

6. Other Herbicides including Organic

Cultural weed control

More than 200 crops are grown commercially in Ontario. Some are seeded, some transplanted, some are annuals, and other crops are perennial, presenting a very diverse group of situations to manage weeds. Weed management involves all aspects of weed control in horticulture crops including scouting, herbicides, cultivation, hoeing, mulches, etc. Perennial weeds are often a more severe problem in perennial horticultural crops, such as asparagus and tree fruit, and need to be controlled prior to planting.

Treatments listed for horticultural crops in this publication are based on extensive research trials. Do NOT use herbicides in cold frames or greenhouses unless specifically stated on the pesticide label. Horticultural crops are often high value crops. Weed competition is costly. Improper application of herbicides can also be costly. Do not use sprayers for hormone type herbicides (2,4-D, etc.) to apply insecticides, fungicides or other herbicides on susceptible horticultural crops.

Herbicide application timings

PRE-PLANT (PP) TREATMENTS

Pre-plant treatments are applied before the crop is sown or planted. Some of these herbicides kill seedlings soon after germination while others also kill weed seeds. Most herbicides used for these treatments must be thoroughly incorporated into the soil by cultivation soon after application.

PRE-PLANT (PP) WEED AND COVER CROP CONTROL

Control cover crops and emerged weeds before seeding or transplanting crops. Alternatively, a grower may choose to kill the cover crop and/or emerged weeds just before planting the crop and either till the area or leave the seedbed untilled.

NON-SELECTIVE (POST)

These chemicals are applied after the crop plants have sprouted or after the crop has been transplanted. Shielded/hooded sprayers are required to direct spray away from desired crops. There should be no contact with the crop or any desirable green tissue. Leaf stage of the weeds is critical for good weed control. Smaller weeds are generally easier to kill but there needs to be enough leaf surface to intercept the herbicide. Apply according to leaf stages specified on the label. Adjuvants will frequently improve the weed control when used as directed. Weather or other conditions may influence the optimum rate of adjuvant. See the label for more details.

POST-HARVEST

These chemicals are applied after crops are harvested to kill weeds and residual green growth of the crop plants.

INTER-ROW WEEDING/DIRECTED SPRAY

The herbicide is directed between the crop rows or around trees or vines onto the emerged weeds.

Use special low pressure (7-15 kPa) applicators such as dribble bars or vibra jets equipped with shields to prevent wetting the crop.

STALE SEEDBED TECHNIQUE

The stale seedbed technique is useful when the soil can be worked well before planting and weeds are allowed to emerge for several weeks. Seeding or planting directly into the killed weeds with minimal soil disturbance will allow the crop to establish before the next flush of weeds emergence. Follow up with either cultivation, hoeing or post-emergence or directed herbicides to control later germinating weeds. Where registered, some herbicides can be applied after seeding but before crop emergence.

WIPER APPLICATORS FOR SELECTIVE WEED CONTROL

Wiper applicators (rope-wick, roller applicator or similar device) have been extensively used with non-selective herbicides. Check labels for use of this application technique with other herbicides.

WATER VOLUMES

All herbicide treatments should be applied in a minimum of 100-300 L water/ha (60-120 L water/acre) unless otherwise specified on the label.

TABLE 6-1

Treatment rates for other herbicides including organic

BIOLINK® HERBICIDE EC is the only OMRI certified organic herbicide in this list. Please check the OMRI certification list often to ensure that the herbicide remains organic certified <https://www.omri.org/omri-lists>.

TRADE NAME/PRODUCT RATE/ACTIVE INGREDIENT(S)	GROUP/PCP #	REI/RAINFEST/MAX. APPLICATIONS
NON-SELECTIVE HERBICIDES		
Trade Name: AXXE BROAD SPECTRUM HERBICIDE (36%) Product Rate/ha: 45-106 L/ha Product Rate/acre: 18-43 L/acre Active Ingredient(s): ammonium salt of fatty acid (16-38 g/ha)	Group #: no group number assigned PCP #: 32719	REI: 12 hours PHI: not stated Rainfast: 2 hours Max Applications: not stated
Trade Name: BELOUKHA AGRICULTURAL HERBICIDE (680 g/L) Product Rate/ha: 12-20 L/ha Product Rate/acre: 4.8-8 L/acre Active Ingredient(s): pelargonic acid (8.2-13.6 kg/ha)	Group #: 26 PCP #: 33686	REI: when spray has dried PHI: 1 day Rainfast: not stated Max Applications: 4

continued

TABLE 6-1

Treatment rates for other herbicides including organic *continued***PRECAUTIONS - For more information, see the label.****NON-SELECTIVE HERBICIDES**

- Non-selective herbicide designed for control or suppression of grass and broadleaf weeds, such as (but not limited to): crabgrass, pigweed, amaranth, carpetweed and liverworts.
- AXXE BROAD SPECTRUM HERBICIDE can be used around berries, grapes, orchards, carrots, ginseng, onions, potatoes, hops, cannabis, nursery crops (field and container-grown plants), greenhouse crops (including ornamentals), melons, cucumbers, peppers, tomatoes, lettuce, Brussels sprouts, broccoli, herbs, mushrooms, garlic, cauliflower, etc., if they are protected from contact with the spray solution.
- Use AXXE BROAD SPECTRUM HERBICIDE as a shielded spray application to control weeds in row middles of staked crops and row crops, between rows covered in plastic mulch, and areas around the base of trees and vine crops. Application is only to be made directly to the target pests.
- **DO NOT** allow spray to contact any green plant parts of desirable plants.
- **DO NOT** apply to weeds when wet from dew, rain or irrigation.
- **DO NOT** irrigate within 2 hours after application. **DO NOT** apply if rainfall is expected within 2 hours.
- The best results are obtained with young, actively growing weeds, less than 12 cm high (5 in.). Application volumes are based on the height of the weeds:

Weed Height	Product Rate	Water Volume	Application Volume
0-3 cm	45 L/ha (18 L/acre)	280 L/ha (113 L/acre)	325 L/ha (131 L/acre)
3-6 cm	87 L/ha (35 L/acre)	538 L/ha (218 L/acre)	625 L/ha (253 L/acre)
>6 cm	106 L/ha (43 L/acre)	659 L/ha (266 L/acre)	765 L/ha (309 L/acre)

- Repeat treatment every two to three weeks to control new weeds growing from seed and re-growth from biennial and perennial weeds.
- BELOUKHA AGRICULTURAL HERBICIDE is a fast-acting, non-selective contact herbicide. It provides burndown of various annual and perennial broadleaf weeds and grasses, and several mosses < 10 cm (4 in.). The degree of burndown and longevity of control are less when the plants are inactive, mature, or biennial/perennial types. Repeat applications may be required to achieve desired weed control.
- BELOUKHA AGRICULTURAL HERBICIDE can be used in the following crops: CROP GROUP 13-07: Berries and Small Fruits, CROP GROUP 12-09: Stone Fruits, CROP GROUP 11-09: Pome Fruits, CROP GROUP 8-09: Fruiting Vegetables (except Cucurbits), CROP GROUP 9: Cucurbit Vegetables, CROP GROUP 1: Root and Tuber Vegetables, CROP GROUP 6: Legume Vegetables (Succulent or Dried). For all crops included in each crop group please see the label.
- Use the minimum effective rate for weed control. For harder-to-control weeds, higher rates or repeat applications may be required. Use shielded/directed spray to avoid spraying desired vegetation. Use on woody/hardened vines or orchard trees > 2 years old. **Do NOT** use on green vines or stems.
- **Do NOT** make more than 4 applications per season. Make subsequent applications on a 7-14 day interval, when weed pressure warrants re-application.
- Unless otherwise specified elsewhere in this label, use a minimum of 200 L of water/ha (80 L of water/acre).
- **DO NOT** apply to weeds when wet from dew, rain or irrigation.

continued

TABLE 6-1**Treatment rates for other herbicides including organic *continued***

TRADE NAME/PRODUCT RATE/ACTIVE INGREDIENT(S)	GROUP/PCP #	REI/RAINFAST/MAX. APPLICATIONS
Trade Name: BIOLINK HERBICIDE EC Product Rate/ha: 3-9 % of spray solution Product Rate/acre: 3-9 % of spray solution Active Ingredient(s): caprylic acid (47.16%) and capric acid (31.6%)	Group #: no group number assigned PCP #: 33590	REI: 24 hours PHI: 0 days Rainfast: not stated Max Applications: no limit
DESSICANTS		
Trade Name: BELOUKHA AGRICULTURAL HERBICIDE (680 g/L) Product Rate/ha: 12-16 L/ha Product Rate/acre: 4.8-6.5 L/acre Active Ingredient(s): pelargonic acid (8.2-10.9 kg/ha)	Group #: 26 PCP #: 33686	REI: when spray has dried PHI: 1 day Rainfast: not stated Max Applications: 2
SUCKER CONTROL		
Trade Name: BELOUKHA AGRICULTURAL HERBICIDE (680 g/L) Product Rate/ha: 3-5 L/ha Product Rate/acre: 1.2-2 L/acre Active Ingredient(s): pelargonic acid (2.04-3.4 kg/ha)	Group #: 26 PCP #: 33686	REI: when spray has dried PHI: 1 day Rainfast: not stated Max Applications: 4

TABLE 6-1

Treatment rates for other herbicides including organic *continued***PRECAUTIONS - For more information, see the label.**

- A contact, post-emergence, non-selective herbicide for use in **Food Crops:** Berries, Brassicas (Cole), Bulb Vegetables, Cucurbit Vegetables, Fruiting Vegetables, Herbs and Spices, Grapes, Leafy Greens, Legumes, Tree Nuts, Pome Fruit, Stone Fruit, Root and Tuber Vegetables, Asparagus. **Non-Food Crops:** Turf, Flowers, Bedding and Landscape, Trees and Shrubs, Greenhouse and Nurseries. For a complete list of food and non-food crops see the label.
- BIOLINK HERBICIDE EC works best on newly emerged actively growing weeds that are less than 15 cm (6 in.) in height.
- Repeat applications every 14-21 days as required to maintain the desired level of weed control and to control plants emerging from seed and underground plant parts such as rhizomes and sedge nuts. Use the shorter application interval for problematic annual grass and perennial weeds.
- **DO NOT** allow spray to contact any green plant parts of desirable plants.
- BIOLINK HERBICIDE EC has surfactants built into the formulation. **Do NOT** add other surfactants to the spray solution.

Desired Volume of Spray Solution (L)	Amount of BIOLINK HERBICIDE EC per Volume of Solution (Volume/Volume)		
	3% Solution	6% Solution	9% Solution
4	120 mL	240 mL	360 mL
50	1.5 L	3 L	4.5 L
100	3 L	6 L	9 L
200	6 L	12 L	18 L
300	9 L	18 L	27 L
400	12 L	24 L	36 L

DESSICANTS

- For use at the onset of senescence in potatoes **ONLY**.
- For use with and without mechanical top beating. Use lower application rates when using mechanical top beater and use higher application rates without.
- For best results spray BELOUKHA AGRICULTURAL HERBICIDE at least 2 weeks prior to harvest when plant growth has passed its peak and adequate skin set has been established. Poor skin set may result if plants are sprayed while actively growing. NOTE: Active plant growth of potato tops can continue into late season if growth was delayed during the growing period. A second application may be used 7-14 days after the first application. Complete kill may not be observed until 15-28 days after first application or 7-14 days after second application.
- Do not make more than 2 applications per season.
- When potato tops are especially dense or heavy weed growth is present, use 1100 L of water/ha (445 L of water/acre).

SUCKER CONTROL

- For Sucker Control in Grapes (cultivars and/or hybrids), CROP GROUP 12-09: Stone Fruits, and CROP GROUP 11-09: Pome Fruits. For a complete list of crops see the label.
- For sucker removal, spray BELOUKHA AGRICULTURAL HERBICIDE on unwanted vegetative growth using a shielded or directed spray to avoid damage to vines, foliage, and fruit. For best results, apply product to suckers before hardening/lignification. Use product on trunks and vines that are older than 2 years and have become hardened or woody. **Do NOT** use on green trunks or vines.
- Higher rates or repeat applications may be required for larger sized suckers.
- Use a 100-200 L of water/ha (40-80 L of water/acre).
- **Do NOT** make more than 4 applications per season. Make subsequent applications on a 7-14-day interval, when sucker removal warrants re-application.

TABLE 6-1**Treatment rates for other herbicides including organic *continued***

TRADE NAME/PRODUCT RATE/ACTIVE INGREDIENT(S)	GROUP/PCP #	REI/RAINFAST/MAX. APPLICATIONS
POST-HARVEST		
Trade Name: AXXE BROAD SPECTRUM HERBICIDE (36%) Product Rate/ha: 45-106 L/ha Product Rate/acre: 18-43 L/acre Active Ingredient(s): ammonium salt of fatty acid (16-38 g/ha)	Group #: no group number assigned PCP #: 32719	REI: 12 hours PHI: not applicable Rainfast: 2 hours Max Applications: not stated
Trade Name: BELOUKHA AGRICULTURAL HERBICIDE (680 g/L) Product Rate/ha: 12-20 L/ha Product Rate/acre: 4.8-8 L/acre Active Ingredient(s): pelargonic acid (8.2-13.6 kg/ha)	Group #: 26 PCP #: 33686	REI: when spray has dried PHI: not applicable Rainfast: not stated Max Applications: 4

TABLE 6-1

Treatment rates for other herbicides including organic *continued*

PRECAUTIONS - For more information, see the label.

POST-HARVEST

- Non-selective herbicide designed for control or suppression of grass and broadleaf weeds, such as (but not limited to): crabgrass, pigweed, amaranth, carpetweed, and liverworts.
- Apply after crops are harvested to kill weeds and residual green growth of the crop plants.
- **DO NOT** allow spray to contact any green plant parts of desirable plants.
- **DO NOT** apply to weeds when wet from dew, rain or irrigation.
- **DO NOT** irrigate within 2 hours after application. **DO NOT** apply if rainfall is expected within 2 hours.
- The best results are obtained with young, actively growing weeds, less than 12 cm high (5 in.). Application volumes are based on the height of the weeds:

Weed Height	Product Rate	Water Volume	Application Volume
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>6 cm	106 L/ha (43 L/acre)	659 L/ha (266 L/acre)	765 L/ha (309 L/acre)

- Repeat treatment every two to three weeks to control new weeds growing from seed and re-growth from biennial and perennial weeds.
- For use on fields post-harvest to control weeds.
- Use the minimum effective rate for weed control. Use shielded / directed spray to avoid spraying desired vegetation. For harder-to-control weeds, higher rates or repeat applications may be required.
- Use a 300 L of water/ha (120 L of water/acre).
- **Do NOT** make more than 4 applications per season. Make subsequent applications on a 7-14-day interval, when weed pressure warrants re-application.

