

****Container Label****

GROUP	28	INSECTICIDE
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Muscle™

INSECTICIDE

SUSPENSION

For sale for use on root and tuber vegetables group, fruiting vegetables group, brassica vegetables group, leafy vegetables group, legume vegetables group cucurbit vegetables group, corn (field, pop, sweet, and seed), grass forage, fodder, and hay group, non-grass animal feeds group, mint, okra, green onion sub group, globe artichokes, hops, greenhouse cucumbers, greenhouse tomatoes, greenhouse eggplant, greenhouse peppers, oilseeds group and cereals.

COMMERCIAL

ACTIVE INGREDIENT: Chlorantraniliprole 200 g/L

Contains 1,2-benzisothiazolin-3-one at 0.019%, 5-chloro-2-methyl-4-isothiazolin-3-one at 0.00092% and 2-methyl-4-isothiazolin-3-one at 0.00032% as preservatives.

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

REGISTRATION NO. 35662

PEST CONTROL PRODUCTS ACT

NET CONTENTS: 0.5 L to 100 L

Sipcam Agro USA, Inc.
2525 Meridian Parkway, Suite 100,
Durham, NC 27713, USA
(919) 226 1195

PRECAUTIONS:

- **KEEP OUT OF REACH OF CHILDREN.**
- Wear a long sleeved shirt, long pants and chemical resistant gloves while mixing /loading, applying and during clean up and repair.
- Follow manufacturer's instructions for cleaning/maintaining personal protective equipment (PPE). If no such instructions for washables are available, use detergent and hot water. Keep and wash PPE separately from other laundry.
- 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.
- For agricultural uses, do not enter or allow worker entry into treated areas during the restricted entry interval of 12 hours.
- See the Aerial Application Label Instructions section of this label for additional precautions specific to aerial application.

ENVIRONMENTAL PRECAUTIONS:

- Toxic to aquatic organisms. Observe spray buffer zones specified under **DIRECTIONS FOR USE**.
- Toxic to certain beneficial arthropods (which may include predatory and parasitic insects, spiders, and mites). Minimize spray drift to reduce harmful effects on beneficial arthropods in habitats next to the application site such as hedgerows and woodland. In greenhouses, avoid application when beneficial arthropods are in the treatment area.
- Chlorantraniliprole is persistent and may carry over. It is recommended that this product not be used in areas treated with any products containing chlorantraniliprole during the previous season.
- The use of this chemical may result in contamination of groundwater particularly in areas where soil is permeable (e.g. sandy soil) and/or the depth to the water table is shallow.
- 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.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative filter strip between the treated area and the edge of the water body.
- **DO NOT** apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, and wetlands), estuarine/marine habitats.

STORAGE:

Store product in original container only, away from other pesticides and fertilizer. Not for use or storage in or around the home. Keep container closed. Store this product away from food or feed.

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:

- Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
- 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/territorial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial/territorial

regulatory agency. Contact the manufacturer and the provincial/territorial regulatory agency in case of a spill, and for clean-up of spills.

FIRST AID:

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

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 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.

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.

TOXICOLOGICAL INFORMATION: Treat symptomatically.

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

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- To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil, or clay.
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- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative filter strip between the treated area and the edge of the water body.
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NOTICE TO USER:

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GENERAL INFORMATION

Muscle is a liquid formulation that can be applied as a foliar spray, using ground application or aerial application (potatoes, sugar beets, garden beets, legume vegetables, corn, oilseeds and cereals only) to control many important insect pests. Muscle is mixed with water for application.

Apply at the recommended rates when insect populations reach locally determined economic thresholds. Consult your local extension specialist or certified crop advisor to determine appropriate threshold levels for treatment in your area.

Use sufficient water to obtain thorough, uniform coverage.

TANK MIXING

This product may be tank mixed with a fertilizer, a supplement or with registered pest control products, whose labels also allow tank mixing, provided the entirety of both labels, including Directions For Use, Precautions, Restrictions, Environmental Precautions, and Spray Buffer Zones are followed for each product. In cases where these requirements differ between the tank mix partner labels, the most restrictive label must be followed. Do not tank mix products containing the same active ingredient unless specifically listed on this label.

In some cases, tank mixing pest control products can result in reduced pesticide efficacy or increased host crop injury. The user should contact Sipcam Agro USA, Inc. at 1-919-226-1195 for information before applying any tank mix that is not specifically recommended on this label.

DIRECTIONS FOR USE

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.

DO NOT allow releases, effluent or runoff from greenhouses containing this product to enter lakes, streams, ponds or other waters.

ROOT AND TUBER VEGETABLES – Crop Group 1

Spray Volume for Root and Tuber Vegetables: Apply in a minimum finished spray volume of 100 L/ha by ground. For potatoes only, apply in a minimum finished spray volume of 50 L/ha by air.

SITE	PEST	RATE Muscle/ha	SPECIFIC DIRECTIONS
POTATOES	Colorado potato beetle	250 mL to 500 mL	For potatoes, apply by either ground or aerial application equipment.
	European corn borer	250 mL to 375 mL	
ROOT AND TUBER VEGETABLES Arracacha; Arrowroot; Artichoke, Chinese; Artichoke, Jerusalem; Beet, garden; Beet, sugar; Burdock, edible; Canna, edible; Carrot; Cassava, bitter and sweet; Celeriac (celery root); Chayote (root); Chervil, turnip-rooted; Chicory; Chufa; Dasheen (taro); Ginger; Ginseng;	Diamondback moth	250 mL	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. For Colorado potato beetle, use the higher application rate under heavy pest pressure and/or when larger larvae are present. Colorado potato beetle resistance management: DO NOT apply Chlorantraniliprole 200SC for Colorado potato beetle control if any Group 28 Insecticide was used at planting as an in-furrow, soil or seed-piece treatment. For control of the European
	Cabbage looper		
	Black cutworm		
	Imported cabbageworm		
	Swede midge		
	Corn earworm	250 mL to 375 mL	
	European corn borer		
	Tobacco hornworm		
	Tomato hornworm		
	Armyworm		
Variegated cutworm			

Horseradish; Leren; Parsley, turnip-rooted; Parsnip; Potato; Radish; Radish, oriental (daikon); Rutabaga; Salsify; Salsify, black; Salsify, Spanish; Skirret; Sweet potato; Tanier (cocoyam); Turmeric; Turnip; Yam bean; Yam, true	Fall armyworm Beet armyworm Leafminers: <i>Liriomyza sativae</i> <i>Liriomyza trifolii</i>		corn borer, time the application to coincide with peak egg hatch. Scout for European corn borer by monitoring egg laying and egg hatch to determine application timing.
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RESTRICTIONS AND PRECAUTIONS: Root and Tuber Vegetables

- For pests with a range of application rates, use the high rate under heavy pest pressure.
- Do not make more than 4 applications per season.
- Do not apply more than once every 3 days.
- Do not apply less than 1 day before harvest. Observe a 1-day PHI.
- Do not exceed a total of 1.125 litres of Muscle per ha per season.
- **Do not make a foliar application of Muscle for a minimum of 60 days following an in-furrow or soil application or planting of seed or seed pieces treated with any Group 28 insecticide.**

LEAFY VEGETABLES – Crop Group 4

Spray Volume for Leafy Vegetables: Apply in a minimum finished spray volume of 100 L/ha by ground.

SITE	PEST	RATE Muscle/ha	SPECIFIC DIRECTIONS
LEAFY VEGETABLES Amaranth leafy, Arugula, Cardoon, Celery, Celery (Chinese), Celtuce, Chevрил, Chrysanthemum (edible leaved),	Cabbage looper	250 mL	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control.
	Black cutworm		
	Armyworm	250 mL to 375 mL	
	Fall armyworm		
	Corn earworm		
	Beet armyworm		

Chrysanthemum (garland), Corn Salad, Cress (garland), Cress (upland), Dandelion leaves, Dock, Endive, Florence Fennel, Lettuce (head & leaf), Orach, Parsley leaves, Purslane (garden), Purslane (winter), Radicchio, Rhubarb, Spinach, Spinach (vine), Spinach (New Zealand), Swiss Chard	Leafminers: <i>Liriomyza sativae</i> <i>Liriomyza trifolii</i>		
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RESTRICTIONS AND PRECAUTIONS: Leafy Vegetables

- Do not make more than 4 applications per season.
- Do not apply more than once every 3 days.
- Do not apply less than 1 day before harvest. Observe a 1-day PHI.
- Do not exceed a total of 1 litre of Muscle per ha per season.
- **Do not make a foliar application of Muscle for a minimum of 60 days following an in-furrow or soil application or planting of seed or seed pieces treated with any Group 28 insecticide.**

BRASSICA VEGETABLES - Crop Group 5

Spray Volume for Brassica Vegetables: Apply in a minimum finished spray volume of 100 L/ha by ground.

SITE	PEST	RATE Muscle/ha	SPECIFIC DIRECTIONS
BRASSICA VEGETABLES Broccoli, Broccoli (Chinese), Broccoli raab, Brussels Sprouts, Cabbage, Cabbage (Chinese, bok choy), Cabbage (Chinese, napa), Cabbage (Chinese mustard, choy), Cauliflower,	Imported cabbage worm	250 mL	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control.
	Diamondback moth		
	Cabbage looper		
	Black cutworm		
	Armyworm	250 mL to 375 mL	For optimum control, apply Hasten™ NT Ultra Spray Adjuvant* at an application rate of 0.25% v/v or
	Fall armyworm		

Cavalo broccolo, Collards, Kale, Kohlrabi, Mizuna, Mustard Greens, Mustard Spinach, Rape Greens	Beet armyworm Corn earworm Leafminers: <i>Liriomyza sativae</i> <i>Liriomyza trifolii</i>		MSO™ Concentrate with LeciTech* at an application rate of 0.5% v/v.
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RESTRICTIONS AND PRECAUTIONS: Brassica Vegetables

- Do not make more than 4 applications per season.
- Do not apply more than once every 3 days.
- Do not apply less than 3 days before harvest. Observe a 3-day PHI.
- Do not exceed a total of 1 litre of Muscle per ha per season.
- **Do not make a foliar application of Muscle for a minimum of 60 days following an in-furrow or soil application or planting of seed or seed pieces treated with any Group 28 insecticide.**

LEGUME VEGETABLES - Crop Group 6

Spray Volume for Legume Vegetables: Apply in a minimum finished spray volume of 100 L/ha by ground. Apply in a minimum finished spray volume of 50 L/ha by air.

SITE	PEST	RATE Muscle/ha	SPECIFIC DIRECTIONS
LEGUME VEGETABLES	Grasshoppers	125 mL to 250 mL	Begin applications when treatment thresholds have been reached.
Bean (Lupinus) (includes grain lupin, sweet lupin, white lupin, and white sweet lupin);	Cabbage looper	250 mL	
	Bean (Phaseolus) (includes field bean, kidney bean, lima bean, navy bean, pinto bean, runner bean, snap bean, tepary bean, wax bean);	Cutworms	250 mL to 375 mL
Armyworm			
Fall armyworm			
Beet armyworm			
Corn earworm			
Bean (Vigna) (includes adzuki bean, asparagus bean, blackeyed pea, catjang, Chinese longbean, cowpea, crowder pea, moth bean, mung bean, rice bean, southern pea, urd bean, yardlong bean);	European corn borer		
	Western bean cutworm		

Broad bean (fava); Chickpea (garbanzo); Guar; Jackbean; Lablab bean; Lentil; Pea (Pisum) (includes dwarf pea, edible podded pea, English pea, field pea, garden pea, green pea, snowpea, sugar snap pea); Pigeon pea; Sword bean; Soybean.			
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RESTRICTIONS AND PRECAUTIONS: Legume Vegetables

- Do not make more than 4 applications per season.
- Do not apply more than once every 3 days.
- Do not apply less than 1 day before harvest. Observe a 1-day PHI.
- Do not exceed a total of 1.125 litres of Muscle per ha per season.
- **Do not make a foliar application of Muscle for a minimum of 60 days following an in-furrow or soil application or planting of seed or seed pieces treated with any Group 28 insecticide.**

FRUITING VEGETABLES (EXCEPT CUCURBITS) – Crop Group 8

Spray Volume for Fruiting Vegetables: Apply in a minimum finished spray volume of 100 L/ha by ground.

SITE	PEST	RATE Muscle/ha	SPECIFIC DIRECTIONS
FRUITING VEGETABLES Eggplant, Groundcherry, Pepino, Pepper (includes bell pepper, chili pepper, cooking pepper, pimento, sweet pepper) Tomatillo,	Colorado potato beetle Armyworm Fall armyworm Beet armyworm	250 mL to 375 mL	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Colorado potato

Tomato	Variegated cutworm	250 mL	beetle resistance management: DO NOT apply Muscle for Colorado potato beetle control if any Group 28 Insecticide was used at planting as an in-furrow, soil or seed treatment.
	Tobacco hornworm		
	Tomato hornworm		
	Tomato fruitworm (Corn earworm)\		
	European corn borer		
	Cabbage looper		
	Black cutworm		

RESTRICTIONS AND PRECAUTIONS: Fruiting Vegetables

- For pests with a range of application rates, use the high rate under heavy pest pressure.
- Do not make more than 4 applications per season.
- Do not apply more than once every 5 days.
- Do not apply less than 1 day before harvest. Observe a 1-day PHI.
- Do not exceed a total of 1.125 litres of Muscle per ha per season.
- **Do not make a foliar Sipcarn Agro USA, Inc. application of Muscle for a minimum of 60 days following an in-furrow or soil application or planting of seed or seed pieces treated with any Group 28 insecticide.**

CUCURBIT VEGETABLES – Crop Group 9

Spray Volume for Cucurbit Vegetables: Apply in a minimum finished spray volume of 100 L/ha by ground.

SITE	PEST	RATE Muscle/ha	SPECIFIC DIRECTIONS
CUCURBIT VEGETABLES Chayote (fruit); Chinese waxgourd (Chinese preserving melon); Citron melon; Cucumber; Gherkin; Gourd, edible (includes hyotan, cucuzza, hechima, Chinese okra); Momordica spp (includes balsam apple, balsam pear, bittermelon, Chinese cucumber); Muskmelon (includes cantaloupe); Pumpkin;	Cabbage looper	250 mL	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control.
	Black cutworm	250 mL to 375 mL	
	Armyworm		
	Fall armyworm		
	Corn earworm		
	Leafminers: <i>Liriomyza sativae</i> <i>Liriomyza trifolii</i>		

Squash, summer; Squash, winter (includes butternut squash, calabaza, hubbard squash, acorn squash, spaghetti squash); Watermelon			
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RESTRICTIONS AND PRECAUTIONS: Cucurbit Vegetables

- For pests with a range of application rates, use the high rate under heavy pest pressure.
- Do not make more than 4 applications per season. Do not apply more than once every 5 days.
- Do not apply less than 1 day before harvest. Observe a 1-day PHI.
- Do not exceed a total of 1.125 litres of Muscle per ha per season.
- **Do not make a foliar application of Muscle for a minimum of 60 days following an in-furrow or soil application or planting of seed or seed pieces treated with any Group 28 insecticide.**

CORN – FIELD, POP, SEED AND SWEET

Spray Volume for Corn: Apply in a minimum finished spray volume of 100 L/ha by ground. Apply in a minimum finished spray volume of 50 L/ha by air.

SITE	PEST	RATE Muscle/ha	SPECIFIC DIRECTIONS
CORN Field corn; Pop corn; Seed corn; Sweet corn	Black cutworm	250 mL Apply either by ground or aerial application equipment	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control.
	Armyworm	250 mL to 375 mL	For corn earworm, European corn borer or western bean cutworm control, time the applications to coincide with peak egg hatch. Scout by monitoring egg laying and egg hatch to determine application timing. Reapply if monitoring indicates it is necessary. Refer to the section of the label titled AERIAL APPLICATION LABEL INSTRUCTIONS for use information specific to aerial application.
	Fall armyworm	Apply either by ground or aerial application equipment.	
	Beet armyworm		
	Variegated cutworm		
	Corn earworm/ Tomato fruitworm		
	European corn borer		
Western bean cutworm			

RESTRICTIONS AND PRECAUTIONS: Corn

- For pests with a range of application rates, use the high rate under heavy pest pressure.
- Do not make more than 4 applications per season.
- Do not apply more than once every 3 days on seed corn or sweet corn.

- Do not apply more than once every 7 days on field corn or popcorn.
- Do not apply less than 1 day before harvest of seed corn or sweet corn.
- Do not apply less than 14 days before harvest of field corn or popcorn.
- Do not exceed a total of 1.125 litres of Muscle per ha per season.
- **Do not make a foliar application of Muscle for a minimum of 60 days following an in-furrow or soil application or planting of seed or seed pieces treated with any Group 28 insecticide.**

CEREAL GRAINS – Crop Group 15 (EXCEPT CORN AND WILD RICE) and CEREALS for FORAGE – Crop Group 16 (EXCEPT CORN AND WILD RICE)

Spray Volume for Cereal Grains: Apply in a minimum finished spray volume of 100 L/ha by ground. Apply in a minimum finished spray volume of 50 L/ha by air

SITE	PEST	RATE Muscle/ha	SPECIFIC DIRECTIONS
CEREAL GRAINS Barley, Buckwheat, Millet, pearl Millet, proso, Oats, Rye, Sorghum, Teosinte, Triticale, Wheat	Grasshoppers	125 mL to 250 mL	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control.
	Cutworms	250 mL	
	Armyworm	250 mL to 375 mL	
	Fall armyworm		
	Beet armyworm		
	Corn earworm		
European corn borer			

RESTRICTIONS AND PRECAUTIONS: Cereal Grains -

- Forage, Fodder and hay may be fed to livestock
- Do not make more than 3 applications per season.
- Do not apply more than once every 7 days.
- Do not apply less than 1 day before harvest. Observe a 1-day PHI
- Do not exceed a total of 1.125 litres Muscle per ha per season
- For pests with a range of application rates, use the high rate under heavy pest pressure.
- **Do not make a foliar application of Muscle for a minimum of 60 days following an in-furrow or soil application or planting of seed or seed pieces treated with any Group 28 insecticide.**

GRASS FORAGE, FODDER, AND HAY GROUP – Crop Group 17

Spray Volume for Grass Forage, Fodder, and Hay Group: Apply in a minimum finished spray volume of 100 L/ha by ground.

SITE	PEST	RATE Muscle/ha	SPECIFIC DIRECTIONS
GRASS FORAGE	Grasshoppers	125 mL to 250 mL	Begin applications when

FODDER AND HAY GROUP (Any grass, Gramineae family (either green or cured) except sugarcane and those included in the cereal grains group, that will be fed to or grazed by livestock, all pasture and range grasses and grasses grown for hay or silage)	Armyworm Fall armyworm Beet armyworm Corn earworm	250 mL to 375 mL	treatment thresholds have been reached. Thorough coverage is important to obtain optimum control.
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RESTRICTIONS AND PRECAUTIONS: Grass Forage, Fodder, and Hay Group

- For any of the pests listed above, use the high rate under heavy pest pressure.
- Do not make more than 4 applications per season.
- Do not apply more than once every 7 days.
- Observe a 0-day PHI.
- Do not exceed a total of 1.125 litres of Muscle per ha per season.
- **Do not make a foliar application of Muscle for a minimum of 60 days following an in-furrow or soil application or planting of seed or seed pieces treated with any Group 28 insecticide.**

NON-GRASS ANIMAL FEEDS GROUP – Crop Group 18

Spray Volume for Non-Grass Animal Feeds Group: Apply in a minimum finished spray volume of 100 L/ha by ground.

SITE	PEST	RATE Muscle/ha	SPECIFIC DIRECTIONS
NON-GRASS ANIMAL FEEDS GROUP Alfalfa; Bean, velvet; Clover (Trifolium, Melilotus); Kudzu; Lespedeza; Lupin; Sainfoin; Trefoil; Vetch; Vetch, crown; Vetch, milk	Grasshoppers	125 mL to 250 mL	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control.
	Beet armyworm	250 mL to 375 mL	
	Alfalfa weevil (suppression only)	375 mL to 500 mL	

RESTRICTIONS AND PRECAUTIONS: Non-Grass Animal Feeds Group

- For either of the pests listed above, use the high rate under heavy pest pressure.
- Do not make more than 1 application per cutting.
- Observe a 0-day PHI.
- **Do not make a foliar application of Muscle for a minimum of 60 days following an in-furrow or soil application or planting of seed or seed pieces treated with any Group 28 insecticide.**

OILSEEDS GROUP – Crop Group 20

Spray volume for Oilseeds Group: Apply a minimum finished spray volume of 100 L/ha by ground. Apply a minimum finished spray volume of 50 L/ha by air.

SITE	PEST	RATE Muscle/ha	SPECIFIC DIRECTIONS
OILSEEDS GROUP Canola Rape Seed; Mustard seed; Flax; Linseed; Sunflower seed; Safflower; Borage; Calendula; Crambe; Cuphea; Echium; Euphorbia; Evening Primrose; Gold of Pleasure; Hare's ear mustard; Lesquerella; Lunaria; Meadowfoam; Milkweed; Niger seed; Oil radish; Poppy seed; Rose hip; Stokes aster; Sweet rocket; Tea oil plant	Diamondback moth	125 mL	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control.
	Grasshoppers	125 mL to 250 mL	
	Bertha armyworm	125 mL to 375 mL	
	Cabbage looper	250 mL	
	Imported cabbage worm		
	Swede midge		
Cutworms	250 mL to 375 mL		
Sunflower head moth			
	Reduces damage caused by banded sunflower moth.		

RESTRICTIONS AND PRECAUTIONS: Oilseeds

- Do not make more than 3 applications per season.
- Do not apply more than once every 5 days.
- Do not apply less than 1 day before harvest. Observe a 1-day PHI.
- Do not exceed a total of 1.125 litres of Muscle per ha per season.
- **Do not make a foliar application of Muscle for a minimum of 60 days following an in-furrow or soil application or planting of seed or seed pieces treated with any Group 28 insecticide.**

MINT

Spray Volume for Mint: Apply in a minimum finished spray volume of 100 L/ha by ground.

SITE	PEST	RATE Muscle/ha	SPECIFIC DIRECTIONS
MINT	Cabbage looper	250 mL	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control.

RESTRICTIONS AND PRECAUTIONS: Mint

- Do not make more than 4 applications per season.
- Do not apply more than once every 14 days.
- Do not apply less than 3 days before harvest. Observe a 3-day PHI.

- Do not exceed a total of 1 litre of Muscle per ha per season.
- **Do not make a foliar application of Muscle for a minimum of 60 days following an in-furrow or soil application or planting of seed or seed pieces treated with any Group 28 insecticide.**

OKRA

Spray Volume for Okra: Apply in a minimum finished spray volume of 100 L/ha by ground.

SITE	PEST	RATE Muscle/ha	SPECIFIC DIRECTIONS
OKRA	Beet armyworm	250 mL to 375 mL	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control.
	Corn earworm		

RESTRICTIONS AND PRECAUTIONS: Okra

- For either of the pests listed above, use the high rate under heavy pest pressure.
- Do not make more than 4 applications per season.
- Do not apply more than once every 5 days.
- Do not apply less than 1 day before harvest. Observe a 1-day PHI.
- Do not exceed a total of 1.125 litres of Muscle per ha per season.
- **Do not make a foliar application of Muscle for a minimum of 60 days following an in-furrow or soil application or planting of seed or seed pieces treated with any Group 28 insecticide.**

HOPS

Spray Volume for Hops: Apply in a minimum finished spray volume of 100 L/ha by ground.

SITE	PEST	RATE Muscle/ha	SPECIFIC DIRECTIONS
Hops	Cutworms	250 mL to 375 mL	Begin applications when treatment thresholds have been reached.
	Armyworm		
	Cabbage looper	250 mL	Thorough coverage is important to obtain optimum control.

RESTRICTIONS AND PRECAUTIONS: Hops

- Do not make more than 4 applications per season.
- Do not apply more than once every 7 days.
- Do not apply less than 0 day before harvest. Observe a 0 day PHI.
- Do not exceed a total of 1.125 litres of Muscle per ha per season.
- Do not apply by air.

<Minor use box starts>

The DIRECTIONS FOR USE for the uses described in this section of the label were developed by persons other than Sipcam Agro USA, Inc. under the User Requested Minor Use Label Expansion program. For these uses, Sipcam Agro USA, Inc. has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under

all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.

FOR USE ON BRASSICA VEGETABLES - Crop Group 5

Spray Volume for Brassica Vegetables: Apply in a minimum finished spray volume of 100 L/ha by ground.

SITE	PEST	RATE Muscle/ha	SPECIFIC DIRECTIONS
BRASSICA VEGETABLES Broccoli, Broccoli (Chinese), Broccoli raab, Brussels Sprouts, Cabbage, Cabbage (Chinese, bok choy), Cabbage (Chinese, napa), Cabbage (Chinese mustard, choy), Cauliflower, Cavalo broccolo, Collards, Kale, Kohlrabi, Mizuna, Mustard Greens, Mustard Spinach, Rape Greens	Swede midge	250 mL For optimum control, apply Hasten™ NT Ultra Spray Adjuvant* at an application rate of 0.25% v/v or MSO™ Concentrate with LeciTech* at an application rate of 0.5% v/v.	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Monitor Swede midge activity every 2-4 days using Jackson traps baited with pheromone lures. Follow local threshold. Apply Muscle as soon as possible once the Swede midge threshold is reached. Applications on cabbage, Chinese cabbage (napa), cauliflower and Chinese broccoli (gai lon) must be made early in the growing season, before heads start to form. Given that there are multiple generations of Swede midge, several applications of insecticide (to a maximum of 4 per season) will likely be required.

RESTRICTIONS AND PRECAUTIONS: Brassica Vegetables

- Do not make more than 4 applications per season.
- Do not apply more than once every 3 days. For swede midge, make additional applications when monitoring indicates they are necessary, according to local thresholds.
- Do not apply less than 3 days before harvest. Observe a 3-day PHI.
- Do not exceed a total of 1 litre of Muscle per ha per season.
- Do not apply by air.
- **Do not make a foliar application of Muscle for a minimum of 60 days following an in-furrow or soil application or planting of seed or seed pieces treated with any Group 28 insecticide.**

FOR USE ON Globe Artichokes

Spray Volume for Globe Artichoke: Apply in a minimum finished spray volume of 100 L/ha by ground.

SITE	PEST	RATE Muscle/ha	SPECIFIC DIRECTIONS
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Globe Artichoke	Cutworms	250 mL to 375 mL	Begin applications when treatment thresholds have been reached.
	Armyworm		
	Cabbage looper	250 mL	Thorough coverage is important to obtain optimum control.

RESTRICTIONS AND PRECAUTIONS: Artichokes

- Do not make more than 4 applications per season.
- Do not apply more than once every 7 days.
- Do not apply less than 3 day before harvest. Observe a 3-day PHI.
- Do not exceed a total of 1.125 litres of Muscle per ha per season.
- Do not apply air.
- **Do not make a foliar application of Muscle for a minimum of 60 days following an in-furrow or soil application or planting of seed or seed pieces treated with any Group 28 insecticide.**

FOR USE ON GREENHOUSE CUCUMBERS, GREENHOUSE PEPPERS, GREENHOUSE EGGPLANTS, AND GREENHOUSE TOMATOES

Spray Volume for Greenhouse Vegetables: For greenhouse tomatoes, the maximum finished spray volume is 1400 L/ha. For greenhouse cucumbers, greenhouse eggplants, and greenhouse peppers, the maximum finished spray volume is 2000 L/ha.

SITE	PEST	RATE Muscle/1000 L finished spray volume	SPECIFIC DIRECTIONS
GREENHOUSE CUCUMBERS; GREENHOUSE PEPPERS; GREENHOUSE EGGPLANT; GREENHOUSE TOMATOES	Cabbage looper	125 mL	Begin applications when treatment thresholds have been reached. Thorough coverage is required to obtain optimum control. Repeat applications if monitoring indicates it is necessary

RESTRICTIONS AND PRECAUTIONS: Greenhouse Vegetables

- Do not make more than 3 applications per crop cycle.
- Do not apply more than once every 7 days.
- Do not apply less than 1 day before harvest. Observe a 1-day PHI.
- Do not exceed a total of 750 mL of Muscle per ha per crop cycle.
- DO NOT allow releases, effluent or runoff from greenhouses containing this product to enter lakes, streams, ponds or other waters.
- **Do not make a foliar application of Muscle for a minimum of 60 days following an in-furrow or soil application or planting of seed or seed pieces treated with any Group 28 insecticide.**

FOR USE ON GREENHOUSE PEPPERS, GREENHOUSE EGGPLANTS, AND GREENHOUSE TOMATOES

Spray Volume for Greenhouse Vegetables: Apply in a maximum finished spray volume of 1250 L/ha. Please note that the use of this product for control of tomato leafminer is restricted to plant growth stages for which thorough coverage can be achieved by application volumes of 1250 L/ha or less.

SITE	PEST	RATE Muscle/1000 L finished spray volume	SPECIFIC DIRECTIONS
GREENHOUSE PEPPERS; GREENHOUSE EGGPLANT; GREENHOUSE TOMATOES	Lepidopteran leafminer	200 mL / 1000L	Apply at egg hatch. Reapply if monitoring indicates it is necessary. Thorough coverage is important to obtain optimum control.

RESTRICTIONS AND PRECAUTIONS: Greenhouse Vegetables

- Do not make more than 3 applications per crop cycle.
- Do not apply more than once every 7 days.
- Do not apply less than 1 day before harvest. Observe a 1-day PHI.
- Do not exceed a total of 750 mL of Muscle per ha per crop cycle.
- DO NOT allow releases, effluent or runoff from greenhouses containing this product to enter lakes, streams, ponds or other waters.
- **Do not make a foliar application of Muscle for a minimum of 60 days following an in-furrow or soil application or planting of seed or seed pieces treated with any Group 28 insecticide.**

FOR USE ON GREEN ONIONS SUB GROUP – Crop group 3-07B

Spray Volume for Green Onion Subgroup: Apply in a minimum finished spray volume of 100 L/ha by ground.

SITE	PEST	RATE Muscle/ha	SPECIFIC DIRECTIONS
Green onion sub Group Leek, Onion, green Onion, Welsh, tops, Shallot, fresh leaves, Chive, fresh leaves, Chive, Chinese, fresh leaves, Elegans hosta, Fritillaria, Kurrat,	Cutworms Leek moth (suppression) Leafminers: <i>Liriomyza sativae</i> <i>Liriomyza trifolii</i>	250 mL to 375 mL	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control.

Lady's leek, Onion, Beltsville bunching, Onion, fresh, Onion, macrostem, Onion, tree, tops, Wild leek			
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RESTRICTIONS AND PRECAUTIONS: Green onion sub group

- Do not make more than 4 applications per season.
- Do not apply by air.
- Do not apply more than once every 5 days.
- Do not apply less than 1 day before harvest. Observe a 1-day PHI.
- Do not exceed a total of 1.125 litres of Muscle per ha per season.
- **Do not make a foliar application of Muscle for a minimum of 60 days following an in-furrow or soil application or planting of seed or seed pieces treated with any Group 28 insecticide.**

FOR USE ON GARDEN AND SUGAR BEETS

Spray Volume for Garden Beets and Sugar beets: Apply in a minimum finished spray volume of 100 L/ha by ground or 50 L/ha by air.

SITE	PEST	RATE Muscle/Ha	SPECIFIC DIRECTIONS
Sugar beets Garden beets	Beet webworm	250 mL to 375 mL	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control.

RESTRICTIONS AND PRECAUTIONS: Garden and Sugar Beet

- Do not make more than 4 applications per season.
- Do not apply more than once every 3 days.
- Do not apply less than 1 day before harvest. Observe a 1-day PHI.
- Do not exceed a total of 1.125 litres of Muscle per ha per season. Use the high rate under heavy pest pressure.
- Thorough coverage is important to obtain optimum control.

<Minor use box ends>

Tank Mix Options:

To provide a broader spectrum of pest control, Muscle may be tank mixed with POUNCE® 384EC Insecticide*.

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 S572.1) fine classification. Boom height must be 60 cm or less above the crop or ground.

Spray Buffer Zones:

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

The spray 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.

Method of Application	Crop	Spray buffer zones (meters) required for the protection of			
		Freshwater habitat of depths:		Estuarine/Marine Habitat of depths:	
		Less than 1m	Greater than 1 m	Less than 1 m	Greater than 1 m
Field sprayer	Root and Tuber vegetables, Fruiting vegetables, leafy vegetables, brassica vegetables, Legume vegetables, cucurbit vegetables, corn, grass forage, fodder, and hay, nongrass animal feeds, mint, Oilseeds, okra, globe artichokes, green onion subgroup and cereal grains	1	1	1	0

The spray buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Spray Buffer Zone Calculator on the Pesticides portion of the Canada.ca website.

When tank mixes are permitted, consult the labels of the tank mix partners and observe the largest (most restrictive) spray 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.

AERIAL APPLICATION LABEL INSTRUCTIONS

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/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) fine classification. Reduce drift caused by turbulent wingtip vortices. Nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

Method of Application	Crop		Spray buffer zones (meters) required for the protection of			
			Freshwater habitat of depths:		Estuarine/Marine Habitat of depths:	
			Less than 1m	Greater than 1 m	Less than 1 m	Greater than 1 m
Aerial	Potato, Corn (field, pop,	Fixed Wing	15	1	1	0

	seed and sweet), Legume vegetables, Oilseeds and cereal grains, sugar beets and garden beets	Rotary wing	10	1	1	0
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The spray buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Spray Buffer Zone Calculator on the Pesticides portion of the Canada.ca website.

When tank mixes are permitted, consult the labels of the tank mix partners and observe the largest (most restrictive) spray 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.

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

Operator Precautions for Aerial Application

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 for Aerial Application

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-919-226-1195 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 50 litres per hectare.

MIXING INSTRUCTIONS:

Spray equipment must be clean and free of previous pesticide deposits before applying Muscle. Fill spray tank 1/4

to 1/2 full of water. Add Muscle directly to spray tank. Mix thoroughly to fully disperse the insecticide; once dispersed continued agitation is required. Once the product has been well mixed, add an adjuvant, where applicable, while continuously mixing. Recommendations regarding the use of adjuvants are provided under the Directions for Use Section of this label. Use mechanical or hydraulic means; do not use air agitation. Spray mix should not be stored overnight in spray tank.

SPRAYER CLEANUP:

Prior to application, start with clean, well maintained application equipment. Immediately following application, thoroughly clean all spray equipment to reduce the risk of forming hardened deposits which might become difficult to remove.

Drain spray equipment. Thoroughly rinse sprayer and flush hoses, boom and nozzles with clean water. Clean all other associated application equipment. Take all necessary safety precautions when cleaning equipment. Do not clean near wells, water sources or desirable vegetation.

Dispose of waste rinse water in accordance with local regulations.

RESISTANCE MANAGEMENT RECOMMENDATIONS:

For resistance management, Muscle contains a Group 28 insecticide. Any insect population may contain individuals naturally resistant to Muscle and other Group 28 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 Muscle or other Group 28 insecticides with different groups that control the same pests.
- Make no more than 2 successive applications per generation to the same insect species on a crop. The following application to the target pest(s) must be with an effective product with a different mode of action.
- Use tank mixtures with insecticides from a different group that is effective on the target pest when such use is permitted.
- Insecticide use should be based on an IPM program that includes scouting and 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 Sipcam Agro USA, Inc. at 1-919-226-1195.

Muscle is a trademark of Sipcam Agro USA, Inc.

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