# **GROUP 3 INSECTICIDE**

#### **ZIVATATM**

#### **Emulsifiable Concentrate Insecticide**

COMMERCIAL (AGRICULTURAL)

For the Control of Listed Insects on Oilseeds, Cereals, Pasture, Tree Fruit, Strawberries, Tobacco, Potatoes, Tomatoes, Cole Crops, Leaf and Head Lettuce, Greenhouse Lettuce, Bulb Vegetables (Crop Group 3), Chokecherry, Legume Vegetables (Crop Group 6), Corn, Ferns of Asparagus, Timothy Grown for Hay or Seed, Sweet Potato, Carrots and Outdoor Ornamentals

#### **ACTIVE INGREDIENT:**

Lambda-cyhalothrin ...... 120 g/L

# READ THE LABEL AND ATTACHED PAMPHLET BEFORE USING

# KEEP OUT OF THE REACH OF CHILDREN



#### **EYE IRRITANT**

#### POTENTIAL SKIN SENSITIZER

REGISTRATION NO. 32427 PEST CONTROL PRODUCTS ACT

NET CONTENTS: 1 – 1050 L

ADAMA Agricultural Solutions Canada Ltd. 300 - 191 Lombard Avenue Winnipeg MB R3B 0X1 1-855--264-6262

For emergency medical help and health/safety inquires call ProPharma at 1-877-250-9291 (24 hours a day)

For spill, leak or fire call INFOTRAC at 1-800-535-5053 (24 hours a day)

2021-5772 2021-12-06

**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.

#### **FIRST AID**

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

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

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

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

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

# TOXICOLOGICAL INFORMATION

Treat symptomatically.

#### **PRECAUTIONS**

- 1. KEEP OUT OF THE REACH OF CHILDREN AND ANIMALS. Keep unused product in original container tightly closed, locked up and away from food.
- 2. Harmful or fatal if swallowed. May irritate eyes. Avoid contact with eyes. Potential skin sensitizer. If hands are contaminated, wash with soap and water before touching other areas of skin. When applying this product workers must wear long pants, long-sleeved shirts, and chemical resistant boots. In addition, during mixing, loading, clean-up and repair activities, workers must also wear chemical resistant gloves, safety goggles and a face shield. Avoid touching face with contaminated gloves or clothing. Wash gloves before removal. Wash protective equipment with soap and water after each use. Applicators using airblast equipment must also wear either a respirator with a NIOSH/MSHA/BHSE approved organic vapour removing cartridge with a prefilter approved for pesticides OR a NIOSH/MSHA/BHSE approved canister approved for pesticides.
- 3. Do not re-enter treated areas until 24 hours after treatment. Workers shall be given oral warning of the re-entry interval.
- 4. ZIVATA<sup>TM</sup> may be applied aerially only to those crops for which this use is specified on this label.

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

#### **ENVIRONMENTAL PRECAUTIONS**

This product contains an active ingredient that is TOXIC to aquatic organisms. Observe buffer zones specified under DIRECTIONS FOR USE. This product is toxic to bees when exposed to direct treatment, drift, or residues on flowering crops or weeds. DO NOT apply this product to flowering crops or weeds if bees are visiting the treatment area. Minimize spray drift to reduce harmful effects on bees in habitats close to the application site. Spray deposits should be dry before bees commence foraging in treated crop. 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 strip between the treated area and the edge of the water body.

#### **STORAGE**

Store in a cool, well ventilated area away from foodstuffs and out of the reach of children and animals. Store above 0°C. Storage below 0°C will not impair the effectiveness of ZIVATA<sup>TM</sup>, however, following such storage, agitate well before use.

# **SPILL CLEANUP**

Wear appropriate protective equipment (gloves, glasses, apron) when attempting to clean up the spill. If the container is leaking, secure leak and place the container into a drum or heavy gauge plastic bag. Contact ADAMA Agricultural Solutions Canada Ltd. at 1-855-264-6262 for further information.

For spills and leaks – contain the liquid with dikes of inert material (soil, clay, kitty litter, etc.). Absorb the spill onto inert material and shovel into a sealable waste container.

On hard surfaces – sprinkle spill area with detergent and scrub in a small quantity of water with a coarse broom. Let stand 10 minutes then absorb onto an inert material and shovel into the waste container. Dispose of all waste, including broom, in accordance with provincial requirements.

On soil – remove the top 15 cm of soil in the spill area and replace with fresh soil. Dispose of all waste in accordance with provincial requirements. For more information on the disposal of waste and the clean-up of spills, contact the provincial regulatory agency and the manufacturer.

# DISPOSAL OF UNUSED, UNWANTED PRODUCT

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.

#### CONTAINER DISPOSAL

# **Recyclable Container:**

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.

# IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING CALL 1-800-535-5053 (24 hours a day)

ZIVATA is a trademark of an ADAMA Group Company. All other trademarks are the property of their respective owners.

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# PRODUCT INFORMATION

ZIVATA<sup>TM</sup> is a photostable, synthetic pyrethroid insecticide. It is a fast acting stomach and contact insecticide effective against a broad spectrum of foliar pests. It has no fumigant or systemic activity. Best results will be obtained with ZIVATA<sup>TM</sup> when applied against the early development stages of the pest as determined by regular monitoring.

# **DIRECTIONS FOR USE**

Control of some insect species with pyrethroid insecticides decreases as temperature rises. For best results, apply ZIVATA<sup>TM</sup> during the early morning before temperatures rise, and during the evening, past the heat of the day. Use sufficient water for thorough coverage.

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

Optimum application timing for the control of specific pest species is best determined by monitoring pest development and populations. In general, ZIVATA<sup>TM</sup> is most effective against early developmental stages of surface feeding pests and against adults of pests which deposit eggs within plant parts. Follow recommendations provided by local pest monitoring services regarding appropriate application timing for your area. Follow provincial spray calendars for optimum timing of programmed spray applications.

Repeated applications are not advised for orchards where integrated pest management programs are being followed because severe reductions in beneficial arthropods may result. If pest monitoring services recommend repeated insecticide applications, consider alternating ZIVATA<sup>TM</sup> applications with insecticides from different classes to prevent the development of resistant pest populations. Localized populations of some insect pests (e.g., Colorado Potato Beetle, Spotted Tentiform Leafminer) have developed resistance to other synthetic pyrethroid insecticides and can be expected to quickly develop resistance to ZIVATA<sup>TM</sup>. Consult regional extension specialists regarding the susceptibility of local populations. Follow Integrated Pest

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Management (IPM) techniques to minimize the need for insecticide applications and ensure that needed applications are timed for optimum effectiveness.

# **Ground Application:**

<u>Field sprayer application:</u> DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

<u>Airblast application:</u> 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**

# Generic Aerial Application Label Instructions - 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 shelter-belt) 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 using this product.

For aerial applications, ensure the aircraft is equipped and calibrated to deliver a uniform spray coverage with a minimum potential for drift. To ensure uniform application, use an appropriate marking device. Apply in weather conditions that will not promote drift. Suggested conditions for good aerial application are moderate temperatures (less than 25°C), moderate relative humidity (greater than 40%), and light winds (3 to 9 km/h).

Use only medium or coarse nozzles rated as delivering droplets of volume median diameter of 215 microns or greater. Examples: 6506 flat fan, CP 0.125 deflector nozzle with a low shear deflector angle (30 degrees), D12-56 disc-core.

Apply in a spray volume of 10 to 40 litres per hectare. Use water volumes at the higher end of this range to ensure good coverage for optimum insect control and to minimize drift. Do not apply more than 83 mL ZIVATA<sup>TM</sup> per hectare per treatment occasion by air.

Aerial application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length MUST NOT exceed 65% of the wing or rotorspan.

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 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.

Clean and decontaminate protective clothing and application equipment regularly.

# **Buffer Zones**

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment. The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of Application	Crop	Buffer zones (metres) Required for the Protection of:						
			Freshwater Depths:	Habitats of		Estuarine/Marine Habitats of Depths:		
			Less than 1	Greater than 1 m	Less than 1	Greater than 1 m		
Field Sprayer	All field crops and outdoor ornamentals		15	15	15	15		
Airblast	All orchard fruit crops and outdoor ornamentals		80	80	80	80		
Aerial	Potatoes, oilseed crops, cereal crops, alfalfa, unimproved pasture, summerfallow	Fixed or Rotary wing	100	20	100	100		
	Field and	Fixed wing	225	20	800	800		
	Sweet corn	Rotary wing	250	15	800	500		
	Legume	Fixed wing	600	25	800	800		
	vegetables	Rotary wing	300	20	800	525		

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.

# FRUIT CROPS

CROPS	PEST	RATE	APPLICATION	APPLICATION	NOTES
		(mL/ha)	METHOD	TIMING	
APPLES	Apple Aphid,	83	Ground	Timing of	DO NOT
	Apple Brown		application only	applications	apply within
	Bug, Apple			should be based	7 days of

	Leaf Midge, Codling Moth, Fruit Tree Leafroller, Oblique Banded Leafroller, Pale Apple Leafroller, Spotted Tentiform Leafminer, White Apple Leafhopper, Winter Moth Plum	104	Ground application only	on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.	harvest. DO NOT use more than 3 applications per year. Allow a 7 day interval between treatments. DO NOT APPLY BY AIR.
	Curculio, Tarnished Plant Bug, Woolly Apple Aphid		application only		
CHERRIES	Plum Curculio, Cherry Maggot	104	Ground application only	Plum Curculio: Shuck stage, when the fruit is the size of a pea, and 10 to 12 days later if oviposition scars are detected. Cherry Maggot: When the fruit is turning from green to pink. A second application may be required 10 days later.	more than 3 applications per year. Allow a 7 day interval between treatments. DO NOT APPLY BY AIR.
PEACHES AND NECTARINES	Green Peach Aphid, Oriental Fruit Moth, Tarnished Plant Bug	104	Ground application only	Presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.	DO NOT apply within 7 days of harvest. DO NOT use more than 3 applications per year.

					Allow a 7 day
					interval
					between
					treatments.
					DO NOT
					APPLY BY
					AIR.
PEARS	Pear Psylla	83	Ground	Presence of	DO NOT
1 21 11 10	(nymphs and		application only	vulnerable pest	apply within
	adults),			developmental	7 days of
	Codling Moth			stages and	harvest. DO
				significant	NOT use
				populations as	more than 1
				determined by	application
				local monitoring.	per year.
				8	DO NOT
					APPLY BY
					AIR.
PLUMS	Plum	104	Ground	Plum Curculio:	DO NOT
	Curculio,		application only	Shuck stage,	apply within
	Mealy Plum			when the fruit is	7 days of
	Aphid			the size of a pea,	harvest. DO
				and 10 to 12 days	NOT use
				later if	more than 3
				oviposition scars	applications
				are detected.	per year.
				Mealy Plum	Allow a 7 day
				Aphid: Timing of	
				applications	between
				should be based	treatments.
				on local	DO NOT
				monitoring for	APPLY BY
				significant	AIR.
	D 1 (GII )	404	~ .	populations.	DO MOR
STRAWBERRIES	\ 11 /	104	Ground	Bud Weevil:	DO NOT
	Weevil,		application only	when buds are	apply within
	Meadow			visible in crown	7 days of
	Spittle Bug			and again when	harvest. DO
	and Tarnished			first buds show	NOT use
	Plant Bug,			white.	more than 3
	Black Vine			Spittle Bug: when first noticed.	
	Weevil adults				per year.
	(Suppression			Plant Bug: 7 to	Allow a 7 day
	only)			10 days after first	
				bloom and repeat	
				7 to 10 days later.	neaments.

		Black Vine	DO NOT
		Weevil adults:	APPLY BY
		Applications to	AIR.
		be made as soon	Black Vine
		as weevils	Weevil
		appear, and just	adults: For
		after the final	the
		harvest of	suppression
		strawberries.	of black vine
			weevil adults,
			apply in
			sufficient
			water to
			ensure
			thorough
			coverage. The
			recommended
			application
			volume is
			300-400 L/ha.

# VEGETABLE CROPS

CROPS	PEST	RATE	APPLICATION	APPLICATION	NOTES
		(mL/Ha)	METHOD	TIMING	
COLE CROPS	Crucifer Flea	42	Ground	Timing of	DO NOT
(Broccoli,	Beetle,		application only	applications	apply within
Brussels Sprouts,	Diamondback			should be based	1 day of
Cabbage,	Moth Larvae,			on the presence	harvesting
Cauliflower)	Imported			of vulnerable pest	cabbage and
	Cabbageworm			developmental	3 days of
	Cabbage	83		stages and	harvesting
	Looper			significant	broccoli,
				populations as	Brussels
				determined by	sprouts or
				local monitoring.	cauliflower.
					DO NOT use
					more than 3
					applications
					per year.
					Allow a 7 day
					interval
					between
					treatments.

					DO NOT
					APPLY BY
					AIR.
CORN (including	Fall	83	Ground or aerial	Spray no later	DO NOT
		0.3		than when the	
field, pop and	Armyworm, Cutworms,		application	first feeding is	apply within 1 day of
sweet types, and				seen on foliage.	harvest for
crops grown for seed production)	European Corn Borer,			Repeat sprays at	sweet corn.
seed production)	Corn Corn			4 to 7 day	DO NOT
	Earworm			intervals	apply within
				depending on the	14 days if the
				presence of	crop is being
				significant	harvested for
				populations as	silage.
				determined by	Ground
				local monitoring.	Application:
				Where there are	DO NOT use
				two generations,	more than 3
				late plantings of	applications
				sweet corn will	per year.
				require sprays	Aerial
				from the late	Application:
				whorl stage until	DO NOT
				close to harvest.	make more
				This treatment	than 2
				will not prevent	applications
				internal cob	of 83 mL/ha
				damage if the	of the
				insect has	allowed
				penetrated the	seasonal total
				ear. Cutworms (up to	by air.
				the 5-leaf stage):	
				Applications	
				should be made	
				under moist	
				conditions in the	
				evening or night	
				when cutworm	
				activity is	
				highest. Do not	
				disturb the soil	
				surface for 5 days	
				after treatment.	
Tank Mix with Bu	ımper® 432 E	C Fungici	de		•

ZIVATA<sup>TM</sup> can be tank mixed with Bumper® 432 EC Fungicide for insect and foliar disease control. Apply ZIVATA<sup>TM</sup> at a rate of 83 mL/ha in tank mix with Bumper® 432 EC Fungicide at a rate of 150-300 mL/ha. Refer to both the ZIVATA<sup>TM</sup> and Bumper® 432 EC Fungicide labels for insects and diseases controlled, specific application instructions and precautions. Insects and crops must be at the correct stage as specified on the ZIVATA<sup>TM</sup> as well as Bumper® 432 EC Fungicide labels.

This tank mix can be applied by air and ground. Use 40 L of water per hectare when applying by air.

This tank mix is not registered for use on popcorn.

Do not harvest treated corn within 14 days of this tank-mix application.

Do not make more than 3 applications on seed corn and 2 applications on field and sweet corn per year.

Compatibility should always be confirmed by premixing small proportional quantities of water, ZIVATA<sup>TM</sup>, and the tank-mix partner in advance.

CROPS	PEST	RATE	APPLICATION	APPLICATION	NOTES
		(mL/ha)	METHOD	TIMING	
POTATOES	Potato Flea	83	Ground	When insects or	The maximum
	Beetle, Potato		application	damage appear.	rate per season
	Leafhopper,	83	Aerial application	Timing of	must not
	Tarnished			applications	exceed 250 mL
	Plant Bug,			should be based	of product per
	Tuber Flea			on the presence of	hectare.
	Beetle			vulnerable pest	DO NOT
				developmental	apply within 7
				stages and	days of
				significant	harvest.
				populations as	Ground
				determined by	Application:
				local monitoring.	DO NOT use
				Allow a 7 day	more than 3
				interval between	applications
				treatments.	per year if
	Colorado	83 to 125	Ground	Use 125 mL rate	using the 83
	Potato Beetle:		application	when Colorado	mL per hectare
	susceptibility	83	Aerial application		rate.
	to pyrethroid			larvae are beyond	
	insecticides			the second instar	more than 2
	should be			stage of	applications
	confirmed			development or	per year if
	using an			when populations	
	appropriate				mL per hectare
	assay.			7 day interval	rate.
				between	Use a
				treatments.	minimum of

	European corn	83	Ground	Spray at egg	100 L water
	borer		application	hatch and no later	_
		83	Aerial application		application.
				first feeding	Use sufficient
				damage is seen on	water for
				foliage. Reapply	thorough
				at 4 to 7 day	coverage.
				intervals if	Aerial
				monitoring	Application:
				indicates that it is	DO NOT make
				necessary.	more than 2
				Consult	applications of
				provincial	83 mL/ha of
				guidelines and	the allowed
				local extension	seasonal total
				experts for	by air.
				monitoring	
				protocols and	
				thresholds for	
				treatment.	
TOMATOES	Potato Flea	83	Ground	When insects or	DO NOT
	Beetle, Potato		application only	damage appear.	apply within 7
	Leafhopper,			Timing of	days of
	Tarnished			applications	harvest. DO
	Plant Bug,			should be based	NOT use more
	Cutworms			on the presence of	than 3
	Colorado	83-125	Ground	vulnerable pest	applications
	Potato Beetle:		application only	developmental	per year if
	susceptibility			stages and	using the
	to pyrethroid			significant	83 mL per
	insecticides			populations as	hectare rate.
	should be			determined by	DO NOT use
	confirmed			local monitoring.	more than 2
	using an			Cutworms (up to	applications
	appropriate			the 5- leaf stage):	per year if
	assay.			Applications	using the
				should be made	125 mL per
				under moist	hectare rate.
				conditions in the	Allow a 7 day
				evening or night	interval
				when cutworm	between
				activity is highest.	
				Do not disturb the	The maximum
				soil surface for 5	rate per season
				days after	must not
				treatment.	exceed 250 mL

	Colorado Potato	of product per
	Beetle: Use	hectare.
	125 mL per	DO NOT
	hectare rate when	APPLY BY
	Colorado Potato	AIR.
	Beetle larvae are	
	beyond the	
	second instar	
	stage of	
	development, or	
	when populations	
	are high.	

# TOBACCO

CROPS	PEST	RATE		APPLICATION	NOTES
		(mL/Ha)	METHOD	TIMING	
TOBACCO	Cutworm	2 mL/30	Ground	Cutworm activity	
Seedlings,	(Darksided	L water	application only	is greatest during	
Greenhouse	and White)			the late evening	30 L of water
				and night.	and apply to 200
				Application of	m <sup>2</sup> of plant bed.
				$ZIVATA^{TM}$	DO NOT
				should be timed	APPLY BY
				as close as	AIR.
				possible to insect	
				feeding activity.	
FIELD	Cutworm	2 mL/30	Ground	Cutworm activity	
TOBACCO	(Darksided	L water	application only		recommended
	and White)			the late evening	rate of
				and night.	ZIVATA <sup>TM</sup> in
				Application of	225 to 450 L of
				ZIVATA <sup>TM</sup>	water per
				should be timed	hectare using
				as close as	spray pressure
				possible to insect	
				feeding activity.	kPa.
					DO NOT
					APPLY BY
					AIR.
COVER CROP	Cutworm	42	Ground	When crop is 10	Apply 42 mL of
TREATMENT	(Darksided		application only	to 15 cm high, 4-	ZIVATA <sup>TM</sup> per
(RYE OR	and White)			5 days before	hectare once to
WHEAT)				ploughdown.	rye or wheat
				Cutworm activity	
				is greatest during	Application

				the late evening	should also be
				and night. Application of ZIVATA <sup>TM</sup> should be timed	made to fence rows and to a 15 m strip into nearby cover
				as close as possible to insect feeding activity.	crop. DO NOT APPLY BY AIR.
SOIL TREATMENT	Cutworm (Darksided and White)	83	Ground application only	Apply once to the soil 5 days before transplanting. Cutworm activity is greatest during the late evening and night. Application of ZIVATA <sup>TM</sup> should be timed as close as possible to insect feeding activity.	incorporate. DO NOT disturb the
POST PLANTING TREATMENT	Cutworm (Darksided and White)	83	Ground application only	the late evening and night. Application of ZIVATA <sup>TM</sup> should be timed as close as	Spray in a 25 cm band over the row using 150 to 300 L of water per hectare. Under conditions of severe insect pressure, application should be made to fence rows and to a 15 m wide strip into nearby cover crops. A follow-

		up treatment
		with another
		insecticide
		registered for
		this use may be
		necessary if
		there are late
		developing
		cutworms.
		DO NOT use
		more than 1
		application per
		year. DO NOT
		apply within 60
		days of harvest.
		DO NOT
		APPLY BY
		AIR.

# OILSEED CROPS

CROPS	PEST	RATE	APPLICATION	APPLICATION	NOTES
		(mL/ha)	METHOD	TIMING	
CANOLA and	Crucifer Flea	83	Ground	For Cabbage	To prevent
MUSTARD	Beetle, Lygus	83	Aerial	Seedpod Weevil	migration of
	Bug, Cabbage			(adults): Apply at	overwintering
	Seedpod			the bud to early	flea beetle
	Weevil			flowering stage of	adults
	(adults)			crop	throughout the
				development.	field, ground-
				Timing of	spray a 15 m
				applications	strip around
				should also be	the field at the
				based on the	first sign of
				presence of	flea beetle
				significant	feeding.
				populations of	Do not apply
				adults, as	within 7 days
				determined by	of harvest.
				local monitoring.	Do not use
				Application prior	more than 3
				to adult migration	applications
				into the field will	per year.
				not be effective.	Allow a 7 day
				ZIVATA <sup>TM</sup> will	interval
				not control larvae	

	Imported Cabbageworm, Diamondback Moth Larvae, Cabbage Looper, Bertha Armyworm		Ground Aerial	developing within the pod, and must be applied prior to egg laying.  Apply when the insects are at a vulnerable stage (early larval instars). Consult provincial guidelines and local extension experts for treatment threshold and advice.	treatments. For cabbage seedpod weevil: Do not make more than 1 application per season by either ground or aerial application equipment. Aerial Application: Do not make
OLDIEL OWED C	Grasshoppers	63-83	Aerial	Apply the low rate when grasshoppers are up to the 3rd nymphal stage (up to 1 cm in length) or when insect numbers are low. Apply the high rate when grasshoppers are larger, up to but not including winged adults (up to 2.5 cm in length) or when insect numbers are high. If insect pressure is high apply a spray to a 15 m strip around the field. Avoid environmentally sensitive areas and unregistered crops.	more than 1 application of 83 mL/ha of the allowed seasonal total by air.
SUNFLOWERS	Sunflower beetle	42-63 83	Ground Aerial	Apply when insects appear. Use the higher	Do not apply within 7 days of harvest. Do

				rate to control adults.	not use more than 3 applications per year. Allow a 7 day interval between treatments. Aerial Application: Do not make more than 1 application of 83 mL/ha of the allowed seasonal total by air.
FLAX	Grasshoppers	63-83	Aerial	Apply the low rate when grasshoppers are up to the 3rd nymphal stage (up to 1 cm in length) or when insect numbers are low. Apply the high rate when grasshoppers are larger, up to but not including winged adults (up to 2.5 cm in length) or when insect numbers are high. If insect pressure is high apply a spray to a 15 m strip around the field. Avoid environmentally sensitive areas and unregistered crops.	application of 83 mL/ha of the allowed

# CEREAL CROPS

CROPS	PEST	RATE	APPLICATION	APPLICATION	NOTES
		(mL/ha)	METHOD	TIMING	
WHEAT,	Grasshoppers	63-83	Ground	Apply the low	Do not apply
BARLEY,		83	Aerial	rate when	within 28 days
OATS				grasshoppers are	of harvest or
				up to the 3rd	14 days of
				nymphal stage	livestock
				(up to 1 cm in	foraging. Do
				length) or when	not use more
				insect numbers	than 3
				are low. Apply	applications
				the high rate	per year.
				when	Allow a 7 day
				grasshoppers are	interval
				larger, up to but	between
				not including	treatments.
				winged adults (up	
				to 2.5 cm in	Application:
				length) or when	Do not make
				insect numbers	more than 2
				are high. If insect	
				pressure is high	83 mL/ha of
				apply a spray to a	the allowed
				15 m strip around	
				the field. Avoid	by air.
				environmentally	
				sensitive areas	
				and unregistered	
				crops.	

#### Tank Mix with LADDER

ZIVATA<sup>TM</sup> can be tank mixed with Ladder® for one pass grasshopper and weed control in spring and durum wheat, if monitoring of grasshopper populations indicates application is necessary and timing is correct. Consult the Ladder label for rates and weeds controlled. DO NOT APPLY BY AIR.

# Tank mix with Bison 400L® or Achieve® Liquid Herbicide

ZIVATA<sup>TM</sup> can be tank mixed with Bison 400L® or Achieve Liquid Herbicide for one pass grasshopper and wild oat control in spring wheat and spring barley, if monitoring of grasshopper populations indicates application is necessary and timing is correct. A reduction in control of green foxtail and yellow foxtail may be observed when ZIVATA<sup>TM</sup> is tank mixed with Bison<sup>TM</sup> 400L or Achieve Liquid Herbicide. Consult Bison 400L® or Achieve Liquid Herbicide labels for use instructions and rates. For ground application only. DO NOT APPLY BY AIR.

# OTHER USES

CROPS	PEST	RATE	APPLICATION	APPLICATION	NOTES
		(mL/ha)	METHOD	TIMING	
ALFALFA,	Grasshoppers	63-83	Ground	Apply the low	Do not apply
UNIMPROVED			application	rate when	within 3 days
PASTURE		83	Aerial application	grasshoppers are	of livestock
				up to the 3rd	foraging. Do
				nymphal stage	not use more
				(up to 1 cm in	than 3
				length) or when	applications
				insect numbers	per year.
				are low. Apply	Allow a 7 day
				the high rate	interval
				when	between
				grasshoppers are	treatments.
				larger, up to but	Alfalfa seed
					from treated
				winged adults (up	
				to 2.5 cm in	be used for
				length) or when	production of
				insect numbers	'alfalfa sprouts'
				are high. If insect	
				_	consumption.
				apply a spray to a	
				15 m strip around	
					Do not make
				environmentally	more than 1
				sensitive areas	application of
				and unregistered	83 mL/ha of
		0.5	- 4	crops.	the allowed
ALFALFA	Alfalfa	83	Ground	Timing of	seasonal total
	Weevil, Lygus		application only	applications	by air.
	Bug,			should be based	
	Tarnished			on the presence of	
	Plant Bug, Pea			vulnerable pest	
	Aphid, Potato			developmental	
	Leafhopper			stages and	
				significant	
				populations as	
				determined by	
				local monitoring.	

#### **ALFALFA Rate Conversion Chart**

Rate (mL/ha)	Hectares treated with 1 L products
42	23.8
63	15.9
83	12.0
104	9.6
125	8.0

#### MINOR USES

**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(s) described below were developed by persons other than ADAMA Agricultural Solutions Canada Ltd. (ADAMA) under the User Requested Minor Use Label Expansion program. For these uses, ADAMA 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.

#### DIRECTIONS FOR USE

CROPS	PEST	RATE	APPLICATION	APPLICATION	NOTES
		(mL/ha)	METHOD	TIMING	
Bulb	Onion Thrips	188	Ground	Foliar application	Use 500 L/ha of
Vegetables	_		application only	by ground boom	water for
(Crop Group				sprayer when the	thorough
3: Garlic;				insect or damage	coverage. Do not
Elephant				appears.	apply within 14
Garlic;				Thorough	days of harvest.
Leek; Dry				coverage and	Do not use more
Bulb, Green				penetration of	than 3
and Welch				spray droplets	applications per
Onion;				into the leaf	year. Allow a 7
Shallots)				whorls, where	day interval
				most thrips are	between
				feeding and	treatments.
				hiding, are	DO NOT APPLY
				essential for good	BY AIR.
				control. Consult	FOR USE ON
				provincial	LEEKS IN
				guidelines and	

				local extension	ONTARIO
				experts for	ONLY.
				treatment	
				threshold for	
				different crops.	
				For hand harvest	
				and thinning	
				green onions, DO	
				NOT re-enter	
				treated areas for	
				10 days after	
				treatment. For all	
				other activities, DO NOT re-enter	
				treated areas until	
				24 hours after	
				treatment. For all	
				other crops, DO	
				NOT re-enter	
				treated areas until	
				24 hours after	
				treatment.	
				Workers should	
				be given oral	
				warning of the re-	
				entry interval.	
Head	Cabbage	83	Ground	Timing of	Use 500 L/ha of
Lettuce	Looper,		application only	applications	water for
	Tarnished			should be based	thorough
	Plant Bug,			on the presence	coverage. Do not
	Darksided			of vulnerable pest	
	and White			developmental	days of harvest.
	Cutworms			stages and	Do not use more
Leaf Lettuce	Tarnished			significant	than 3
	Plant Bug			populations as	applications per
	_			determined by	year. Allow a 7
				local monitoring.	day interval
					between
					treatments.
					DO NOT APPLY
					BY AIR.
Choke	Prairie Tent	58	Ground	Prairie Tent	Apply as a foliar
Cherry	Caterpillar,		application only	Caterpillar:	spray so leaves
shelterbelts	Ugly Nest			Apply prior to	are wet but not
	Caterpillar,			flowering when	dripping.
				tents are visible,	

	Fruit tree Leafroller			late May.  Ugly Nest  Caterpillar:  Apply after flowering when tents are first	Do not use more than 1 application per year. Use 1000 L/ha of water for thorough coverage. DO NOT APPLY BY AIR.
BRASSICA Broccoli, Brussels Sprouts, Cabbage, Cauliflower	Swede Midge (Contarinia nasturtii)	83	Ground application only	Timing of applications should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.	Do not apply within 1 day of harvesting cabbage and 3 days of harvesting broccoli, Brussels sprouts or cauliflower. Do not use more than 3 applications per crop per year (249 mL product/year). Allow at least a 7 day interval between treatments. Use sufficient water for thorough coverage, 100 to 200 L/ha by ground sprayer. DO NOT APPLY BY AIR.

Crop	Onion Thrips	188	Ground	Apply when the	Apply by foliar
Subgroup	1		application only	insect first	broadcast spray.
5A (Head			•	appears	
and Stem					DO NOT apply
Brassica					within 1 day for
Subgroup):					mechanical
Broccoli,					harvesting
Chinese					cabbage and 3
broccoli (gai					days for
lan),					mechanical
Brussels					harvesting all
sprouts,					other crops in
cabbage,					Crop Group 5A.
Chinese					Crop Group 371.
cabbage					DO NOT apply
(napa),					within 6 days for
Chinese					hand harvesting
cabbage,					all crops in Crop
mustard (gai					Group 5A.
choy),					Group 3A.
cauliflower,					DO NOT enter or
covolo					allow worker
broccoli and					entry into treated
kohlrabi					areas during the
Komiaoi					restricted entry
					interval (REI) of
					4 days for
					scouting and 6
					days for hand
					pruning, topping,
					irrigation,
					thinning and
					tying. An REI of
					24 hours is
					required for all
					other activities.
					DO NOT
					DO NOT apply
					more than 3
					applications per
					growing season.
					Allow o 7 day
					Allow a 7 day
					interval between
					treatments.

					DO NOT APPLY BY AIR.  Apply in sufficient water to ensure thorough coverage. A water volume of 500 L/ha is
					recommended
	VEGETABLE		1	[	
CROPS	PEST	RATE		APPLICATION	NOTES
Cardagan	Cardana	mL/Ha	METHOD	The need and	Tiulass athamaisa
Soybean	Soybean	83-233	Ground	The need and	Unless otherwise
	aphids <sup>1</sup> Pea Aphid <sup>1</sup>	83	application  Aerial application	timing of	indicated, repeat sprays at 4 to 7
	Bean aphid <sup>1</sup>	0.3	Aeriai application	should be based	day intervals
	Western	83-187	Ground	on the presence	depending on the
	bean	03-107	application	of vulnerable pest	
	cutworm <sup>3,5</sup>	83	Aerial application		significant
	Grasshoppers		Ground or aerial	stages and	populations as
	Cutworms <sup>3</sup>		application	significant	determined by
	Lygus bugs		арричиной	populations as	local monitoring.
	Bean Leaf	83-233	Ground	determine by	
	beetle <sup>2</sup>		application	local monitoring.	<b>DO NOT</b> apply
		83	Aerial application	<sup>1</sup> For aphids, use	within 14 days of
BEANS,	Soybean	83-233	Ground	the higher rate	harvesting for
succulent	aphids <sup>1</sup>		application	when conditions	edible podded
and dry	Pea Aphid <sup>1</sup>	83	Aerial application	favour rapidly	peas, succulent
edible*	Bean aphid <sup>1</sup>			increasing aphid	shelled beans
	Western	83 - 187	Ground	populations.	(including
	bean		application	Repeat sprays at	succulent fava
	cutworm <sup>3,5</sup>	83	Aerial application	7 day intervals	beans), and
	Cutworms <sup>3</sup>	83	Ground or aerial	depending on the	succulent shelled
	Corn Borer <sup>4</sup>		application	presence of significant	peas.
	Potato Leaf			populations as	PHI 21 days for
	Hopper			determined by	soybean, dry peas
	Lygus bugs	00.000		local monitoring.	and dry beans
	Bean Leaf	83-233	Ground	Provincial	(including lentils,
	beetle <sup>2</sup>	0.2	application	soybean aphid	lupins, chickpeas
		83	Aerial application	management	and dry fava
				guidelines	beans).
				suggest applying	,
				insecticide during	

the flowering growth stage of soybean beans. development. <sup>2</sup>For bean leaf beetle, use the higher rate to target higher pest populations or feed. when conditions are conducive to bean pod mottle virus. Repeat sprays at 4 to 7 day intervals depending on the Aerial presence of significant populations as than 2 determined by local monitoring. <sup>3</sup>Cutworm activity is greatest during the late evening and night. Application should be timed as close as possible to insect application: feeding activity. <sup>4</sup>For Corn borer control, apply before the larva L/ha bores into the plant stalk or pods. <sup>5</sup>For western bean cutworm control repeat sprays at 4-7 day intervals. Consult local agricultural personnel and provincial guidelines on the

PHI 7 days for edible podded

**DO NOT** graze or harvest treated forage, straw or hay for livestock

DO NOT use more than 3 applications per season.

application: Do not make more applications of 83 mL/ha of the allowed seasonal total by air.

Water Volume: For ground application: 100 to 200 L/ha For aerial apply in minimum spray volume of 20

	use of this	
	product.	

\*Beans, succulent and dry edible: Beans (Phaseolus spp.) (includes, runner bean, snap beans, wax beans, lima bean (green), field bean, kidney bean, navy bean, Pinto bean, tepary bean); bean (Vigna spp.) (includes asparagus bean, Chinese longbean, moth bean, yardlong bean, adzuki bean, mung bean, rice bean, urd bean; blackeyed pea, catjang, cowpea, southern pea, crowder pea); jackbean; sword bean; bean (Lupinus spp.) (includes grain lupin, sweet lupin, white lupin, and white sweet lupin), lablab bean, guar.

CROPS	PEST	RATE	APPLICATION	APPLICATION	NOTES
		mL/Ha	METHOD	TIMING	
PEAS,	Soybean	83-233	Ground	The need and	Unless otherwise
succulent:	aphids <sup>1</sup>		application	timing of	indicated, repeat
Pea (Pisum	Pea Aphid <sup>1</sup>	83	Aerial application	application	sprays at 4 to 7
spp.)	Bean aphid <sup>1</sup>			should be based	day intervals
(includes	Western	83-187	Ground	on the presence	depending on the
dwarf pea,	bean		application	of vulnerable pest	presence of
edible-pod	cutworm <sup>3,5</sup>	83	Aerial application	developmental	significant
pea, snow	Cutworms <sup>3</sup>	83	Ground or aerial	stages and	populations as
pea, sugar	Potato Leaf		application	significant	determined by
snap pea,	Hopper			populations as	local monitoring.
English pea,	Bean Leaf	83-233	Ground		<b>DO NOT</b> apply
garden pea,	beetle <sup>2</sup>		application	local monitoring.	within 14 days of
green pea),		83	Aerial application	<sup>1</sup> For aphids, use	harvesting for
pigeon pea				the higher rate	edible podded
Peas Field	Soybean	83-233	Ground	when conditions	peas, succulent
	aphid <sup>1</sup>		application	favour rapidly	shelled beans
	Pea Aphid <sup>1</sup>	83	Aerial application	increasing aphid	(including
	Bean aphid <sup>1</sup>			populations.	succulent fava
	Western	83-187	Ground	Repeat sprays at	beans), and
	bean		application	7 day intervals	succulent shelled
	cutworm <sup>3,5</sup>	83	Aerial application		peas.
	Pea leaf	83	Ground or aerial	presence of	PHI 21 days for
	weevil		application	significant	soybean, dry peas
	(Sitona			populations as	and dry beans
	lineate) <sup>4</sup>			determined by	(including lentils,
PEAS, dry:	Soybean	83-233	Ground	local monitoring.	lupins, chickpeas
Pea (Pisum	aphids <sup>1</sup>		application	Provincial	and dry fava
spp.)	Pea Aphid <sup>1</sup>	83	Aerial application	soybean aphid	beans).
(includes	Bean aphid <sup>1</sup>			management	PHI 7 days for
field pea),	Western	83-187	Ground	guidelines	edible podded
pigeon pea	bean		application		beans.
	cutworm <sup>3,5</sup>	83	Aerial application	insecticide during	
	Grasshoppers	83	Ground or aerial	the flowering	more than 3
	Cutworms <sup>3</sup>		application	growth stage of	applications per
	Bean Leaf	83-233	Ground	soybean	season.
	beetle <sup>2</sup>		application	development.	

83	3	Aerial application	<sup>2</sup> For bean leaf	Aerial
		11	beetle, use the	Application:
			higher rate to	Do not make
				more than 2
			populations or	applications of 83
			when conditions	mL/ha of the
			are conducive to	allowed seasonal
			bean pod mottle	total by air.
			virus.	DO NOT graze
			<sup>3</sup> Cutworm	or harvest treated
			activity is	forage, straw or
			greatest during	hay for livestock
			the late evening	feed.
			and night.	Water Volume:
			Application	For ground
			should be timed	application: 100
			as close as	to 200 L/ha
			possible to insect	For aerial
			feeding activity.	application:
			<sup>4</sup> Make the first	apply in
			application after	minimum spray
			emergence but	volume of 20
			prior to the 5 to 6	L/ha
			node stage. Apply	
			while the adults	
			are still present	
			on the plants,	
			before egg laying	
			begins.	
			<sup>5</sup> For western bean	
			cutworm control	
			repeat sprays at	
			4-7day intervals.	
			Consult local	
			agricultural	
			personnel and	
			provincial	
			guidelines on the	
			use of this	
			product.	
Tank Mix with Headline EC	~ Fungicide	(Pyraclostrobin 2	50 g/L) on Dry Fig	ald Peac.

Tank Mix with Headline EC Fungicide (Pyraclostrobin 250 g/L) on Dry Field Peas: ZIVATA<sup>TM</sup> may be tank mixed with Headline EC Fungicide to control insects and diseases listed on the label of each product.

Read carefully and follow all use directions and use precautions on both the ZIVATA<sup>TM</sup> and Headline EC Fungicide labels. Failure to follow the rates of use and timing of application as

recommended for each product will result in unsatisfactory control of target pest.

recommende	recommended for each product will result in unsatisfactory control of target pest.							
CROPS	PEST	RATE	APPLICATION	APPLICATION	NOTES			
		Ml/Ha	METHOD	TIMING				
Favabeans	Soybean	83-233	Ground	The need and	Unless otherwise			
(broad	aphids <sup>1</sup>		application	timing of	indicated, repeat			
beans)	Pea Aphid <sup>1</sup>	83	Aerial application		sprays at 4 to 7			
	Bean aphid <sup>1</sup>			should be based	day intervals			
	Western	83-187	Ground	on the presence	depending on the			
	bean		application	of vulnerable pest	1=			
	cutworm <sup>3,4</sup>	83	Aerial application		significant			
	Lygus bugs	83	Ground or aerial	stages and	populations as			
	Potato		application	significant	determined by			
	Leafhopper			populations as	local monitoring.			
	Bean Leaf	83-233	Ground		<b>DO NOT</b> apply			
	beetle <sup>2</sup>		application	local monitoring.	within 14 days of			
		83	Aerial application	<sup>1</sup> For aphids, use	harvesting for			
Chickpeas	Soybean	83-233	Ground	the higher rate	edible podded			
	aphids <sup>1</sup>		application	when conditions	peas, succulent			
	Pea Aphid <sup>1</sup>	83	Aerial application	favour rapidly	shelled beans			
	Bean aphid <sup>1</sup>			increasing aphid	(including			
	Western	83-187	Ground	populations.	succulent fava			
	bean		application	Repeat sprays at	beans), and			
	cutworm <sup>3,4</sup>	83	Aerial application	7 day intervals	succulent shelled			
	Grasshoppers	83	Ground or aerial	depending on the	peas.			
	Potato Leaf		application	presence of	The preharvest			
	hoppers			significant	interval is 21			
	Cutworms <sup>3</sup>			populations as	days for soybean,			
	Bean Leaf	83-233	Ground	determined by	dry peas and dry			
	beetle <sup>2</sup>		application	local monitoring.	beans (including			
		83	Aerial application	Provincial	lentils, lupins,			
Lentils	Soybean	83-233	Ground	soybean aphid	chickpeas and			
	aphids <sup>1</sup>		application	management	dry fava beans).			
	Pea Aphid <sup>1</sup>	83	Aerial application	guidelines	The preharvest			
	Bean aphid <sup>1</sup>			suggest applying	interval is 7 days			
	Western	83-187	Ground	insecticide during	-			
	bean		application	the flowering	beans.			
	cutworm <sup>3,4</sup>	83	Aerial application	growth stage of soybean	DO NOT graze			
	Grasshoppers	83	Ground or aerial		or harvest treated forage, straw or			
	Lygus Bugs		application	development. <sup>2</sup> For bean leaf	hay for livestock			
	Potato Leaf			beetle, use the	feed.			
	Hopper			higher rate to	Ground			
	Cutworms <sup>3</sup>			target higher pest	application: DO			
				populations or	NOT use more			
				populations of	1101 usc more			

				when conditions	than 3
				are conducive to	applications per
				bean pod mottle	season.
				virus.	Aerial
				<sup>3</sup> Cutworm	application: Do
				activity is	not make more
				greatest during	than 2
				the late evening	applications of 83
				and night.	mL/ha of the
				Application of ZIVATA <sup>TM</sup>	allowed seasonal total by air.
				should be timed	
				as close as	Water Volume:
				possible to insect	For ground
				feeding activity.	application: 100
				<sup>4</sup> For western bean	
				cutworm control	For aerial
				repeat sprays at	application:
				_	Apply in a
				Consult local	minimum spray
				agricultural	volume of 20
				personnel and	L/ha.
				provincial	
				guidelines on the	
				use of this	
	C 1	1.		product.	
	Greenhouse	T * '	A DDI ICATION	A DDI ICATION	MOTEC
CROPS	PEST	RATE (mL/ha)	APPLICATION METHOD	APPLICATION TIMING	NOTES
Lettuce	Cabbage	83 mL /ha	Ground	Apply when	DO NOT apply
(greenhouse)			application only.	insects or damage	
(greenine ase)	re ep ere		approunced emy.	first appear. For	harvest.
				best results, apply	
				against early	more than 2
				developmental	applications per
				stages of the pest.	* *
					DO NOT
					APPLY BY
					AIR.
					Apply in
					sufficient water
					volume to ensure
					adequate
					coverage.
FERNS OF	ASPARAGUS	$\mathbf{S}$			

CROPS	PEST	RATE	APPLICATION	APPLICATION	NOTES
		(mL/ha)	METHOD	TIMING	
Ferns of Asparagus	European Asparagus Aphids	83 mL/ha	Ground application only.	Apply post- harvest to fern only. Reapply after 7- 10 days if monitoring indicates further applications are required.	DO NOT apply more than 3 applications per season. 180 day Preharvest interval. DO NOT APPLY BY AIR
CROPS	SWEET CO PEST		ADDI ICATION	APPLICATION	NOTEC
CROPS	PESI	RATE		TIMING	NOTES
Com Ei-11	Λ	(mL/ha)	METHOD  Crown dom a priol		Damant manager of
Corn, Field and Sweet	Armyworm (Pseudaletia unipuncta)	83	Ground or aerial application	Spray no later than when first feeding damage is seen on foliage.	
Corn, Field, Sweet, Pop and Seed.	European corn borer (Ostrinia nubilalis) and Corn earworm (Helicoverpa zea)	187	Ground application or aerial application	Spray no later than when first feeding damage is seen on foliage. Where there are two generations, late plantings of sweet corn will require sprays from the late whorl stage until close to harvest. This treatment will not prevent internal cob damage if the insect has penetrated the ear.	significant populations as determined by

					Apply in 10 - 40 L of water per hectare.
					Sweet Corn: DO NOT apply within 1 day of harvest. Corn for Silage: DO NOT apply within 14 days of harvest. Field corn, popcorn and corn grown for seed: DO NOT apply within 21 days of
TIMOTHY	(gwayyn fan ha	v ow soad)			harvest.
CROP	(grown for ha   PEST	y or seeu) RATE	APPLICATION	APPLICATION	NOTES
		(mL/ha)	METHOD	TIMING	110120
Timothy	Grasshoppers		Ground	Apply the low	DO NOT apply
(grown for		product/ha	application only.		more than 3
hay or seed)		in 100 –		when	applications per
		200 L/ha		grasshoppers are	season.
		water		up to the 3rd	
				nymphal stage	Allow 7 days
				(up to 1 cm in	between
				length) or when	applications. DO
					NOT apply
				are low. Apply	within 14 days of
				the high rate	harvest.
				when	DO NOT APPLY BY
				grasshoppers are larger, up to but	APPLY BY AIR.
				not including	Crops treated
				winged adults (up	
				to 2.5 cm in	may be fed to
				length) or when	non-lactating
				insect numbers	dairy animals and
				are high.	other livestock
				If insect pressure	following a 14
				is high apply a	day interval from
				spray to a 15 m	application to
				strip around the	harvest or
				field.	foraging.

		I	1	T	
				Avoid	
				environmentally	
				sensitive areas	
				and unregistered	
				Č	
CIVIEDE DO	T. ( T. O.			crops.	
SWEET PO					
CROP	PEST	RATE	APPLICATION	APPLICATION	NOTES
		(mL/ha)	METHOD	TIMING	
Sweet Potato	Potato Flea	83	Ground only.	Timing of	DO NOT apply
	Beetle		1	application	more than 3
	Tuber Flea			should be based	applications per
	Beetle Potato			on the presence	year. Allow 7
	Leafhopper			of vulnerable pest	
				development	applications.
				stages and	DO NOT apply
				significant	within 7 days of
				population as	harvest.
				determined by	DO NOT apply
				_	
				local monitoring.	<b>by</b> air.
					Apply in a
					minimum of 100
					L of water/ha.
CEREAL C			1	1	
CROPS	PEST	RATE		APPLICATION	NOTES
		(mL/ha)	METHOD	TIMING	
Wheat,	Armyworm	83	Ground or aerial	Spray no later	Repeat sprays at
Barley and	(Pseudaletia		application.	than when first	4-7 day intervals
Oats	unipuncta)			feeding damage	depending on the
				is seen on foliage.	
				is seen on lonage.	significant
					populations as
					determined by
					local monitoring.
					DO NOT anni-
					DO NOT apply
					more than 3
					applications per
					year.
					DO NOT
					DO NOT apply
					more than 2
					applications of 83
					mL/ha of the
					allowed seasonal
					total by air.
			1		wai oy aii.

					Ground Application: Apply in 100 - 200 L of water per hectare.
					Aerial Application: Apply in 10 - 40 L of water per hectare.
					DO NOT apply within 28 days of harvest.
					DO NOT apply within 14 days of livestock foraging.
POTATOES CROPS	PEST	RATE		APPLICATION	NOTES
Potatoes	Armyworm (Pseudaletia unipuncta)	83 83	Ground application. Aerial application.	Spray no later than when first feeding damage is seen on foliage.	Repeat sprays at 4-7 day intervals depending on the presence of significant populations as determined by local monitoring.  DO NOT apply more than 3 applications per year for ground.
					DO NOT apply more than 2 applications of 83 mL/ha of the allowed seasonal total by air.

					Ground Application: Application: Apply in 100 - 200 L of water per hectare.  Aerial Application: Apply in 10 - 40 L of water per hectare.  DO NOT apply within 7 days of
					harvest.
CARROT CROPS	PEST	RATE (mL/ha)	APPLICATION METHOD	APPLICATION TIMING	NOTES
Carrots	Carrot Rust Fly(Psila rosae)  Carrot weevil (Listronis oregonensis_	83	Ground application.	First application should be applied at the 2-3 leaf stage when insects or damage appear. Timing of applications should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring	applications.  DO NOT apply within 7 days of harvest.  DO NOT apply more than 3
CANOLA CROPS	PEST	RATE	ADDI ICATION	APPLICATION	NOTES
CRUIS	LESI	(mL/ha)	METHOD	TIMING	NOTES
Canola	Swede midge (Contarinia nasturtii)		Ground or aerial application	Timing of applications should be based on the presence of vulnerable pest developmental stages and	Allow a 7 day interval between treatments. <b>DO NOT</b> apply within 7 days of harvest.

				significant	Ground
				populations as	Application:
				determined by	DO NOT use
				local monitoring.	more than 3
				is can memoring.	applications per
					year.
					Aerial
					Application: DO NOT make more
					than 1 application
					of 83 mL/ha of
					the allowed
					seasonal total by
					air.
					Water Volume:
					Ground
					Application:
					Apply in 100 -
					200 L of water
					per hectare.
					Aerial
					Application:
					Apply in 10 - 40
					L of water per
					hectare.
OUTDOOR	ORNAMENT	TALS			
CROPS	PEST	RATE	APPLICATION	APPLICATION	NOTES
		(mL/100 L)	METHOD	TIMING	
Outdoor	Black Vine	30	Ground	Apply when adult	DO NOT APPLY
Ornamentals	Weevil			black vine	BY AIR.
	adults			weevils and	
				feeding injury are	Do apply more
				first detected.	than three
				Allow a 7 day	applications per
				interval between	year.
				treatments.	j cur.
				treatments.	Apply in
					sufficient water
					to ensure
					thorough
					coverage, to a
					maximum
					volume of 750
					L/ha.

		Do not enter or
		allow worker
		entry into treated
		areas during the
		restricted entry
		interval (REI) of
		6 days for the
		post-application
		activity of cutting
		flowers.

Do not use in residential areas. Residential areas are defined as any use site where by-standers including children could be exposed during or after application. This includes homes, schools, public buildings, or any other areas where the general public, including children, could be exposed.

# **Resistance-Management Recommendations**

For resistance management, please note that ZIVATA<sup>TM</sup> contains a Group 3 insecticide. Any insect population may contain individuals naturally resistant to ZIVATA<sup>TM</sup> and other Group 3 insecticides. The resistant individuals may dominate the insect population if this group of insecticides are 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 ZIVATA<sup>TM</sup> 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 that is effective on the target pest 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 ADAMA Agricultural Solutions Canada Ltd. at 1-855-264-6262.

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