minimum of 7 days between treatments. Do not apply more than two treatments. Use sufficient water for thorough coverage. Allow a preharvest interval of 2 days. It is recommended that use of Mako for spotted wing drosophila be part of an integrated pest management program. Leave a 15 meter buffer between the sprayed area and any body of water. Toxic to bees. DO NOT apply during the crop blooming period.

*Crop Subgroup 12-09A: Capulin (*Prunus serotina var. salicifolia*), Cherry, black (*Prunus serotina*), Cherry, Nanking (*Prunus tomentosa*), Cherry, sweet (*Prunus avium*), Cherry, tart (*Prunus cerasus*), Cultivars, varieties and/or hybrids of these.

CROP	INSECT	DOSAGE	USE INSTRUCTIONS
Caneberries (Crop Subgroup 13-07A*)	Spotted Wing Drosophila (<i>Drosophila suzukii</i>)	150-175 mL/ha	GROUND APPLICATION ONLY DO NOT APPLY BY AIR Timing of applications should be based on the presence of adult pest (flies) as determined by local monitoring.

			Do not enter or allow worker entry into treated areas during the REI of 12 hours.
Allow a minimum 7 days between treatments. Do not apply more than three treatments. Use sufficient water for thorough coverage. Allow a preharvest interval of 2 days. It is recommended that use of MAKO Insecticide for spotted wing drosophila be part of an integrated pest management program. Leave a 15 meter buffer between the sprayed area and any body of water. Toxic to bees. DO NOT apply during the crop blooming period.			
*Crop Subgroup 13-07A: Blackberry (including Andean blackberry, arctic blackberry, bingleberry, black satin berry, boysenberry, brombeere, California blackberry, Chesterberry, Cherokee blackberry, Cheyenne blackberry, common blackberry, coryberry, darrowberry, dewberry, Dirksen thornless berry, evergreen blackberry, Himalayaberry, hullberry, lavacaberry, loganberry, lowberry, Lucretiaberry, mammoth blackberry, marionberry, mora, mures deronce, nectarberry, Northern dewberry, olallieberry, Oregon evergreen berry, phenomenalberry, rangeberry, ravenberry, rossberry, Shawnee blackberry, Southern dewberry, tayberry, youngberry, zarzamora, and cultivars, varieties and/or hybrids of these), Loganberry (<i>Rubus loganobaccus</i>), Raspberry, black and red (<i>Rubus</i> spp.), Wild raspberry (<i>Rubus muelleri</i>) and cultivars, varieties and/or hybrids of these.			
CROP	INSECT	DOSAGE	USE INSTRUCTIONS
Low growing berries (excluding lowbush blueberries)	Spotted Wing Drosophila (<i>Drosophila suzukii</i>)	150-175 mL/ha	GROUND APPLICATION ONLY DO NOT APPLY BY AIR Timing of applications should be based on the presence of adult pest (flies) as determined by local monitoring. Do not enter or allow worker entry into treated areas during the REI of 12 hours.
Allow a minimum 7 days between treatments. Do not apply more than three treatments per crop per year. Use sufficient water for thorough coverage. Allow a preharvest interval of 2 days. It is recommended that the use of MAKO Insecticide for spotted wing drosophila be part of an integrated pest management program. Leave a 15 meter buffer between the sprayed area and any body of water. Toxic to bees. DO NOT apply during the crop blooming period.			
*Low growing berries: Bearberry (<i>Arctostaphylos uva-ursi</i>), Bilberry (<i>Vaccinium myrtillus</i>), Cloudberry (<i>Rubus chamaemorus</i>), Cranberry (<i>Vaccinium macrocarpon</i>), Lingonberry (<i>Vaccinium vitis-idaea</i>), Muntries (<i>Kunzea pomifera</i>), Partridgeberry (<i>Mitchella repens</i>), Strawberry (<i>Fragaria x ananassa</i>), and cultivars, varieties and/or hybrids of these.			

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, please note that MAKO Insecticide contains a Group 3 insecticide. Any insect population may contain individuals naturally resistant to MAKO Insecticide and other Group 3 insecticides. The resistant individuals may dominate the insect population if this group of insecticides is used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but are specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay insecticide resistance:

- Where possible, rotate the use of MAKO Insecticide or other Group 3 insecticides with different groups that control the same pests in a field.
- Use tank mixtures with insecticides from a different group when such use is permitted.
- Insecticide use should be based on an IPM program that includes scouting, record keeping, and considers cultural, biological and other chemical control practices.
- Monitor treated pest populations for resistance development.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for the specific site and pest problems in your area.
- For further information or to report suspected resistance, contact Belchim Crop Protection Canada Inc. at 1-866-613-3336.