2022-1219
2025-02-03

GROUP 3 INSECTICIDE

ZIVATA®

Emulsifiable Concentrate Insecticide

COMMERCIAL (AGRICULTURAL)

For the Control or Suppression of Listed Insects on Labelled Crops

ACTIVE INGREDIENT:
Lambda-cyhalothrin ..... 120 g/L

READ THE LABEL AND ATTACHED PAMPHLET BEFORE USING

KEEP OUT OF THE REACH OF CHILDREN

WARNING POISON

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)

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.
Skin exposure may cause transient sensations (tingling, burning, itching, numbness).

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.

3. **DO NOT** enter or allow worker entry into treated areas during the intervals specified in the following table. Workers shall be given oral warning of the re-entry interval.

Crop(s)	Postapplication Activity	Restricted Entry Interval (REI)
Corn (sweet)	Hand harvesting	3 days
	All other activities	12 hours
Corn (seed)	Hand detasseling	3 days
	All other activities	12 hours
All other crops	All activities	12 hours

4. Apply only when the potential for drift beyond the area to be treated is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment, and sprayer settings.

5. ZIVATA® may be applied by air only to those crops for which this use is specified on this label.

6. DO NOT use in residential areas. Residential areas are defined as any use site where bystanders or the public, including children, could be exposed during or after application. This includes areas in and around homes, schools, public buildings or any other areas where they could be exposed.

7. DO NOT apply in greenhouses, unless otherwise specified in the crop-specific use directions.

8. DO NOT apply by air, unless otherwise specified in the crop-specific use directions.

9. Do not allow the pilot to mix chemicals to be loaded onto the aircraft. The pilot is allowed to load premixed chemicals with a closed system. It is desirable that the pilot have communication capabilities at each treatment site at the time of application. 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.

10. DO NOT apply using handheld mistblower/airblast or handheld fogging equipment.

If this pest control product is to be used on a commodity that may be exported and you require information regarding Maximum Residue Limits for an importing country, please contact ADAMA Agricultural Solutions Canada Ltd. at 1-855-264-6262 or www.adama.com.

PERSONAL PROTECTIVE EQUIPMENT
Follow the personal protective equipment, engineering control and restriction requirements for the appropriate mixer/loader and applicator scenario as described below. These restrictions are required to minimize exposure to the worker. Applications may be required over multiple days or using multiple applicators.

Application Equipment and Engineering Controls	**Personal Protective Equipment**		**Restricted Amount of Product Handled per Day per Person**
	Mixer/Loader / Clean-up and Repair	**Applicator**	
Aerial	Long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes.	Long-sleeved shirt, long pants, chemical-resistant gloves[1], socks and shoes.	No restriction
Groundboom – Open Cab	Long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes.		Less than 59.6 L

	Long-sleeved shirt, long pants, chemical-resistant gloves, socks, shoes, and a respirator[2].		Equal to or greater than 59.6 L
Groundboom – Closed Cab	Long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes.	Long-sleeved shirt, long pants, socks and shoes.	Less than 59.6 L
	Long-sleeved shirt, long pants, chemical-resistant gloves, socks, shoes and a respirator[2].	Long-sleeved shirt, long pants, socks and shoes. The closed cab[3] must have a chemical-resistant barrier that totally surrounds the occupant and prevents contact with pesticides outside the cab.	Equal to or greater than 59.6 L
Airblast – Open Cab	Long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes.	Long-sleeved shirt, long pants, chemical-resistant gloves, socks, shoes and a respirator[2].	No restriction
Airblast – Closed Cab	Long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes.	Long-sleeved shirt, long pants, socks and shoes.	No restriction
Mechanically-pressurized handheld equipment[4]	Long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes.		Less than 0.92 L
	Long-sleeved shirt, long pants, chemical-resistant gloves, socks, shoes and a respirator[2].		Equal to or greater than 0.92 L
All other handheld equipment[4]	Long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes.		No restriction

[1] Gloves are not required within a closed cockpit.
[2] Respirator must have a NIOSH-approved organic-vapour-removing cartridge with a prefilter approved for pesticides or a NIOSH-approved canister approved for pesticides.
[3]A closed cab provides both a physical barrier and respiratory protection (such as dust/mist filtering and/or vapour/gas purification system).
[4]Wear eye, head and respiratory protection when applying above waist height, including overhead.

ENVIRONMENTAL PRECAUTIONS

Toxic to aquatic organisms. Observe spray buffer zones specified under DIRECTIONS FOR USE.

Toxic to small wild mammals.

Toxic to bees. Minimize spray drift to reduce harmful effects on bees in habitats close to the application site. Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to the evening when most bees are not foraging. Avoid applications when bees are foraging in the treatment area in ground cover containing blooming weeds. To further minimize exposure to pollinators, refer to the complete

guidance “Protecting Pollinators during Pesticide Spraying – Best Management Practices” on the Health Canada website (www.canada.ca/pollinators).

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.

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

Avoid application when heavy rain is forecast.

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

Greenhouse use: Toxic to bees and other beneficial arthropods (which may include predatory and parasitic insects, spiders, and mites). May harm bees and other beneficial arthropods, including those used in greenhouse production. Avoid application when bees or other beneficial arthropods are in the treatment area.

STORAGE
Store this product away from food or feed.
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®, 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/territorial 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/territorial requirements. For more information on the disposal of waste and the clean-up of spills, contact the provincial/territorial regulatory agency and the manufacturer.

DISPOSAL OF UNUSED, UNWANTED PRODUCT

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.

CONTAINER DISPOSAL

Recyclable Container:

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1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
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PRODUCT INFORMATION

ZIVATA® 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® when applied against the early development stages of the pest as determined by regular monitoring.

DIRECTIONS FOR USE

Control or suppression of some insect species with pyrethroid insecticides decreases as temperature rises. For best results, apply ZIVATA® 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.

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

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

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

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

Both VFS and spray drift buffer zones must be observed.

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

Optimum application timing for the control of specific pest species is best determined by monitoring pest development and populations. In general, ZIVATA® 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/territorial 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® 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®. Consult regional extension specialists regarding the susceptibility of local populations. Follow Integrated Pest Management (IPM) techniques to minimize the need for insecticide applications and ensure that needed applications are timed for optimum effectiveness.

GROUND APPLICATION

Field sprayer application: DO NOT apply when wind speed is less than 1 km/h. Avoid application of this product when winds are gusty. DO NOT apply when wind speed is greater than 8 km/h at the site of application. DO NOT apply with sprays finer than the American Society of Agricultural and Biological Engineers (ASABE) S572 (572.1 to 572.3) medium classification. Air-induction nozzles must be used for the ground application of this product. Boom height must be 60 cm or less above the crop or ground.

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

AERIAL APPLICATION

Conventionally piloted aircraft application: DO NOT apply when wind speed is less than 1 km/h. Avoid application of this product when winds are gusty. DO NOT apply when wind speed is greater than 8 km/h at flying height at the site of application. DO NOT apply with sprays finer

than the American Society of Agricultural and Biological Engineers (ASABE) S572 (572.1 to 572.3) medium-coarse classification. DO NOT apply under weather conditions of less than 50% relative humidity and temperatures greater than 20ºC. Reduce drift caused by turbulent wingtip vortices. Nozzle distribution along the spray boom length MUST NOT exceed 65% of the wing- or rotorspan.

Generic Aerial Application Label Instructions – Directions for Use
Apply only by 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 specified 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 or a Global Positioning System (GPS).

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.

Product Specific Precautions
Read and understand the entire label before using this product. If you have questions, call the registrant at 1-855-264-6262 or obtain technical advice from the distributor or your provincial or territorial agricultural representative. Application of this specific product must meet and/or conform to the following:
Volume: Apply the specified rate in a minimum spray volume of 40 litres per hectare for conventionally piloted aircraft.

Use nozzles rated to deliver medium-coarse droplets of volume median diameter of 340 microns or greater.

Clean and decontaminate protective clothing and application equipment regularly.

SPRAY BUFFER ZONES

A spray buffer zone is NOT required for:

- Uses with hand-held application equipment permitted on this label.

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/Site		Spray Buffer Zones (metres) Required for the Protection of:			
			Freshwater Habitat of Depths:		Estuarine/Marine Habitats of Depths:	
			Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m
Field sprayer	Barley, oats, wheat, carrots, flax, mustard (oilseed type), canola, sweet potato, timothy (for seed production only), ferns of asparagus		10	5	3	1
	Alfalfa (for seed production only)		15	5	3	1
	Corn (including field, pop and sweet types, and crops grown for seed production) Outdoor ornamentals Crop Subgroup 5A – head and stem *Brassica*; Broccoli, Chinese broccoli (gai lon), brussel sprouts, cabbage, Chinese cabbage (napa), cauliflower, and kohlrabi		25	10	5	3
	Crop Group 6 Legume Vegetables: Soybean, Succulent and Dry Edible Beans, Succulent and Dry Peas, Fava Beans (broad beans) and chickpeas, lentils Peas, succulent: peas (includes dwarf pea, edible-pod pea, snow pea, sugar snap pea, English pea, garden pea, green pea), pigeon pea. Peas, dry: Peas (*Pisum* spp.) (includes field pea)		30	15	5	3
	Potatoes Tomatoes		10	5	4	2
	Strawberry		15	5	3	2
	Field tobacco		2	1	1	1
	Tobacco (soil treatment), tobacco (post planting treatment)		5	2	3	1
	Rye or wheat (tobacco cover crop treatment)		3	1	2	1
Airblast	Chokecherry, shelterbelts	Early growth stage	55	45	50	40
		Late growth stage	45	35	40	30
	Pears	Early growth stage	60	50	50	40
		Late growth stage	50	40	40	35

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	Cherries, nectarines, plums, strawberries	Early growth stage	70	60	55	45
		Late growth stage	60	50	45	35
	Outdoor ornamentals	Early growth stage	80	70	60	50
		Late growth stage	70	60	50	40
Aerial	Alfalfa (for seed production only), flax	Fixed wing	375	150	175	55
		Rotary wing	375	150	175	40
	Lentils, potatoes, barley, wheat, oats, succulent and dry edible beans, succulent peas, field peas, dry peas and soybeans. Chickpeas, fava beans, Dwarf pea, edible-pod pea, snow pea, sugar snap pea, English pea, garden pea, green pea, pigeon pea. Peas (*Pisum* spp.) (includes peas field)	Fixed wing	800	300	175	55
		Rotary wing	575	300	175	40
	Canola, mustard (oilseed type) 3 Applications	Fixed wing	800	400	175	55
		Rotary wing	700	400	175	40
	Corn (including field, pop and sweet types, and crops grown for seed production)	Fixed wing	800	800	800	250
		Rotary wing	800	675	400	225

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.

Tank Mixtures

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 ADAMA Agricultural Solutions Canada Ltd. at 1-855-264-6262 for information before applying any tank mix that is not specifically recommended on this label.

The spray buffer zones for airblast application of this product can be modified based on weather conditions and spray equipment configuration by accessing the Spray Buffer Zone Calculator on the Drift Mitigation portion of the Canada.ca website. Spray buffer zones for field sprayer or aerial application CANNOT be modified using the Spray Buffer Zone Calculator.

When applied as directed, ZIVATA® will control the listed pests, unless otherwise indicated as suppression.

FRUIT CROPS

CROPS	PEST	RATE (mL/ha)	APPLICATION METHOD	APPLICATION TIMING	NOTES
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.	DO NOT apply within 7 days of harvest. DO NOT use more than 3 applications per year. Allow a 7 day interval between treatments.
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.
PEARS	Pear Psylla (nymphs and adults), Codling Moth	83	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 1 application per year.

PLUMS	Plum Curculio, Mealy Plum Aphid	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. *Mealy Plum Aphid:* Timing of applications should be based on local monitoring for significant populations.	DO NOT apply within 7 days of harvest. DO NOT use more than 3 applications per year. Allow a 7 day interval between treatments.
STRAWBERRIES	Bud (Clipper) Weevil, Meadow Spittle Bug, Tarnished Plant Bug, Black Vine Weevil adults (Suppression only)	104	Ground application only	*Bud Weevil:* when buds are visible in crown and again when first buds show white. *Spittle Bug:* when first noticed. *Tarnished Plant Bug:* 7 to 10 days after first bloom and repeat 7 to 10 days later. *Black Vine Weevil adults:* Applications to be made as soon as weevils appear, and just after the final harvest of strawberries.	DO NOT apply within 7 days of harvest. DO NOT use more than 3 applications per year. Allow a 7 day interval between treatments. *Black Vine Weevil adults:* For the suppression 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 (mL/ha)	APPLICATION METHOD	APPLICATION TIMING	NOTES
COLE CROPS (Broccoli, Brussels Sprouts, Cabbage, Cauliflower)	Crucifer Flea Beetle, Diamondback Moth Larvae, Imported Cabbageworm	42	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 year. Allow a 7 day interval between treatments.
	Cabbage Looper	83			
CORN (including field, pop and sweet types, and crops grown for seed production)	Fall Armyworm, Cutworms, European Corn Borer, Corn Earworm	83	Ground or aerial application	Spray no later than when the first feeding is seen on foliage. Repeat sprays at 4 to 7 day intervals depending on the presence of	DO NOT apply within 1 day of harvest for sweet corn. **<u>Ground Application:</u>** DO NOT use more than 3 applications per year.

				significant populations as determined by local monitoring. 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. *Cutworms* (up to 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.	Field corn grain can be fed to livestock. DO NOT cut treated fields for silage/forage. DO NOT graze treated fields. For grasses/non-grasses grown for seed production only, DO NOT feed seed screenings and aftermath to livestock. **Aerial Application:** DO NOT make more than 2 applications by air.

Tank Mix with Bumper® 432 EC

ZIVATA® can be tank mixed with Bumper® 432 EC for insect and foliar disease control. Apply ZIVATA® at a rate of 83 mL/ha in tank mix with Bumper® 432 EC at a rate of 150-300 mL/ha. Refer to both the ZIVATA® and Bumper® 432 EC 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® as well as Bumper® 432 EC 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®, and the tank-mix partner in advance.

CROPS	PEST	RATE (mL/ha)	APPLICATION METHOD	APPLICATION TIMING	NOTES
POTATOES	Potato Flea Beetle, Potato Leafhopper, Tarnished Plant Bug, Tuber Flea Beetle	83	Ground or aerial application	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.	The maximum rate per season must not exceed 250 mL of product per hectare. DO NOT apply within 7 days of harvest. **DO NOT** feed treated crops to livestock. **Ground Application:** DO NOT use more than 3 applications per year if using the 83 mL per hectare rate. DO NOT use more than 2 applications per year if using the 125 mL per hectare rate.
	Colorado Potato Beetle: susceptibility to pyrethroid insecticides should be	83 to 125	Ground application	Use 125 mL rate when Colorado Potato Beetle larvae are beyond the second instar stage	
		83	Aerial application		

	confirmed using an appropriate assay.			of development or when populations are high.	Allow a 7 day interval between treatments for all pests except European corn borer (4-7 day interval). Use a minimum of 100 L water for ground application. Use sufficient water for thorough coverage. **<u>Aerial Application:</u>** DO NOT make more than 2 applications by air.
	European Corn Borer	83	Ground or aerial application	Spray at egg hatch and no later than when the first feeding damage is seen on foliage. Reapply at 4 to 7 day intervals if monitoring indicates that it is necessary. Consult provincial/territorial guidelines and local extension experts for monitoring protocols and thresholds for treatment.	
TOMATOES	Potato Flea Beetle, Potato Leafhopper, Tarnished Plant Bug, Cutworms	83	Ground application only	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. *Cutworms* (up to 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. *Colorado Potato Beetle:* Use 125 mL per hectare rate when Colorado Potato Beetle larvae are beyond the second instar stage of development, or when populations are high.	DO NOT apply within 7 days of harvest. DO NOT use more than 3 applications per year if using the 83 mL per hectare rate. DO NOT use more than 2 applications per year if using the 125 mL per hectare rate. Allow a 7 day interval between treatments. The maximum rate per season must not exceed 250 mL of product per hectare.
	Colorado Potato Beetle: susceptibility to pyrethroid insecticides should be confirmed using an appropriate assay.	83-125			

TOBACCO

CROPS	**PEST**	**RATE (mL/Ha)**	**APPLICATION METHOD**	**APPLICATION TIMING**	**NOTES**

TOBACCO Seedlings, Greenhouse	Cutworm (Darksided and White)	2 mL/30 L water	Ground application only	Cutworm activity is greatest during the late evening and night. Application of ZIVATA® should be timed as close as possible to insect feeding activity.	Mix 2 mL of ZIVATA® in 30 L of water and apply to 200 m^2 of plant bed.
FIELD TOBACCO	Cutworm (Darksided and White)	2 mL/30 L water	Ground application only	Cutworm activity is greatest during the late evening and night. Application of ZIVATA® should be timed as close as possible to insect feeding activity.	Apply the recommended rate of ZIVATA® in 225 to 450 L of water per hectare using spray pressure of 175 to 350 kPa.
COVER CROP TREATMENT (RYE OR WHEAT)	Cutworm (Darksided and White)	42	Ground application only	When crop is 10 to 15 cm high, 4-5 days before plough down. Cutworm activity is greatest during the late evening and night. Application of ZIVATA® should be timed as close as possible to insect feeding activity.	Apply 42 mL of ZIVATA® per hectare once to rye or wheat cover. Application should also be made to fence rows and to a 15 m strip into nearby cover crop. **DO NOT** cut treated fields for hay/forage. **DO NOT** graze treated fields.
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® should be timed as close as possible to insect feeding activity.	DO NOT incorporate. DO NOT disturb the soil surface for at least 5 days following treatment since mixing of ZIVATA® with soil will reduce its effectiveness. Application should also be made to fence rows and to a 15 m strip into nearby cover crops.
POST PLANTING TREATMENT	Cutworm (Darksided and White)	83	Ground application only	At transplanting. Cutworm activity is greatest during the late evening and night. Application of ZIVATA® should be timed as close as possible to insect feeding activity.	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.

OILSEED CROPS

CROPS	PEST	RATE (mL/ha)	APPLICATION METHOD	APPLICATION TIMING	NOTES
CANOLA and MUSTARD (OILSEED TYPE)	Crucifer Flea Beetle, Lygus Bug, Cabbage Seedpod Weevil (adults)	83	Ground or aerial application	*For Cabbage Seedpod Weevil (adults):* Apply at the bud to early flowering stage of crop development. Timing of applications should also be based on the presence of significant populations of adults, as determined by local monitoring. Application prior to adult migration into the field will not be effective. ZIVATA® will not control larvae developing within the pod, and must be applied prior to egg laying.	To prevent migration of overwintering flea beetle adults throughout the field, ground-spray a 15 m strip around the field at the first sign of flea beetle feeding. DO NOT apply within 7 days of harvest. **Ground Application:** DO NOT use more than 3 applications per year. Allow a 7 day interval between treatments. Seed (including meal) can be fed to livestock. **DO NOT** cut treated fields for hay/forage. **DO NOT** graze treated fields. For grasses/non-grasses grown for seed production only, **DO NOT** feed seed screenings and aftermath to livestock. *For cabbage seedpod weevil:* DO NOT make more than 1 application per year by either ground or aerial application equipment. **Aerial Application:** DO NOT make more than 1 application by air.
	Imported Cabbageworm, Diamondback Moth Larvae, Cabbage Looper, Bertha Armyworm	83	Ground or aerial application	Apply when the insects are at a vulnerable stage (early larval instars). Consult provincial/territorial guidelines and local extension experts for treatment threshold and advice.	
	Grasshoppers	63-83	Ground application	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.	
		83	Aerial application		

				Avoid environmentally sensitive areas and unregistered crops.	
FLAX	Grasshoppers	63-83	Ground application	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.	DO NOT apply within 7 days of harvest. Seed (including meal) can be fed to livestock. **DO NOT** cut treated fields for hay/forage. **DO NOT** graze treated fields. For grasses/non-grasses grown for seed production only, **DO NOT** feed seed screenings and aftermath to livestock. **Ground Application:** DO NOT use more than 3 applications per year. Allow a 7 day interval between treatments. **Aerial Application:** DO NOT make more than 1 application by air.
		83	Aerial application		

CEREAL CROPS

CROPS	PEST	RATE (mL/ha)	APPLICATION METHOD	APPLICATION TIMING	NOTES
WHEAT, BARLEY, OATS	Grasshoppers	63-83	Ground application	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.	DO NOT apply within 28 days of harvest. Grain can be fed to livestock. **DO NOT** cut treated fields for hay/forage. **DO NOT** graze treated fields. For grasses/non-grasses grown for seed production only, **DO NOT** feed seed screenings and aftermath to livestock. **Ground Application:** DO NOT use more than 3 applications per year. Allow a 7 day interval between treatments. **Aerial Application:** DO NOT make more than 2 applications by air.
		83	Aerial application		

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

ZIVATA® 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® is tank mixed with Bison® 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 (mL/ha)	APPLICATION METHOD	APPLICATION TIMING	NOTES
ALFALFA (for seed production only)	Grasshoppers	63-83	Ground application	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.	**Ground Application:** DO NOT use more than 3 applications per year. Allow a 7 day interval between treatments. Alfalfa seed from treated crops is not to be used for production of 'alfalfa sprouts' for human consumption. **DO NOT** cut treated fields for hay/forage. **DO NOT** graze treated fields. **DO NOT** feed treated crops to livestock. For grasses/ non-grasses grown for seed production only, **DO NOT** feed seed screenings and aftermath to livestock. **Aerial Application:** DO NOT make more than 1 application by air.
		83	Aerial application		
ALFALFA (for seed production only)	Alfalfa Weevil, Lygus Bug, Tarnished Plant Bug, Pea Aphid, Potato Leafhopper	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.	

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 (mL/ha)	APPLICATION METHOD	APPLICATION TIMING	NOTES
Chokecherry shelterbelts	Prairie Tent Caterpillar, Ugly Nest Caterpillar, Fruittree Leafroller	58	Ground application only	*Prairie Tent Caterpillar:* Apply prior to flowering when tents are visible, generally mid to late May. *Ugly Nest Caterpillar:* Apply after flowering when tents are first visible, generally early to mid June. *Fruittree Leafroller:* Apply after flowering when damage is first noted, generally early to mid June.	Apply as a foliar spray so leaves are wet but not dripping. Do not use more than 1 application per year. Use 1000 L/ha of water for thorough coverage.
***BRASSICA* CROPS**					
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.
ZIVATA® may be applied to the following *Brassica* crops only: Broccoli, Chinese broccoli (gai lon), Brussels sprouts, cabbage, Chinese cabbage	Onion Thrips	188	Ground application only	Apply when the insect first appears	Apply by foliar broadcast spray. DO NOT apply within 1 day of harvesting cabbage and 3 days of harvesting all other *Brassica* Crops.

(napa), cauliflower and kohlrabi					DO NOT apply more than 3 applications per growing season. Allow a 7 day interval between treatments. Apply in sufficient water to ensure thorough coverage. A water volume of 500 L/ha is recommended.
LEGUME VEGETABLES					
CROPS	**PEST**	**RATE (mL/ha)**	**APPLICATION METHOD**	**APPLICATION TIMING**	**NOTES**
Soybean	Soybean Aphid[1] Pea Aphid[1] Bean Aphid[1]	83-233	Ground application	The need and timing of application should be based on the presence of vulnerable pest developmental stages and significant populations as determine by local monitoring. [1]For aphids, use the higher rate when conditions favour rapidly increasing aphid populations. Repeat sprays at 7 day intervals depending on the presence of significant populations as determined by local monitoring. Provincial/territorial soybean aphid management guidelines suggest applying insecticide during the flowering growth stage of soybean development. [2]For bean leaf beetle, use the higher rate to target higher pest populations or when conditions are conducive to bean pod mottle virus. Repeat sprays at 4 to 7 day intervals depending on the presence of significant populations as determined by local monitoring.	Unless otherwise indicated, repeat sprays at 4 to 7 day intervals depending on the presence of significant populations as determined by local monitoring. DO NOT apply within 14 days of harvesting for edible podded peas, succulent shelled beans (including succulent fava beans), and succulent shelled peas. PHI 21 days for soybean, dry peas and dry beans (including lentils, lupins, chickpeas and dry fava beans). PHI 7 days for edible podded beans. Soybean seed (including meal) and Crop Subgroup 6C seed can be fed to livestock. DO NOT feed any other treated crops within Crop Group 6 to livestock. **DO NOT** cut treated fields for hay/forage. **DO NOT** graze treated fields. **<u>Ground application:</u>** DO NOT use more than 3 applications per season. **<u>Aerial application:</u>** DO NOT make more than 2 applications by air. **Water Volume:** For ground application: 100 to 200 L/ha. For aerial application: apply in a spray volume of 40 L/ha
		83	Aerial application		
	Western Bean Cutworm[3,5]	83-187	Ground application		
		83	Aerial application		
	Grasshoppers Cutworms[3] Lygus Bugs	83	Ground or aerial application		
	Bean Leaf Beetle[2]	83-233	Ground application		
		83	Aerial application		
BEANS, succulent and dry edible*	Soybean Aphid[1] Pea Aphid[1] Bean Aphid[1]	83-233	Ground application		
		83	Aerial application		
	Western Bean Cutworm[3,5]	83 - 187	Ground application		
		83	Aerial application		
	Cutworms[3] Corn Borer[4] Potato Leafhopper Lygus Bugs	83	Ground or aerial application		
	Bean Leaf Beetle[2]	83-233	Ground application		
		83	Aerial application		

				[3]Cutworm activity is greatest during the late evening and night. Application should be timed as close as possible to insect feeding activity. [4]For Corn borer control, apply before the larva bores into the plant stalk or pods. [5]For western bean cutworm control repeat sprays at 4-7 day intervals. Consult local agricultural personnel and provincial/territorial guidelines on the 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 (mL/ha)	APPLICATION METHOD	APPLICATION TIMING	NOTES
PEAS, succulent: Pea (*Pisum* spp.) (includes dwarf pea, edible-pod pea, snow pea, sugar snap pea, English pea, garden pea, green pea), pigeon pea	Soybean Aphid[1] Pea Aphid[1] Bean Aphid[1]	83-233	Ground application	The need and timing of application should be based on the presence of vulnerable pest developmental stages and significant populations as determine by local monitoring. [1]For aphids, use the higher rate when conditions favour rapidly increasing aphid populations. Repeat sprays at 7 day intervals depending on the presence of significant populations as determined by local monitoring. Provincial soybean aphid management guidelines suggest applying insecticide during the flowering growth stage of soybean development.	Unless otherwise indicated, repeat sprays at 4 to 7 day intervals depending on the presence of significant populations as determined by local monitoring. DO NOT apply within 14 days of harvesting for edible podded peas, succulent shelled beans (including succulent fava beans), and succulent shelled peas. PHI 21 days for soybean, dry peas and dry beans (including lentils, lupins, chickpeas and dry fava beans). PHI 7 days for edible podded beans. **<u>Ground Application:</u>** DO NOT use more than 3 applications per season. **<u>Aerial Application:</u>** Do not make more than 2 applications by air. Soybean seed (including meal) and Crop Subgroup 6C seed can be fed to livestock. DO NOT feed any other
		83	Aerial application		
	Western Bean cutworm[3,5]	83-187	Ground application		
		83	Aerial application		
	Cutworms[3] Potato Leafhopper	83	Ground or aerial application		
	Bean Leaf Beetle[2]	83-233	Ground application		
		83	Aerial application		
Peas Field	Soybean Aphid[1] Pea Aphid[1] Bean Aphid[1]	83-233	Ground application		
		83	Aerial application		
	Western Bean Cutworm[3,5]	83-187	Ground application		
		83	Aerial application		
	Pea Leaf Weevil (*Sitona lineate*)[4]	83	Ground or aerial application		
	Soybean Aphid[1]	83-233	Ground application		

PEAS, dry: Pea (*Pisum* spp.) (includes field pea), pigeon pea	Pea Aphid[1] Bean Aphid[1]	83	Aerial application	[2]For bean leaf beetle, use the higher rate to target higher pest populations or when conditions are conducive to bean pod mottle virus. [3]Cutworm activity is greatest during the late evening and night. Application should be timed as close as possible to insect feeding activity. [4]Make the first application after emergence but prior to the 5 to 6 node stage. Apply while the adults are still present on the plants, before egg laying begins. [5]For western bean cutworm control repeat sprays at 4-7 day intervals. Consult local agricultural personnel and provincial/territorial guidelines on the use of this product.	treated crops within Crop Group 6 to livestock. **DO NOT** cut treated fields for hay/forage. **DO NOT** graze treated fields. **Water Volume:** For ground application: 100 to 200 L/ha. For aerial application: apply in a spray volume of 40 L/ha
	Western Bean Cutworm[3,5]	83-187	Ground application		
		83	Aerial application		
	Grasshoppers Cutworms[3]	83	Ground or aerial application		
	Bean Leaf Beetle[2]	83-233	Ground application		
		83	Aerial application		

Tank Mix with Headline EC Fungicide (Pyraclostrobin 250 g/L) **on Dry Field Peas:** ZIVATA® 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® 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.

CROPS	PEST	RATE (mL/ha)	APPLICATION METHOD	APPLICATION TIMING	NOTES
Fava beans (broad beans)	Soybean Aphid[1] Pea Aphid[1] Bean Aphid[1]	83-233	Ground application	The need and timing of application should be based on the presence of vulnerable pest developmental stages and significant populations as determine by local monitoring. [1]For aphids, use the higher rate when conditions favour rapidly increasing aphid populations. Repeat sprays at 7 day intervals depending on the presence of	Unless otherwise indicated, repeat sprays at 4 to 7 day intervals depending on the presence of significant populations as determined by local monitoring. DO NOT apply within 14 days of harvesting for edible podded peas, succulent shelled beans (including succulent fava beans), and succulent shelled peas. The preharvest interval is 21 days for soybean, dry peas and dry beans (including lentils, lupins, chickpeas and dry fava beans). The
		83	Aerial application		
	Western Bean Cutworm[3,4]	83-187	Ground application		
		83	Aerial application		
	Lygus Bugs Potato Leafhopper	83	Ground or aerial application		
	Bean Leaf Beetle[2]	83-233	Ground application		
		83	Aerial application		
Chickpeas	Soybean Aphid[1]	83-233	Ground application		

	Pea Aphid[1] Bean Aphid[1]	83	Aerial application	significant populations as determined by local monitoring. Provincial/territorial soybean aphid management guidelines suggest applying insecticide during the flowering growth stage of soybean development. [2]For bean leaf beetle, use the higher rate to target higher pest populations or when conditions are conducive to bean pod mottle virus. [3]Cutworm activity is greatest during the late evening and night. Application of ZIVATA® should be timed as close as possible to insect feeding activity. [4]For western bean cutworm control repeat sprays at 4-7 day intervals. Consult local agricultural personnel and provincial/territorial guidelines on the use of this product.	preharvest interval is 7 days for edible podded beans. Soybean seed (including meal) and Crop Subgroup 6C seed can be fed to livestock. DO NOT feed any other treated crops within Crop Group 6 to livestock. **DO NOT** cut treated field for hay/forage. **DO NOT** graze treated fields. **<u>Ground Application:</u>** DO NOT use more than 3 applications per season. **<u>Aerial Application:</u>** DO NOT make more than 2 applications by air. **Water Volume:** For ground application: 100 to 200 L/ha. For aerial application: Apply in a spray volume of 40 L/ha.
	Western Bean Cutworm[3,4]	83-187	Ground application		
		83	Aerial application		
	Grasshoppers Potato Leafhopper Cutworms[3]	83	Ground or aerial application		
	Bean Leaf Beetle[2]	83-233	Ground application		
		83	Aerial application		
Lentils	Soybean Aphid[1] Pea Aphid[1] Bean Aphid[1]	83-233	Ground application		
		83	Aerial application		
	Western Bean Cutworm[3,4]	83-187	Ground application		
		83	Aerial application		
	Grasshoppers Lygus Bugs Potato Leafhopper Cutworms[3]	83	Ground or aerial application		

FERNS OF ASPARAGUS

CROPS	PEST	RATE (mL/ha)	APPLICATION METHOD	APPLICATION TIMING	NOTES
Ferns of Asparagus	European Asparagus Aphids	83	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. Water volume: 100 to 200 L/ha.

FIELD AND SWEET CORN

CROPS	PEST	RATE (mL/ha)	APPLICATION METHOD	APPLICATION TIMING	NOTES
Corn, Field and Sweet	Armyworm (*Pseudaletia unipuncta*)	83	Ground or 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

Corn, Field, Sweet, Pop and Seed.	European Corn Borer (*Ostrinia nubilalis*), Corn Earworm (*Helicoverpa zea*)	187	Ground 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.	populations as determined by local monitoring. **<u>Ground Application:</u>** DO NOT apply more than 3 applications per season. **<u>Aerial Application:</u>** DO NOT apply more than 2 applications by air. **Water Volume:** <u>For ground application:</u> Apply in 100 - 200 L of water per hectare. <u>For aerial application:</u> Apply in 40 L of water per hectare. Field corn grain can be fed to livestock. **DO NOT** cut treated fields for silage/forage. **DO NOT** graze treated fields**. DO NOT** feed seed screenings and aftermath to livestock. Sweet Corn: DO NOT apply within 1 day of harvest. Field corn, popcorn and corn grown for seed: DO NOT apply within 21 days of harvest.
TIMOTHY (for seed production only)					
CROP	**PEST**	**RATE (mL/ha)**	**APPLICATION METHOD**	**APPLICATION TIMING**	**NOTES**
Timothy (for seed production only)	Grasshoppers	63 – 83	Ground application only.	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.	DO NOT apply more than 3 applications per season. Allow 7 days between applications. DO NOT apply within 14 days of harvest. Apply in 100 - 200 L of water per hectare. **DO NOT** cut treated fields for hay/forage. **DO NOT** graze treated fields DO NOT feed treated crops to livestock. For grasses/non-grasses grown for seed production only. DO NOT feed seed screenings and aftermath to livestock.
SWEET POTATO					

CROP	PEST	RATE (mL/ha)	APPLICATION METHOD	APPLICATION TIMING	NOTES
Sweet Potato	Potato Flea Beetle Tuber Flea Beetle Potato Leafhopper	83	Ground application only.	Timing of application should be based on the presence of vulnerable pest development stages and significant population as determined by local monitoring.	DO NOT apply more than 3 applications per year. Allow 7 days between applications. DO NOT apply within 7 days of harvest. Apply in a minimum of 100 L of water/ha.
CEREAL CROPS					
CROPS	**PEST**	**RATE (mL/ha)**	**APPLICATION METHOD**	**APPLICATION TIMING**	**NOTES**
Wheat, Barley and Oats	Armyworm (*Pseudaletia unipuncta*)	83	Ground or 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. **Ground Application:** DO NOT apply more than 3 applications per year. **Aerial Application:** DO NOT apply more than 2 applications by air. **Water Volume:** For ground application: Apply in 100 - 200 L of water per hectare. For aerial application: Apply in 40 L of water per hectare. DO NOT apply within 28 days of harvest. Grain can be fed to livestock. **DO NOT** cut treated fields for hay/forage and **DO NOT** graze treated fields. For grasses/non-grasses grown for seed production only. **DO NOT** feed seed screenings and aftermath to livestock.
POTATOES					
CROPS	**PEST**	**RATE (mL/ha)**	**APPLICATION METHOD**	**APPLICATION TIMING**	**NOTES**
Potatoes	Armyworm (*Pseudaletia unipuncta*)	83	Ground or 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** feed treated crops to livestock.

					Ground Application: DO NOT apply more than 3 applications per year for ground. **Aerial Application:** DO NOT apply more than 2 applications by air. **Water Volume:** For ground application: Apply in 100 - 200 L of water per hectare. For aerial application: Apply in 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 only.	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.	Allow 7 days between applications. DO NOT apply within 7 days of harvest. DO NOT apply more than 3 applications per year.
CANOLA					
CROPS	**PEST**	**RATE (mL/ha)**	**APPLICATION METHOD**	**APPLICATION TIMING**	**NOTES**
Canola	Swede midge (*Contarinia nasturtii*)	83	Ground or aerial application	Timing of applications should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.	Allow a 7 day interval between treatments. DO NOT apply within 7 days of harvest. **Ground Application:** DO NOT use more than 3 applications per year. Seed (including meal) can be fed to livestock. **DO NOT** cut treated fields for hay/forage. **DO NOT** graze treated fields. For grasses/non-grasses grown for seed production only, **DO NOT** feed seed screenings and aftermath to livestock.

					Aerial Application: DO NOT make more than 1 application by air. **Water Volume:** For ground application: Apply in 100 - 200 L of water per hectare. For aerial application: Apply in 40 L of water per hectare.
OUTDOOR ORNAMENTALS					
CROPS	**PEST**	**RATE (mL/100 L)**	**APPLICATION METHOD**	**APPLICATION TIMING**	**NOTES**
Outdoor Ornamentals	Black Vine Weevil adults	30	Ground application only	Apply when adult black vine weevils and feeding injury are first detected.	Allow a 7 day interval between treatments. DO NOT apply more than three applications per year. Apply in sufficient water to ensure thorough coverage, to a maximum volume of 750 L/ha.

Resistance-Management Recommendations

For resistance management, please note that ZIVATA® contains a Group 3 insecticide. Any insect population may contain individuals naturally resistant to ZIVATA® 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® 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.