

Onion Management Schedule

A guide to weed, insect and disease management in dry bulb and green onions in Nova Scotia



2018



GUIDE TO PEST MANAGEMENT IN ONION (Dry Bulb and Green)



Nova Scotia Vegetable Crop Guide to Pest Management 2018
[ON1-18]

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IMPORTANT

This publication was compiled by representatives from Perennia using information from the Pest Management Regulatory Agency of Health Canada, specific pesticide labels, previous Atlantic Provinces Vegetable Pest Guides and manufacturer's information. **This information is continuously changing and therefore it can cease to be current and accurate. Pesticide labels are the best source of information and should always be consulted prior to using a product.**

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WARNINGS

This publication is meant to be used as a reference for possible pest control options. Where there are multiple brand names of a specific active ingredient registered in Canada, Perennia has only listed a couple for reference purposes and as such does not endorse one brand over another. If you have purchased a generic product not specifically in this guide but has your crop and pest on the label, always follow that product label.

If any information in this or any other publication conflicts with the information on the label, always use the label recommendation. You are legally responsible for the safe use of pesticides you purchase. This means the safe transport and storage of these materials, the label rates used on crops, and the safe disposal of containers.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-Harvest Interval (days)	Remarks
WEEDS:							
Preplant <i>Perennial weeds including quackgrass</i>	9	Glyphosate	Roundup Original	2.5-7.0 L/ha	12 hours	7	Apply in the fall or spring prior to planting. Annual weed control programs are necessary to control weeds germinating after planting. For quackgrass control, apply to actively growing quackgrass when at least 4 new leaves are present. The low rate (2.5 L/ha) will provide a minimum of one season control, while higher rates (4.75 to 7 L/ha) will provide longer term control. The low rate of Roundup should be applied in 50 to 100 L/ha water. If higher water volumes are used, add a suitable surfactant. Wait 72 hours before plowing under. Best control of quackgrass is obtained with fall applications.
			Roundup WeatherMAX	1.67-8.0 L/ha			
			Touchdown® 480	2.5-7.0 L/ha			
	14	Carfentrazone-ethyl	Aim EC	36.5-117 mL/ha	-	1	Apply in minimum spray volume of 100 L/ha. Refer to label for target weeds, buffer zones and rates. Use high flow rate nozzles to apply the highest spray volume.
Pre-emergence <i>Stale Seedbed Technique</i>	22	Diquat	Reglone, Dessicash	2.3-4.6 L/ha	24 hours	-	Apply in 300 – 1100L of water/ha to foliage of emerged weeds but before the crop has emerged.
		Paraquat	Gramoxone®	2.75-5.5 L/ha	24 hours	-	
Germinating annuals	3	Chlorthal dimethyl	Dacthal W-75	9-18 kg/ha	-	-	Apply uniformly over the soil. Dacthal can be sprayed directly over transplants. A layby application can be made on onions up to 14 weeks after planting or transplanting. Max 18 kg/ha/year.
	14	flumioxazin	Chateau WDG	140g/ha	12 hours	45	Dry Bulb only. Do not apply on sands with greater than 90% sand plus gravel. Do not apply on fine textured soils. Do not apply in a tank-mix or with an adjuvant. Apply to transplanted onions between the 2 and 6 leaf

							stage. On direct seeded onions apply between the 3 and 6 leaf stage prior to emergence of weeds.
	15	Dimethenamid-P	Frontier Max	0.963-1.29 L/ha	24 hours	30	For green onions grown on mineral and muck soils. Apply a single application at the loop stage before weed emergence. Use low rate on mineral soils and high rate on muck soils. Avoid applying under cool conditions as stunting may result.
Postemergence <i>Inter-row shielded</i>	22	Diquat	Reglone, Dessicash	2.3-4.6 L/ha	24 hours	-	Do not spray solution on the crop plant since it could be injured or killed. Use gramoxone for best control of grasses.
		Paraquat	Gramoxone®	2.75-5.5 L/ha	24 hours		
	14	Carfentrazone-ethyl	Aim EC	36.5-117 mL/ha	-	1	Apply in minimum spray volume of 100 L/ha. Refer to label for target weeds, buffer zones and rates. Use high flow rate nozzles to apply the highest spray volume.
Emerged broadleaf	6	Bromoxynil	Pardner	0.5 L/ha	24 hours	75	Dry bulb onions only. Apply in 200 L water/ha at a pressure of 170 kPa. Make two applications at an interval of 10-18 days apart. The first application should be made when onions are at the 2-3 leaf stage; make the second application when onions are the 4-5 leaf stage. Severe leaf burn may occur if the weather has not been conducive to the development of the outer waxy layer of the onion leaf. Redroot pigweed and common groundsel.
	14	Oxyfluorfen	Goal 2XL	0.25-0.5 L/ha	48 hours	56	Apply in 500 L/ha of water when onions have 2 fully developed leaves. Use only on dry bulb onions and do not apply when crop is under stress. Do not apply in excess of 2.0 L/ha per year.
Emerged grasses	1	Clethodim	Select	0.38 L/ha	-	45	Apply when crop is at the 1-4 leaf stage and weeds are at the 2-6 leaf stage.
		Fenoxaprop-P-ethyl	Excel Super EC	670 ml/ha	-	38	Dry bulb onions only. Apply to actively growing annual grasses at the 1-6 leaf stage.

		Fluazifop-p-butyl	Venture L	1.0-2.0 L/ha	-	42 (annual grasses) 60 (annual grasses & quack grass)	Dry bulb onions. Annual Grasses: A repeat application may be made after a minimum re-treatment interval of 14 days, if required, but not less than 42 days before harvest. Apply at the 2-5 leaf stage of the grass. Use the high rate for quack grass and the lower rate for volunteer cereals.
		Sethoxydim	Poast Ultra Plus	0.32-1.1 L/ha	12 hours	50	Dry bulb onions only. Apply to actively growing annual grasses at the 1-6 leaf stage.
			Merge	1-2 L/ha			
Yellow Nutsedge	15	Dimethenamid-P	Frontier Max	1.29 L/ha	24 hours	60	Dry bulb onions grown on muck soils only. Apply a single application at the loop stage before yellow nutsedge emerges.
Emerged crop (Broadleaves and grasses)	3	Pendimethalin	Prowl H2O	2.2-3.3 L/ha	24 hours	-	Mineral Soil Max 2 applications per year. Apply as a foliar spray. Apply in 250 L water /ha. Apply at 2-6 leaf stage.
				6.6 L/ha	24 hours except for direct seeded green onions on muck soil: 4 days scouting, 7 days hand-set irrigation, 15 days hand weeding.	-	Muck Soils (direct seed only): Apply at the loop and 2-leaf stage of crop. Apply in 250 L of water /ha. Destroy existing weeds before applying Prowl H2O. Need adequate rainfall or overhead irrigation within 7 days of application.
Plant Growth Regulator-Sprout Control	-	Maleic hydrazide	Royal MH-30 XTRA	8.36 L in 300 L water/ha	12 hours	10	Should be applied when the bulbs are fully mature, have at least 5 - 8 green leaves, and have necks soft enough for the tops to fall over if they have not already done so. The spray is often applied when 50 percent of the tops have fallen but all tops are still green. This condition usually occurs about 10 days to two weeks before harvest time. Green tops are essential for the absorption of Royal MH-30 XTRA. Caution: Spongy hollow necked bulbs may result if spraying is done earlier than two weeks before maturity. Apply to healthy plants. Max 1 application/year.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-Harvest Interval (days)	Remarks
INSECTS:							
Thrips	3	Cypermethrin	Mako	175 ml/ha	-	3	Apply at 10-day intervals. Max 3 applications/season.
			UP-Cyde	280 ml/ha	12 hours	3	
	3	Deltamethrin	Decis 5.0 EC	200 ml/ha	-	5	Do not apply more than once per season.
			Poleci 2.5 EC	400 ml/ha	12 hours	5	Apply in 200-500 L water/ha. Apply as foliar spray mid-season at proper thrips threshold. Do not apply more than once per season.
	5	Spinetoram	Delegate WG	200-336 g/ha	12 hours	3	Dry bulb onions. Apply in 300-500 L water per hectare, when thrips first appear; targeting egg hatch and small nymphs. Max 3 applications/year at 7-10 day intervals.
	3	Lambda - cyhalothrin	Matador 120 EC	188 ml/ha	24 hours	14	Max 3 applications/season. Allow 7 days between treatments
	1B	Malathion	Malathion 500 E	2.25 L/ha	-	3	Apply in enough spray volume to ensure thorough spray coverage.
	1B	Naled	Dibrom	550 ml/ha	48 hours	4	Repeat as necessary.
	5	Spinosad	Success 480SC	218-262 ml/ha	-	3	Target small nymphs and eggs at hatching. Allow 7-10 days between applications. Max 3 applications per year. Apply in 300-500 L/ha.
			Entrust 80W	131-158 g/ha			
Entrust SC			437-527 ml/ha				
23	Spirotetramat	Movento 240 SC	365 ml/ha	12 hours	3 (dry bulb) 7 (green onion)	Apply in minimum volume of 200 L water/ha. Maximum 2 applications per crop season with a minimum of 7 days between applications. Maximum allowed per crop season: 730 mL/ha. Apply when thrips are first noticed. Movento should be used during the first half of the season when adult populations are relatively low or building. Reductions in numbers of thrip larvae may take 3-4 days after application.	

	28	Cyantraniliprole	Exirel	1000-1500 ml/ha	12 hours	1	Suppression only. Begin applications when thrip populations are low. Thorough coverage is essential for optimum control. For optimum control, apply Hasten NT Spray Adjuvant* at an application rate of 0.25% v/v or MSO Concentrate with Leci-Tech* at an application rate of 0.5% v/v. If thrip populations are high, use a registered insecticide with a different mode of action to reduce thrip populations before applying Exirel. Make no more than 4 applications per season. Do not apply more than once every 5 days.
	6	Abamectin	Agri-Mek 1.9% EC	0.6-1.2 L/ha	12 hours (13 days: hand weeding, 4 days: hand-set irrigation, 1 day: thinning & scouting)	Green onion: 7 Bulb onion: 30	Green onion. Foliar application only. Allow 7 days between applications. Apply when pest populations are building but before damage occurs. Consult local extension specialists, professional consultants or other qualified authorities to determine appropriate threshold levels in your area. Use the higher application rate under heavy pest pressure. Max 4 applications/season. Bulb onion: should be applied with a non-ionic surfactant to improve wetting of foliage and to smooth out spray deposits. Spreading and penetrating surfactants can improve insect control. Do not use binder or sticker-type surfactants. Max 3 applications/season.
			Agri-Mek SC	135-270 mL/ha 0.25-0.5% v/v non-ionic surfactant (NIS)			Green onion: Apply by foliar application when pest populations are building but before damage occurs. Consult local extension agents, professional consultants or other qualified authorities to determine appropriate threshold levels in your area. Use the higher application rate under heavy pest pressure. Max 4 applications/season. Bulb onion: Apply when onion thrips or signs of onion thrips feeding first appear. Should be applied with a non-ionic surfactant to improve wetting of foliage and to smooth out spray deposits. Spreading and penetrating surfactants can improve insect control. Do not use binder or sticker-type surfactants. Max 3 applications/season.

Onion Maggot	1B ¹	Chlorpyrifos	Lorsban 15 G	8-16 kg/ha	24 hours	109	Larvae. Apply in sufficient water as a drench banded over the row at sowing.
	3	Cypermethrin	Mako	175 ml/ha	-	3	Spray for onion maggot flies . Apply when flies become numerous and repeat at 7 to 10 day intervals. Max 3 applications/season.
			UP-Cyde	280 ml/ha	12 hours	3	
	1B	Naled	Dibrom	550 ml/ha	48 hours	4	
Leek Moth	3	Lambda - cyhalothrin	Matador 120 EC	188 ml/ha	24 hours	14	Max 3 applications/season. Allow 7 days between treatments
	5	Spinosad	Success 480 SC	218-262 ml/ha	-	3	Apply in high water volume to ensure spray solution penetrates into leaf axils. Reapply at 7-10 day intervals. Do not apply more than 2 sequential applications. Max 3 applications per year. Target eggs at hatch or small larvae.
			Entrust 80W	131-158 g/ha			
			Entrust SC	437-527 ml/ha			
	5	spinetoram	Delegate WG	200-336 g/ha	12 hours	3	Recommended water volume of 300-500 L water/ha with sufficient pressure to ensure spray solution penetrates leaf axils. Apply when thrips first appear targeting eggs at hatch and small nymphs. Use higher applications when insect pressure is high or insects are at advanced stage of growth. Max 3 applications /year at 7-10 days intervals. Do not apply 2 consecutive applications of group 5 insecticides. Rotate to another class of insecticide for at least one application.
	28	chlorantraniliprole	Coragen	250-375 ml/ha	12 hours	1	Green onion: <i>Suppression of leek moth, control of cutworms:</i> Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Max 4 applications/season. Do not apply more than once every 5 days.
11	<i>Bacillus thuringiensis</i> , subsp. <i>aizawai</i> , (Strain ABTS-1857 fermentation solids, spores, and insecticidal toxins)	XenTari WG	500-1000 g/ha	-	0	Apply sufficient spray volume to ensure uniform deposition on all plant surfaces; recommend 1000 L per ha.	

Cutworms	1B	Chlorpyrifos	Warhawk 480 EC	2.4-4.8 L/ha	24 hours	60	<p>Bulb onion. <u>Soil treatment:</u> Apply once per season before planting or transplanting. Application is also permitted on a 15 m strip adjacent to fence rows. Use the low rate except under conditions of low soil moisture. Use the high rate if the top 1 cm of soil is dry. When preplant soil applications are being made to muck soil, do not incorporate. Incorporation on mineral soils should be no deeper than 5 cm.</p> <p><u>Seedling treatment:</u> Apply as a broadcast spray at the 2- to 5-leaf stage. Use the low rate except under conditions of low soil moisture. Use the high rate if the top 1 cm of soil is dry.</p>
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Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted-Entry Interval (REI)	Pre-Harvest Interval (days)	Remarks
DISEASES:							
Pythium	4	Metalaxyl-M and S-isomer	Apron XL LS	20 ml / 100kg of seed	-	-	One application as a seed treatment.
Purple Blotch	7	Boscalid	Cantus WDG	475 g/ha	12 hours	7	Apply at 7-14 day intervals. Max 6 applications/yr. Do not apply more than 2 sprays in succession before alternating to another fungicide family.
	7-11	Boscalid and Pyraclostrobin	Pristine WG	1.0-1.3 kg/ha	3 days	7	Max 6 applications/yr. Apply at 7-14 day intervals.
	9-12	Cyprodinil and Fludioxinil	Switch 62.5 WG	775-975 g/ha	12 hours	7	Begin when conditions are favorable for disease but before infection. Max 3 applications/yr. Apply at 7-14 day intervals. Suppression of purple blotch only.
	U	Fosetyl-al	Aliette WDG	2.8 kg	12 hours	7	Max 5 applications/yr.
	M	Mancozeb	Manzate Pro-Stick	2.25-3.25 kg/ha	-	10	Dry onions only. Repeat applications on 7-10 day intervals.
	11	Pyraclostrobin	Cabrio EG	0.56-0.84 kg/ha	12 hours	7	Max 3 applications/yr. Do not apply more than 2 sprays in succession before alternating to another fungicide family. Use on a 7-14 day schedule.
	7	Penthiopyrad	Fontelis	1.25-1.75 L/ha	4 hours	3	Begin applications prior to disease development, continue on a 7-10 day interval. Use higher rate and shorter interval when disease pressure is high. Max seasonal rate is 5.25 L/ha. Do not make more than 2 sequential applications before switching to another mode of action.
	29	Fluazinam	Allegro 500 F	1.16 L/ha	3 days	7	Bulb onion. Begin applications when conditions are favourable for disease development or when first disease symptoms appear. Max 5 applications per year. No more than 3 sequential applications before alternating to a fungicide belonging to a different chemical family. Application interval: 7 to 10 days.

	9-12	Cyprodinil and Fludioxinil	Switch 62.5 WG	775-975 g/ha	12 hours 3 days (hand weeding)	7	Begin when conditions are favorable for disease but before infection. Maximum of 3 applications/yr. Apply at 7-14 day intervals. Suppression of purple blotch only.
	7-9	Fluopyram & pyrimethanil <i>NEW 2018</i>	Luna Tranquility	1200 ml/ha	12 hours	7	Begin fungicide applications preventatively. Continue as needed, on a 7- to 12-day interval.
	7	Benzovindiflupyr <i>NEW 2018</i>	Aprovia	750 ml/ha	12 hours	7	Begin applications when the plants are 5-10 centimeters high or when conditions become favourable for disease development. Make applications on a 7 – 14 days interval. Use the shorter interval when conditions are more conducive to disease. Also controls garlic rust (<i>Puccinia allii</i>).
Botrytis leaf blight and Botrytis Neck Rot	-	<i>Bacillus subtilis</i>	Serenade Opti	1.7-2.5 Kg/ha	-	0	Biopesticide that will only suppress the indicated diseases. Begin applications at the first sign of disease, or when conditions become conducive for disease development. Repeat as necessary on a 7-10 day interval.
	7	Boscalid	Cantus WDG	475 g/ha	12 hours	7	Apply at 7-14 day intervals. Max 6 applications/yr. Do not apply more than 2 sprays in succession before alternating to another fungicide family.
	7-11	Boscalid and Pyraclostrobin	Pristine WG	1.0-1.3 kg/ha	3 days	7	Max 6 applications/yr. Apply at 7-14 day intervals.
	M	Chlorothalonil	Bravo 500 / Bravo ZN	2.4-4.8 L/ha	48 hours	7	Dry Bulb. Max 3 applications/yr.
						14	Green Bunching. Max 5 applications/yr.
						7 (Dry bulb) 14 (Green bunching)	Begin applications when conditions favor disease. Repeat applications every 7-10 days to obtain control. Use sufficient water to obtain adequate coverage. DO NOT exceed 3 applications per season in dry bulb onions and 5 applications per season in green bunching onions.
9-12	Cyprodinil and Fludioxinil	Switch 62.5 WG	775-975 g/ha	12 hours	7	Max 3 applications/yr. Begin when conditions are favorable for disease but before infection. Apply at 7-14 day intervals; no more than 2 sequential applications.	

	2	Iprodione	Rovral	1.5 kg/ha	12 hours	15	Dry bulb. Max 4 applications/yr. Make first application at first sign of disease or when conditions are favorable for disease. Apply at 7-10 day intervals.
	M	Mancozeb	Manzate Pro-Stick Dithane DG Rainshield	2.25-3.25 kg/ha 2.25-3.25 kg/ha	-	10	Dry bulb onions only. Apply at 7-10 day intervals beginning around the first week of July.
	29	Fluazinam	Allegro 500 F	1.16 L/ha	3 days	7	Bulb onion. Initiate applications when conditions are favourable for disease development or when first disease symptoms appear. Maximum of 5 applications per year. No more than 3 sequential applications before alternating to another fungicide belonging to a different chemical family. Application interval: 7 to 10 days.
	M1	Copper	Cueva	0.5% to 2% solution, applied at 470-940 L/ha	4 hours	1	Re-apply using 5-10 day intervals.
	M3-22	Mancozeb-Zoxamide	Gavel 75 DF	1.7-2.25 kg/ha	48 hours	10	Neck rot in Bulb Onion: Apply preventatively when diseases are first reported in the area and repeat at 7 day intervals throughout the season as required. Use the high rate under moderate to high disease pressure. Do not allow spray or drift to contact bulbs after lifting from soil. Maximum 8 applications/season.
	7-9	Fluopyram & pyrimethanil <i>NEW 2018</i>	Luna Tranquility	1200 ml/ha	12 hours	7	Begin fungicide applications preventatively. Continue as needed, on a 7- to 12-day interval. Apply maximum of 2 applications per season for Botrytis.
	7	Benzovindiflupyr <i>NEW 2018</i>	Aprovia	750 ml/ha	12 hours	7	Suppression of Leaf blight (<i>Stemphylium vesicarium</i>). Begin applications when the plants are 5-10 centimeters high or when conditions become favourable for disease development. Make applications on a 7 – 14 days interval. Use the shorter interval when conditions are more conducive to disease.

Downy Mildew	-	<i>Bacillus subtilis</i>	Serenade Opti	1.7-3.3 Kg/ha	-	0	Biopesticide that will only suppress the indicated diseases. Begin applications at the first sign of disease, or when conditions become conducive for disease development. Repeat as necessary on a 7-10 day interval.
	7-11	Boscalid and Pyraclostrobin	Pristine WG	1.0-1.3 kg/ha	3 days	7	To suppress downy mildew, apply when disease first appears. Follow up 5-7 days later with a fungicide of a different chemistry that is also effective against downy mildew. Do not make sequential applications of Pristine when downy mildew occurs.
	11	Fenamidone	Reason 500 SC	400 ml/ha	-	7	Suppression only. Begin application as soon as crop and/or environmental conditions become favourable for disease development. Apply in 300-600 L/ha on a 5-10 day interval. Maximum 4 applications per year. Plant back interval of 30 days. Do not apply more than 2 sequential applications of Reason 500 SC or any other Group 11 fungicide before alternating with a fungicide from a different Group.
	U	Fosetyl-al	Aliette WDG	2.8 kg	12 hours	7	Max 5 applications/yr.
	M	Mancozeb	Manzate Pro-Stick	2.25-3.25 kg/ha	-	10	Dry onions only. Repeat applications on 7-10 day intervals.
	40	Mandipropamid	Revus plus Non-ionic adjuvant	400-600 ml/ha plus 0.25% v/v	12 hours	7	Control of Downy mildew. Applications should begin prior to disease development and continue throughout the season on a 7-10 day schedule of fungicides, following resistance management guidelines. Maximum four applications per year. May be tank mixed with Bravo 500 Agricultural Fungicide on all dry bulb and green bunching onions. Follow the most restrictive use directions of either label.
	11	Pyraclostrobin	Cabrio EG	0.56-0.84 kg/ha	12 hours	7	Max 3 applications/yr. Do not apply more than 2 sprays in succession before alternating to another fungicide family. Use on a 10 day schedule (suppression only).
	40	Dimethomorph	Acrobat 50 WP	450 g/ha	2 days (hand harvesting – thinning)	0	Must be applied as a tank mix with another fungicide active against downy mildew. Begin applications when conditions favour disease

					12 hours (no entry)		development. Continue applications on a 5-7 day spray schedule as needed until weather conditions favouring infection and sporulation decrease. DO NOT use less than 200 L water /hectare for ground applications. Max 5 applications per year.
40,45	Ametoctradin, dimethomorph	Zampro	1.0 L/ha	Hand harvesting –1 day All other activities – 12 hours		0	To reduce the risk of the development of fungicide resistance Zampro must be used in rotation with other fungicides having a different mode of action active against downy mildew. Begin applications of Zampro prior to disease development and continue on a 5-7-day interval. Max 3 applications.
M1	Copper	Cueva	0.5% to 2% solution, applied at 470-940 L/ha	4 hours		1	Re-apply using 5-10 day intervals.
33	Mono- and dibasic sodium, potassium, and ammonium phosphites	Phostrol	2.9-4.3 L/ha	12 hours		-	<u>For preventative suppression of downy mildew</u> begin foliar applications when conditions favouring disease development exist and continue on a 7-14 day interval. Do not apply more than 7 applications per year.
M3-22	Mancozeb-Zoxamide	Gavel 75 DF	1.7-2.25 kg/ha	48 hours		10	Suppression of Downy Mildew in Bulb Onion: Apply preventatively when diseases are first reported in the area and repeat at 7 day intervals throughout the season as required. Use the high rate under moderate to high disease pressure. Do not allow spray or drift to contact bulbs after lifting from soil. Maximum 8 applications/season.
U15	Oxathiapiprolin <i>NEW 2018</i>	Zorvec Enicade	0.0875-0.35 L/ha	12 hours		0	Begin applications prior to disease development and continue on a 5 to 10 day interval. Use higher rate and shorter interval when disease pressure is high.

Use the following web link to search for any pesticide label mentioned in this guide, or any other pesticide registered in Canada:

<http://pr-rp.hc-sc.gc.ca/lr-re/index-eng.php>

PESTICIDE EMERGENCY CONTACT INFORMATION

Poison Control Centres		
Nova Scotia	800.565.8161 or 902.428.8161	IWK, Halifax, NS
New Brunswick	911	Ask for Poison Information
Prince Edward Island	800.565.8161 or 902.428.8161	IWK, Halifax, NS
Newfoundland	709.722.1110	Dr. Charles A. Janeway Child Health Care Centre, St. John's, NF

Environmental Emergencies (Pesticide Spills)	
Transport Canada Regional Operations Centre (24 hours)	
Nova Scotia	800.565.1633
New Brunswick	800.565.1633
Prince Edward Island	800.565.1633
Newfoundland	800.563.9089

ABBREVIATIONS & CONVERSIONS

Formulation and Measurement Abbreviations			
FORMULATIONS		MEASUREMENTS	
DF	Dry flowable	mL	millilitre
DG	Dry granule	kPa	kilopascal
EC, E	Oil-based emulsifiable concentrate	kg	kilogram
EW	Water-based concentrate	g	gram
G	Granule	L	litre
L	Liquid	BIU	Billions of International Units
WDG	Wettable dry granule	ppm	parts per million (1000 ppb)
WG	Wettable granule	ppb	parts per billion (1/1000 ppm)
WP, W	Wettable powder		
Sn	Solution		

Helpful Conversions¹	
kPa X 0.14 = pounds per square inch (psi)	millilitres X 0.035 = fluid ounces
hectares X 2.47 = acres	litres X 35 = fluid ounces
kilograms X 2.2 = pounds	litres X 0.22 = imperial gallons
kilograms per hectare X 0.89 = pounds per acre	litres per hectare X 14.17 = fluid ounces per acre
kilograms per hectare X 0.40 = kilograms per acre	litres per hectare X 0.40 = litres per acre
	degree-days C X 1.8 = degree-days F

¹ **Pesticide Units of Measurement**

It is not recommended to convert label rates to imperial units because there is a high probability of mathematical and rounding errors. Present day pesticides are formulated to be more effective in smaller amounts. Therefore, even small conversion errors can lead to the use of incorrect rates (either too high or too low). Use metric – you will be glad you did!