

GROUP	<b>1A</b>	INSECTICIDE
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Sevin® XLR

**CARBARYL INSECTICIDE LIQUID SUSPENSION**

For control of insect pests on forage, field, cereal, vegetable, tobacco and fruit crops

**COMMERCIAL  
READ THE LABEL AND BOOKLET BEFORE USING**



REGISTRATION NO. 27876 PEST CONTROL PRODUCTS ACT

ACTIVE INGREDIENT: Carbaryl 42.8% by wt. (Contains 466 grams carbaryl per litre)

WARNING, contains the allergen soy.

Contains 1,2-benzisothiazolin-3-one at 0.02% as a preservative.

Tessenderlo Kerley, Inc.  
2910 N. 44th Street  
Suite 100  
Phoenix, Arizona 85018 USA  
Phone (602) 889-8397

Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION is a suspension of microfine SEVIN carbaryl insecticide in an aqueous medium. It readily disperses in water to form a spray which may be applied by ground equipment or aerial equipment when specifically indicated for that crop. **READ THE LABEL. USE IN STRICT ACCORDANCE WITH DIRECTIONS AND CAUTIONS.**

**PRECAUTIONS:**

**KEEP OUT OF REACH OF CHILDREN. HARMFUL IF INHALED OR SWALLOWED.**  
Avoid breathing spray mist. Do not take internally. Avoid contact with skin and eyes. Wear regular long-sleeved work clothing. Change to clean clothing daily. Wash hands and face before eating. Wash thoroughly after handling. **AVOID CONTAMINATION OF FOOD, FEED, WATER SUPPLIES, STREAMS AND PONDS.**

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](http://www.croplife.ca)

**FIRST AID:**

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

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

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

## **TOXICOLOGICAL INFORMATION:**

### **NOTE FOR PHYSICIAN:**

Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION is a carbamate which is a moderate, reversible cholinesterase inhibitor. Atropine is antidotal. Do not use 2-PAM opiates, or cholinesterase inhibiting drugs. Typical symptoms of overexposure to cholinesterase inhibitors include malaise, muscle weakness, dizziness and sweating. Headache, salivation, nausea, vomiting, abdominal pain and diarrhea are often prominent. A life-threatening poisoning is signified by loss of consciousness, incontinence, convulsions and respiratory depression with a secondary cardiovascular component. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate degree of exposure (baseline data are useful). However, if a blood sample is taken several hours after exposure, it is unlikely that blood cholinesterase activities will be depressed, due to rapid reactivation of cholinesterase. Atropine, only by injection, is the preferable antidote. Do not use pralidoxime. In cases of severe acute poisoning, use antidotes immediately after establishing an open airway and respiration. With oral exposure, the decision of whether to induce vomiting or not should be made by an attending physician.

### **STORAGE AND DISPOSAL:**

Store unused Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION in original container only, in cool, dry area out of reach of children and animals. Do not store in areas where temperatures frequently exceed 38°C.

Do not contaminate water, food or feed by storage or disposal. Do not reuse empty container. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank. Follow provincial instructions for any required additional cleaning of the container prior to its disposal. Make the empty container unsuitable for further use. Do not burn container. Dispose of the container in accordance with local and provincial requirements. For further information on the 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.

If container is damaged and/or contents spilled, contact manufacturer for instructions. Wear protective clothing, approved respirator and impervious gloves before handling spills or damaged product. For spills, do not allow product to spread. Prevent entry into ditches and waterways. Cover spill with sweeping compound and place contaminated material into an approved waste container. Place damaged container into waste containers and mark with contents.

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

**NET CONTENTS:** 10 LITRES

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**BEE CAUTION:** This product is highly toxic to honey bees exposed to direct treatment on blooming crops or weeds. However, field studies have shown that Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION, while toxic to honey bees, is less hazardous than other carbaryl products when direct application to bees is avoided and the spray residues have dried. For maximum honey bee hazard reduction, apply Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION from late evening to early morning or when bees are not foraging. If application must be made during foraging periods, the following precautionary measures must be performed prior to treatment to minimize honey bee kill: notify beekeepers to: (1) confine the honey bees to the hive by covering the colony or screening the entrance; or (2) locate hives beyond honey bee flight range from the treated area. Precautionary measures may be discontinued after spray residues have dried. Leafcutter bees are more sensitive to insecticides than honey bees. Carbaryl applications should be avoided where these bees are foraging.

**PLANT RESPONSE PRECAUTIONS:** To avoid possible injury to tender foliage, do not apply to wet foliage or when rain or high humidity is expected during the next two days. Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION injures Boston ivy, Virginia creeper and Maidenhair fern. During early season, it may also injure Virginia and sand pines. Observe label instructions on apple thinning and on combinations with certain herbicides on soybeans.

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If container is damaged and/or contents spilled, contact manufacturer for instructions. Wear protective clothing, approved respirator and impervious gloves before handling spills or damaged product. For spills, do not allow product to spread. Prevent entry into ditches and waterways. Cover spill with sweeping compound and place contaminated material into an approved waste container. Place damaged container into waste containers and mark with contents.

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. The user assumes the risk to persons or property that arises from any such use of this product.

### **ENVIRONMENTAL PRECAUTIONS:**

**TOXIC** to birds, mammals and aquatic organisms. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted or fine textured such as clay).

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.

Avoid application of this product when heavy rain is forecast.

### **Pollinators:**

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

- For applications on crops that are highly attractive to pollinators (asparagus, rapeseed, apple, blackberries, boysenberries, dewberries, loganberries, chokecherries, raspberries, blueberries, cranberries, melons, pumpkin, squash, cucumber and trees (excluding coniferous evergreens), or when using managed bees for pollination services, DO NOT apply during the crop blooming period.
- For beans, peas, potato, eggplant, tomato, tobacco, and the following crops when grown for seed: Chinese cabbage, mustard greens, kohlrabi, dandelion, watercress, celery, endive, lettuce, parsley, spinach, Swiss chard, turnip, rutabaga, carrots, beets, parsnip, horseradish, radish, salsify: Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to evening when most bees are not foraging.

### **DIRECTIONS FOR USE:**

**IMPORTANT:** The directions on this label are based on tests and field experience relating to (a) effectiveness; (b) possible injury to plants and animals; and c) residues in food, meat and milk. Follow directions for most effective use.

### **SPRAY PREPARATIONS FOR GROUND APPLICATION:**

TO ASSURE A UNIFORM PRODUCT, AGITATE, STIR OR RECIRCULATE ALL Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION CONTAINERS PRIOR TO USE. Remove oil, rust, scale, pesticide residues and other foreign matter from mix tanks and entire

spray system. Flush with clean water. Fill spray or mix tank with 1/2 to 3/4 the desired amount of water. Start mechanical or hydraulic agitation. Slowly add the required amount of Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION and then the remaining volume of water. Include rinse water from container. Dilutions of 1 volume of Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION with 1 volume of water will allow maximum resistance to wash off by rainfall or overhead irrigation. Dilutions higher than 1:39 are not recommended where residual insect control from wash off resistance is desired. Prepare only as much spray mixture as is needed on the day of mixing. MAINTAIN CONTINUOUS AGITATION DURING MIXING AND APPLICATION TO ASSURE A UNIFORM SUSPENSION. DO NOT STORE SPRAY MIXTURES OVERNIGHT.

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

- For asparagus, rapeseed (canola), apple, blackberries, boysenberries, dewberries, loganberries, chokecherries, raspberries, blueberries, cranberries, melons, pumpkin, squash, cucumber, broad beans and trees (excluding coniferous evergreens): TOXIC to bees. DO NOT apply during the crop blooming period.
- For beans, peas, potato, eggplant, tomato, tobacco, and the following crops when grown for seed: Chinese cabbage, mustard greens, kohlrabi, dandelion, watercress, celery, endive, lettuce, parsley, spinach, Swiss chard, turnip, rutabaga, carrots, beets, parsnip, horseradish, radish, salsify: TOXIC to bees. Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to evening when most bees are not foraging. When using managed bees for pollination services, DO NOT apply during the crop blooming period.

#### **FIELD SPRAYER APPLICATION:**

**DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) fine classification. 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:**

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 rate 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.

**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) fine 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.

### **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.
- Not for indoor use.
- This product is not to be used in and around homes or other residential areas such as parks, schools, public buildings, playing fields or any other areas where the general public including children could be exposed.
- Not for use in greenhouses (vegetable or ornamental).
- Not for use on turf, golf courses, sod farms, residential ornamentals or residential vegetable gardens.
- Keep the following personal protective equipment immediately available for use in case of emergency (i.e., a broken package, spill, or equipment breakdown): chemical-resistant coveralls, chemical-resistant gloves, chemical-resistant head gear and a respirator.
- For good hygiene practices, chemical-resistant gloves are recommended when hand thinning apples following an application of carbaryl.
- Apply only when the potential for drift to areas of human habitation or areas of human activity (houses, cottages, schools and recreational areas) is minimal. Take into consideration wind speed, wind direction, temperature inversion, application equipment and sprayer settings.

### **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 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.

### Revised Restricted-Entry Intervals (REIs)

Crop	Activity	REI <sup>1</sup> (days)
apples (orchards that have transitioned to high density trellis production) Max. application rate: 1.5 kg a.i./ha (chemical thinning application)	Hand harvest	14
	Hand thinning, hand-line irrigation	14
	Hand pruning, scouting, pinching, tying, training	4
apples (orchards that have not transitioned to high density trellis production) Max. application rate: 1.0 kg a.i./ha (chemical thinning application)	Hand harvest	17
	Hand thinning, hand-line irrigation	10
	Hand pruning, scouting, pinching, tying, training	0.5
asparagus and asparagus ferns	High contact activities (irrigation)	6
	Low contact activities (hand weeding)	0.5
beans	High contact activities (scouting, hand harvest, irrigation)	7
	Low contact activities (hand weeding)	0.5
beet (root/top), horseradish, radish, rutabaga (root), salsify (root/top), turnip (root/top)	High contact activities (hand harvest, irrigation)	5
	Low contact activities (scouting, hand weeding, thinning)	0.5
blackberry, boysenberry, dewberry, loganberry, raspberry	High contact activities (hand harvest, pinching, pruning, training)	10
	Low contact activities (irrigation, weeding, scouting, thinning)	6
blueberries	High contact activities (hand harvest, pinching, pruning, training)	9
	Low contact activities (irrigation, weeding, scouting, thinning)	5
carrots	Low contact activities (scouting, weeding, thinning)	0.5
cranberries	High contact activities (irrigation, pruning, harvesting)	10
	Low contact activities (scouting, weeding, thinning)	2
cucumbers, melons, squash, pumpkins	High contact activities (hand-line irrigation)	2
	Low contact activities (hand harvest, turning, tying, staking, scouting, weeding)	0.5
choke cherries	All activities	21
ditch banks, forage grasses, pastures	All activities	2
eggplants	High contact activities (hand harvest, hand-line irrigation)	7
	Low contact activities (scouting turning, weeding, tying, staking)	3

high value trees	All activities	7
Chinese cabbage, dandelion, endive, lettuce, mustard greens, parsley, spinach, Swiss chard, and watercress celery, kohlrabi	High contact activities (hand harvest, hand pruning, irrigation)	5
	Low contact activities (scouting, hand weeding, thinning)	0.5
parsnips	High contact activities (hand harvest, hand pruning, irrigation)	5
	Low contact activities (scouting, hand weeding, thinning)	0.5
peas	High contact activities (hand harvest, irrigation)	5
	Low contact activities (scouting, thinning, hand weeding)	0.5
potatoes	High contact activities (irrigation)	6
	Low contact activities (scouting, hand weeding)	0.5
rapeseed (canola)	All activities (scouting, irrigation)	0.5
root crops	All activities	10
snapbeans	High contact activities (scouting, irrigation)	6
	Low contact activities (hand weeding, mechanical harvest)	0.5
tobacco	High contact activities (harvesting, irrigation)	3
	Low contact activities (scouting, weeding, pruning)	0.5
tomatoes	High contact activities (tying, hand harvest, pruning, irrigation)	6
	Low contact activities (scouting thinning, hand weeding, staking)	0.5
trap trees	All activities	7

<sup>1</sup> Day at which the dermal exposure results in an MOE  $\geq 300$ .

## ENGINEERING CONTROLS AND PERSONAL PROTECTIVE EQUIPMENT:

### Mixing and Loading:

- Use a closed mixing system.
- Wear chemical resistant coveralls over long pants and a long-sleeved shirt, shoes plus socks and chemical resistant gloves.

### Applying by air:

Wear cotton coveralls over long pants and a long-sleeved shirt, shoes plus socks.

### Applying by groundboom:

- During groundboom application use a closed cab that provides both a physical barrier and respiratory protection (i.e., dust/mist filtering and/or vapour/gas purification system). The closed cab must have a chemical resistant barrier that totally surrounds the occupant and prevents contact with pesticides outside the cab.
- Wear cotton coveralls over long pants and a long-sleeved shirt, shoes plus socks and chemical resistant gloves.
- Keep the following personal protective equipment immediately available for use in case of emergency or when exiting the cab with treated areas (i.e., a broken

package, spill, or equipment breakdown): chemical-resistant coveralls, chemical-resistant gloves, chemical-resistant head gear and a respirator. Once PPE is worn in a treated area, it must be removed before re-entering the cab.

#### **Applying by airblast:**

- During airblast application use a closed cab that provides both a physical barrier and respiratory protection (i.e., dust/mist filtering and/or vapour/gas purification system). The closed cab must have a chemical resistant barrier that totally surrounds the occupant and prevents contact with pesticides outside the cab. Wear cotton coveralls over long pants and a long-sleeved shirt, shoes plus socks and chemical resistant gloves.
- If a closed cab is not feasible, wear chemical resistant coveralls over long pants and a long-sleeved shirt, shoes plus socks, chemical resistant gloves and chemical-resistant headgear. Chemical resistant headgear includes So'Westers, or large brimmed, water-proof hats, and hoods with sufficient neck protection. Avoid touching face or other unprotected parts of the body during application.
- Keep the following personal protective equipment immediately available for use in case of emergency or when exiting the cab with treated areas (i.e., a broken package, spill, or equipment breakdown): chemical-resistant coveralls, chemical-resistant gloves, chemical-resistant head gear and a respirator. Once PPE is worn in a treated area, it must be removed before re-entering the cab.

#### **Applying by right-of-way sprayer:**

Wear chemical resistant coveralls over long pants and a long-sleeved shirt, shoes plus socks and chemical resistant gloves.

#### **Applying by handheld equipment:**

Wear chemical resistant coveralls over long pants and a long-sleeved shirt, shoes plus socks, chemical resistant gloves and NIOSH approved respiratory protection.

#### **WASHOFF RESISTANCE AND COVERAGE:**

Dilution of 1 volume of Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION with 1 volume of water will allow maximum resistance to wash off by rainfall or overhead irrigation. Dilutions higher than 1:39 are not recommended when wash off resistance is desired. Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION spray must be properly diluted and droplets must dry on the foliage before they become wash off resistant. When atmospheric humidity is low, a drying time of at least one hour is generally adequate. Under high humidity a longer drying time may be required. Wash off resistance cannot be expected if Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION is applied to wet foliage which does not dry adequately prior to rainfall or overhead irrigation.

On all crops use sufficient spray volume to obtain thorough coverage. Optimum pest control under certain crop, pest or climatic conditions may require spray volumes higher than the 1:39 dilution. For example in hot, dry weather, or when humidity is low, higher spray volumes per hectare may be required to minimize loss from evaporation and ensure thorough coverage. Consult Provincial agricultural field representatives for recommendations regarding local pest and crop conditions, and the total spray volume required for effective coverage.

**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 Habitat of Depths:		Estuarine/Marine Habitats of Depths:	
		Less than 1 metre	Greater than 1 metre	Less than 1 metre	Greater than 1 metre
Field sprayer	Asparagus (seedling), beans, beet, blackberry, blueberry, boysenberry, canola, carrot, Chinese cabbage, celery, chokecherry, cucumber, dandelion, eggplant, endive, kohlrabi, lettuce, loganberry, melon, mustard greens, parsley, parsnip, peas, potato, pumpkin, radish, raspberry, rutabaga, salsify, snapbeans, spinach, squash, Swiss chard, turnip, tomato and watercress.	10	3	15	10
	Ditch banks, field borders, wastelands, headlands, forage grass, pasture, rangeland, asparagus (ferns), cranberry, ornamentals	15	4	25	10
	Tobacco	25	5	35	15

Airblast	Apple (apple thinning only)	Early growth stage	25	10	30	20
	Ornamentals	Early growth stage	45	30	50	40
		Late growth stage	35	20	40	30
Aerial	Blueberries	Fixed wing	700	100	800	575
		Rotary wing	675	75	800	525
	Forage, field crops, and vegetable crops	Fixed wing	750	225	800	600
		Rotary wing	675	125	800	550
	Cranberries	Fixed wing	775	350	800	600
		Rotary wing	650	300	800	550
	Forest, woodlands	Fixed wing	800	350	800	725
		Rotary wing	375	125	450	275

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

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

#### **COMPATIBILITY:**

Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION is not compatible with diesel fuel, kerosene, fuel oil or aromatic solvents. Unstable under highly alkaline conditions. Not effective if used with alkaline materials such as Bordeaux, lime-sulfur and casein-lime spreaders.

#### **APPLICATION:**

On all crops, use sufficient spray volume to obtain thorough and uniform coverage. Calibrate spray equipment to deliver the required volume. The flow rate of Sevin XLR CARBARYL

INSECTICIDE LIQUID SUSPENSION diluted 1:1 with water is similar to water. Use 50 mesh strainers in spray system and behind nozzles. To clean spray system after use, drain and flush with water.

### **IMPORTANT PRE-HARVEST AND GRAZING USE INFORMATION AND LIMITATIONS:**

Tolerances established under the Food & Drug Act permit the sale of crops bearing probable Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION residues when Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION is used in accordance with label directions. Pre-harvest and grazing use limitations are listed at the end of the directions for each crop use. Where no pre-harvest or grazing time limitations are stated, application can be made to the day of harvest and crops can be grazed without time delay if directions for use on the crop are followed. If Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION is used in accordance with label directions, forage and feed crops, including bean vines, carrot tops, hay, pea vines, and sugar beet tops, may be grazed or harvested for use as feed for dairy animals 48 hours after treatment and meat animals 24 hours after treatment without resulting in illegal residues in milk or meat.

### **INSECT CONTROL:**

Apply when insects or their damage appear. To maintain control, some crops may require a repeat application at 7 or 8 day (minimum) intervals. Please see use table for details. . Where a dosage range is indicated, use lower rate on young plants and early instars and higher rate on mature plants, advanced instars and adults. Thorough and uniform spray coverage is essential for effective control.

Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION does not control spider mites. If spider mites are a problem, use a registered miticide.

### **RESISTANCE MANAGEMENT RECOMMENDATIONS:**

For resistance management, please note that Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION contains a Group 1A insecticide. Any insect population may contain individuals naturally resistant to Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION Insecticide and other Group 1A insecticides. The resistant individuals may dominate the insect population if this group of insecticides is used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action, but are specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance management strategies should be followed.

To delay insecticide resistance:

- Where possible, rotate the use of Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION or other Group 1A insecticides with different groups that control the same pests in a field.
- Use tank mixtures with insecticides from a different group when such use is permitted.
- Insecticide use should be based on an integrated pest management (IPM) program that includes scouting and record keeping and considers cultural, biological, and other chemical control practices;

- Monitor treated pest populations for resistance development.
- Contact the local extension specialist or certified crop advisors for any additional pesticide resistance-management and IPM recommendations for the specific site and pest problems in the area.

For further information or to report suspected resistance, contact Tessengerlo Kerley Inc. at 1-515-201-2649.

### NUMBER OF APPLICATIONS:

Consult the table below for the number of applications per year and application intervals per crop:

#### Applications per Year and Application Intervals

Crops	Applications per Year	
	Number	Minimum Interval (days)
apples (chemical thinning application)	1-2	4
trap trees; choke cherries; high value trees	1	N/A
ditch banks, forage grasses and pastures, rapeseed (canola); blackberries, boysenberries, dewberries, loganberries, raspberries, blueberries, cranberries; tobacco	2	8
beet (root/top), Chinese cabbage, dandelion, endive, mustard greens, parsley, salsify (root/top), spinach, Swiss chard, turnip (root/top), watercress, parsnips; asparagus; celery, lettuce, kohlrabi, beans, horseradish, radish, rutabaga (root), carrots, peas, potatoes, snapbeans (mechanical harvesting only), tomato, eggplants, cucumbers, melons, pumpkin, squash	2	7

### FORAGE, FIELD, CEREAL, VEGETABLE AND TOBACCO CROPS:

GROUND APPLICATION: Apply in sufficient volume to obtain through coverage. Where maximum wash off resistance is needed, use up to 1:1 (vol/vol) dilution with water. Do not dilute greater than 1:39 where wash off resistance is desired. To prepare small volumes of spray, use 20 mL of Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION per 5 L of water where rates of 2.5 L/ha are indicated in the tables.

Crop	Insect	L of Sevin XLR /ha	Pre-Harvest Interval (days)	Specific Directions
Ditchbanks Field borders Forage grasses Headlands Pastures	Grasshoppers	1. 2 - 2.3  2.3 - 3.5	0 (ditchbanks, field borders, headlands, rights-of-way,	For nymphs or sparse vegetation  For adults or application to dense vegetation.

Crop	Insect	L of Sevin XLR /ha	Pre-Harvest Interval (days)	Specific Directions
Rangelands Rights-of-way (DO NOT use for control of spruce budworm) Wastelands			wasteland)  1 (forage grasses, pastures, rangeland, beef cattle)  2 (forage grasses, pastures, rangeland, dairy cattle)	
Asparagus, (seedlings, spears)	Asparagus beetle, Cutworms (climbing)	2.5 - 6.4	2	Apply as a spray in sufficient water for full coverage. Apply when insects or their damage appear. Use the lower rate on young plants.
Beans	Mexican bean beetle  Flea beetles, Leafhoppers  Lygus bugs, Stink bugs  Climbing cutworms	1.25 - 1.5  2.5  5.25 - 6.4  30 - 35 mL/100 m of row	5	Use lower rate on young plants. Apply for full coverage when insects or damage appear.  Apply when insects or their damage appear. Use at least 220 to 350 L of water per hectare. Spray in 25 to 30 cm band over row
Beets Carrots Celery Chinesecabbage Dandelion Endive Horseradish Kohlrabi Lettuce Mustard greens Parsley	Flea beetles, Leafhoppers  Armyworms, Corn earworm, Diamondback moth (larvae), Imported cabbageworm, Lygus bugs, Meadow spittlebug, Stink	1.25 - 2.5  2.5 - 5.25	1 (carrots)  5 (celery, head lettuce & kohlrabi)  7 (beet roots, horseradish, radish, rutabaga)	Spray in sufficient water for full coverage. Use the lower rate on young plants. Apply when insects or damage appear. To avoid possible injury on lettuce, do not apply when foliage is wet or when rain or excessive humidity is expected during the next 2 days.



Crop	Insect	L of Sevin XLR /ha	Pre-Harvest Interval (days)	Specific Directions
Parsnip Radish Rutabaga Salsify Spinach Swiss chard Turnip Watercress	bugs  Six spotted leafhopper	1.08 - 1.56	roots, salsify roots and turnip roots)  14 (parsnip)  21 (beet tops, Chinese cabbage, dandelion, endive, leaf lettuce, mustard greens parsley, salsify tops, spinach, Swiss chard, turnip tops & watercress)	
Cucumber Melons Pumpkin Squash	Cucumber beetle, Cutworms (climbing), Flea beetle, Leafhoppers, Squash bug	2.5	5	Apply for thorough coverage when insects or damage appear. To avoid possible injury on tender foliage, do not apply when foliage is wet or when rain or excessive humidity is expected during the next 2 days.
Peas	Alfalfa looper	4.7	3	Apply for thorough coverage when insects or damage appear.
Potato Tomato Eggplant	Colorado potato beetles*,  Flea beetles,  Leafhoppers  European corn borer, Fall armyworm, Tomato hornworm,	1.25  2.5  2.5  2.5 - 5.25	2 (eggplant, and tomato)  7 (potato)	Apply for full coverage when insects or damage appear.  *As Colorado potato beetle resistance to carbaryl has been known to occur, it is recommended that the level of resistance of local Colorado potato beetle be established by

Crop	Insect	L of Sevin XLR /ha	Pre-Harvest Interval (days)	Specific Directions
	Tomato fruitworm  Stink bugs, Tarnished plant bug  Cutworms (climbing)	5.25 - 6.4  45mL/100m of row		using a dip test early in the season, before spraying.  Apply when insects or their damage appear. Use at least 225 to 275 L of water per hectare. Spray in 25 to 30 centimetre band over the row.
Rapeseed (Canola)	Flea Beetles	0.5	Seedling Application only	Applications may be made up to four weeks following plant emergence.
Snapbeans (such as common, green, yellow)	European corn borer	5.25	5	Apply after blossom when egg laying for second brood of corn borer begins. Use at least 10 L of finished spray for aerial application and at least 30 L of finished spray/ha for concentrated ground application. Careful monitoring for eggs is essential for determining optimum time for spray treatment. <b>*DO NOT hand harvest</b>
Tobacco	Tobacco flea beetle Cutworms Flea beetles, Hornworms, Tobacco budworm	2.0 - 2.75	1	IN PLANT BEDS: apply when insects or damage appear.  POST-PLANT TREATMENT: Apply in a 25 cm band over the row as a foliage spray.  IN FIELDS: use 500 to 1000 L spray volume per hectare. Use lower rate on young plants. Full coverage is essential. Begin treatment when larvae are small. Avoid excessive application in

Crop	Insect	L of Sevin XLR /ha	Pre-Harvest Interval (days)	Specific Directions
				bud of plant as injury may result. If late applications are necessary, allow 3 days before priming or cutting.

### FORAGE, FIELD, CEREAL, VEGETABLE AND TOBACCO CROPS:

**AERIAL APPLICATION:** 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 rate and conditions of this label.

Crop	Insect	L of Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION /ha	Pre-Harvest Interval (days)	Specific Directions
Rapeseed (canola)	Flea Beetles	0.5	Seedling Application only	Applications may be made up to four weeks following plant emergence.

### TO REDUCE FRUIT SET — APPLE TREES (FRUIT):

#### APPLICATION RATE AND TIMING

For orchards that have transitioned to high density trellis production architecture (e.g., spindle or super spindle trees) apply 0.5 to 3.22 L/ha as a full coverage spray timed between late petal fall and 25 days after full bloom. The use rate will depend on the apple variety, tree size, row spacing, and the weather conditions at the time of and following application. For easily thinned varieties apply 0.5-1 L of product/1000 L of spray (233–466 g a.i. /1000 L). For hard to thin varieties apply 1-2 L of product/1000 L of spray (466–932 g a.i. /1000 L). Maximum of 2 applications/year. The minimum re-application interval is 4 days. Do not exceed 3.22 L of product (1.5 kg a.i.)/ha/year.

For orchards that have not transitioned to high density trellis production architecture (e.g., dwarf, semi-dwarf and full sized trees) apply 0.5 to 2.15 L/ha as a full coverage spray timed between late petal fall and 25 days after full bloom. The use rate will depend on the apple variety, tree size, row spacing, and the weather conditions at the time of and following application. For easily thinned varieties apply 0.5-1 L of product/1000 of spray (233–466 g a.i. /1000 L). For hard to thin varieties apply 1-2 L of product/1000 L of spray (466–932 g a.i. /1000 L) . Maximum of 2 applications per year. The minimum re-application interval is 4 days. Do not exceed 2.15 L of product (1.0 kg a.i.)/ha/year.

Apple tree varieties differ in their sensitivity to chemical thinners. Varieties considered easy to thin may be adequately thinned with one application. Varieties considered more difficult to thin may require an additional application or be combined with another compatible thinner.

Pre-harvest interval is 75 days for apple thinning applications.

#### SPRAY APPLICATION AND VOLUME

Sevin should be applied from the ground using a high volume handgun or airblast sprayer. The sprayer should be properly calibrated to ensure complete coverage of foliage and developing fruit without runoff. It is suggested that nozzles be adjusted to deliver 2/3 of the spray volume in the upper portion of a tree. Reduce spray coverage to the lower portion of the tree since over thinning may occur here. Adjust spray volume to accommodate tree size. The most effective spray volume will depend on the tree size, planting density (row and tree spacing) and amount of foliage. Use sufficient spray volume to ensure adequate coverage; typical spray volume is dependent on tree size (e.g., 1000 to 2000 L/ha). Avoid spray to the point of runoff.

#### COMPATABILITY WITH OTHER THINNERS

Sevin may be tank mixed with other fruit thinners, such as products containing 6-benzyladenine or naphthaleneacetic acid (NAA) for use on some varieties. However, use caution to avoid over-thinning and other adverse effects. The combination with NAA may result in pygmy or small fruit production on some varieties such as Delicious and Fuji. Consult with local fruit thinning experts for recommendations before using either of these combinations. Refer to and follow the tank mix partner's label for specific use directions and precautions.

#### PRECAUTIONS FOR APPLE THINNING USE OF SEVIN XLR CARBARYL INSECTICIDE

##### LIQUID SUSPENSION

- Do not apply during bloom prior to 80% petal fall.
- Weather Influences Thinner Response:
  - Climatic temperature, high humidity, frost, and other weather factors may influence fruit thinning results. When fruit reach a size range of 7 to 14 mm they are most sensitive to thinner application and weather conditions, particularly at 3 to 4 days after application, will influence thinner response. Application made when temperatures are expected to be below 17°C may result in reduced and insufficient thinning. When temperatures are expected to exceed 27°C or when moderate temperatures are accompanied by an extended period (3 to 4 days) of cloudy weather, heavy or excessive thinning may be observed. A good rule-of-thumb is once fruit reach 6 to 7 mm in size the most satisfactory thinning is often achieved by making the application right before a period forecasted of at least 3 days of moderate (21°C to 25°C) temperatures.
- Other Factors that Influence Thinner Response:
  - Exercise caution to avoid possible over thinning and possible yield reduction. Tree age, variety, nutrition, previous crop pruning and bloom, and degree of set may influence fruit thinning results.
- Fruit Deformity Precaution:
  - The use of Sevin may result in fruit deformity under certain environmental conditions. Before using on any variety of apples, the user must weigh the risk versus benefits when using this product, particularly when using it between 80%

petal fall and 6 mm fruit size. Red Delicious is more sensitive to this phenomenon and in particular, the varieties Bisbee, Red Chief and Vallee Spur are very susceptible to conditions causing fruit deformity. Precipitation and temperatures below 18°C increases the possibility of fruit deformity. The use of this product with any spray additive not specifically recommended on the label may increase the risk of fruit deformity and injury.

Consult with fruit thinning experts in your area for advice on using this product on specific apple varieties under local growing conditions or other questions.

Observe all restrictions on the use of this product for apple thinning.

#### DRIFT MANAGEMENT

For airblast application, observe the following drift management practices:

- Adjust deflectors and aiming devices so that spray is only directed into the canopy;
- Block off upward pointed nozzles when there is no overhanging canopy;
- Do not allow the spray to go beyond the edge of the cultivated area (i.e., turn off sprayer when turning at end rows);
- For applications to the outside rows, only spray inward, toward the orchard.

#### SMALL FRUIT CROPS:

**SPRAY VOLUME:** Recommended dosages refer to litres of Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION per hectare. Optimum spray volume will depend on tree size, density and stage of growth. Dilute Sprays - Typical spray volumes are 1000 - 3000 L/ha. Concentrate Sprays - Typical spray volumes are 300 - 1000 L/ha. Aerial sprays – Typical spray volumes are 100 – 200 L/ha. Do not exceed maximum label rate per hectare per application. Ground application only unless otherwise indicated.

Crop	Insect	L of Sevin XLR /ha	Pre-Harvest Interval (days)	Specific Directions
Blackberries Boysenberries Dewberries Loganberries Raspberries	Blackberry leafminer, Japanese beetle, Leafhoppers, Leafrollers, Rose stem girdler, Spotted-winged raspberry aphid	5.25	11	Use 1000 to 2000 L spray volume per hectare. Apply when insects or damage appear.
Blueberries	Blueberry maggot, Cranberry fruitworm, Lecanium scale, Leafrollers, Bruce spanworm	4.0	2	Use 1200 to 1500 L spray volume per hectare. Apply when insects or damage First appear. Apply 3 weeks before harvest and repeat in 10 days if necessary.

				Avoid spraying during flowering. May be applied by air.
Cranberries	Bluntnosed cranberry leafhopper, Cranberry fruitworm, Cutworms (climbing), Fireworms	6.4 - 7.6	2	Use 3000 L spray volume per hectare. Apply during late bloom. May be applied by air.

### SHELTERBELTS:

Crop	Insect	L of Sevin XLR /1000 L water	Specific Directions
Chokecherry Shelterbelts	Prairie Tent Caterpillar	1.058	Apply prior to flowering when tents are visible, generally mid to late May
	Ugly Nest Caterpillar,		Apply after flowering when tents are visible, generally early to mid June
	Fruittree Leafroller		Apply after flowering when damage is first noted, generally early to mid June
<p>Apply as a foliar spray; ground application only – ONE application per year.  Apply so leaves are wet but not dripping.  Wear protective clothing including long-sleeved shirt, long pants and chemical resistant gloves when handling or spraying the product.</p>			

### MOUNTAIN PINE BEETLE CONTROL:

For use on high value trees in urban and rural areas. To prepare small volumes of spray, use 1 L of Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION per 25 L of water to make a spray mixture containing 2% active ingredients. Ground application only.

Litres of Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION /1000 L of water	Specific Directions
40	<p>Effective as a preventive treatment only. Repeat annually as required to prevent beetle attacks. Avoid spraying when conditions favour drift from spray area.</p> <p>Apply one (1) L of spray per one (1) m<sup>2</sup> of bark in late May to early July or prior to beetle attack. Treat trunks from ground</p>

level up to until trunk diameter is less than 12.5 cm.
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#### RESTRICTED USE

**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.

**NATURE OF RESTRICTION:** This product is to be used only in the manner authorized; consult provincial regulatory authorities about use permits which may be required.

**RESTRICTED USE:** For use to control small infestations of mountain pine beetle in lodgepole pine forest stands.

#### DIRECTIONS FOR USE:

To be used only on trap trees (standing, dead or dying) which are not to be harvested. Monitor stand in the period mid-June to mid-July to determine which trees are infested. Apply 1 treatment to infested trees more than 3 weeks prior to the expected beetle emergence in order to kill the emerging adult beetles.

Mix 1 litre of Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION in 24 litres of water (41.6 litres of Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION in 1000 litres of water) to make a spray mixture containing 2% active ingredient by weight.

Apply 1 litre of spray per square metre of bark using a backpack handheld or suitable hydraulic ground sprayer. Treat bole from ground level up to a height of at least 3 metres or until bole is less than 12.5 centimetres in diameter. Avoid spraying when conditions favour drift from spray target.

**LIMITATIONS:** Consult provincial regulations and obtain all necessary permits and applicator certificates prior to making applications.

#### **GYPSY MOTH CONTROL:**

## RESTRICTED USE

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.

NATURE OF RESTRICTION: This product is to be used only in the manner authorized; consult provincial regulatory authorities about use permits which may be required.

RESTRICTED USE: Aerial application for the control of gypsy moth in forests and woodlands.

DIRECTIONS FOR USE: Use 2.3 litres of Sevin XLR CARBARYL INSECTICIDE LIQUID SUSPENSION per hectare. Apply a total spray volume of 3 to 5 litres per hectare. Apply when larvae are in early instars and leaves are at least one-third grown.