



CLIMATE CHANGE ADAPTATION PROGRAM

Important Agricultural Weeds

Fact Sheet

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Important Agricultural Weeds

General Management Tips

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- ✓ **Identify** weeds before managing – **different weeds require different methods**
- ✓ **Act early** – younger, less established plants will be easier to manage
- ✓ Follow an **integrated weed management plan** – use physical, chemical, and cultural methods
- ✓ **Promote optimal crop growth** through an adequate and targeted fertility program and irrigation
- ✓ **Sanitize and clean equipment** to prevent the spread of weeds
- ✓ **Correct disposal** is essential – many weeds can re-grow from discarded plant parts or seeds
- ✓ **Continue to monitor** weeds to see if ongoing management is needed

Best Management Practices for Herbicide Use

Precautions: *The herbicide label is a legal document that must be followed.* There is a lot of information on labels to help ensure that the product is being used properly. Always read the label and ensure that the herbicide being considered is registered for the crop and weed being treated.

Pre-emergent herbicides – These prevent seedlings from germinating and must therefore be applied **BEFORE** weed growth begins. Examples of active ingredients include: flumioxazin, metribuzin (depends on target weed)

Post-emergent herbicides – These are only effective once the weed has **cracked the surface**. Examples of active ingredients include: halosulfuron, glyphosate, bentazon, dicamba, 2,4-D (depends on target weed)

- Look on label for information on what weeds will be controlled and at what stage of growth.
- Follow instructions regarding personal protection when handling and using; application rates; equipment requirements and buffer zones to protect human health and the environment.
- Be aware of product restrictions.
- Use the correct nozzles, pressure and water volume for spray quality and crop canopy.
- Rotate products to reduce risk of resistance build-up.
- Apply only at recommended weed sizes for best efficacy and to prevent waste.

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Annual weeds complete their lifecycle in one season, and are prolific seed producers. Aim to manage as soon as the plant is present and before flowering or seed set. This will significantly reduce annual weed populations in subsequent years.

2

Biennial weeds complete their lifecycle over two growing seasons, and do not produce flowers or seeds during the first season. Manage first year's growth to limit reproduction the following year.

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Perennial weeds continue to grow over multiple seasons and can reproduce both by seed and vegetatively (*i.e.* rhizomes or tubers). Perennial weeds will continue to reproduce and grow until managed. These may require translocation of herbicides to the growing points on the plant, rather than contact herbicides.

Lamb's-Quarter (Annual)

Competes with crops; alternate hosts for insect pests; produces more than 70,000 long-lasting seeds



Info and how to ID

- One of the first weeds to emerge in the spring, germination starting from mid-April with peak emergence in May, flowers from June to August, sets seeds during late summer and fall.
- Smooth, green/purple stem; arrow-shaped leaves with shallow teeth around edges, green, may appear grey due to a powdery covering
- Small green flower clusters along main and upper branches

How to manage:

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| Prevention and cultural | <ul style="list-style-type: none">➤ Cover crop over the winter➤ Use early emergent crops and/or plant crop before weed emerges in April or after they have been killed with seedbed preparations➤ Till and use flaming to prevent emergence |
| Physical | <ul style="list-style-type: none">➤ Row cultivating to control seedlings, before flowering/seed set occurs |
| Chemical | <ul style="list-style-type: none">➤ Apply pre-emergence herbicides in early April and continue management with post-emergent products before the plants reach 8-15cm in height, as they are less effective when plants are larger |

Redroot Pigweed (Annual)

Competes with crop, especially at high temperatures; can be toxic to livestock; alternate hosts for insect pests; can produce up to 100,000 long-lasting seeds



Info and how to ID

- A common problem species, along with green pigweed and smooth pigweed
- It is a summer annual, emerges in spring with temperatures consistently >15°C and flowers in July, seeds take a few months to mature
- Seedlings have hairy, oval leaves with a purple-red underside, 3-16 cm in height
- Mature leaves are long, oval-shaped, broad near the leaf stem, with wavy edges
- Main stem is covered in coarse, short hairs with many branches coming off it
- Tall and rough flowering tips (unique to this species)
- Red taproot (can be found in other pigweed species)

How to manage:

Several management times are recommended throughout the year due to multiple flushes of emergence. Control is more difficult with more than 3cm of growth.

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| Prevention and cultural | <ul style="list-style-type: none">➤ Cover crop over the winter➤ Till to prevent emergence in early spring➤ Avoid concentrated nutrient fertilizers (such as chicken manure or other litter) as this encourages early pigweed growth |
| Physical | <ul style="list-style-type: none">➤ Whenever seedlings appear, kill with flame weeding or shallow cultivation➤ Prevent seed formation by manually removing any weeds that missed earlier control methods, side buds on pigweed may re-grow flowering shoots if previously cut back |
| Chemical | <ul style="list-style-type: none">➤ Apply post-emergence herbicides before seedlings reach 8-10cm in height. |

Tansy Ragwort (Biennial)

Competes with crop; toxic to livestock; taints honey; produces many long-lasting seeds

Info and how to ID

- Reproduces from seed and also grows from root fragments, injury can encourage growth
- Seeds can remain viable up to 15 years, and are spread by wind, water, or by hitchhiking on humans or animals
- First year growth germinates in fall to early winter and is a rosette of dark green, ruffled leaves
- Second year causes 1.2m tall growth, ragged and ruffled leaves, dark green topside and white-green underneath
- Flowers are daisy-like, with bright ray-yellow flower heads of 10-15 petals



How to Manage:

Prevention ➤ Avoid leaving exposed bare soil

- Physical**
- Use these methods before seed set occurs in July or August
 - Hand-pulling is effective for small infestations only if entire root crown is removed
 - Till heavily and frequently to remove entire root crown and prevent seedlings from establishing. Light or infrequent tilling may encourage growth

Chemical ➤ Treat rosette stage when actively growing, in spring or mid-fall, herbicides are less effective after flower stalks have grown

Disposal ➤ Incinerate or landfill if plants are managed after seed set as damaged plant parts can regenerate

Himalayan Blackberry (Perennial)

Major alternate host for spotted wing drosophila; a devastating berry pest; found on agricultural and public land; colonizes disturbed areas

Info and how to ID

- Most common invasive species in BC, very challenging to manage
- Once established, spreads by rooting of canes and sprouting of root crowns and stem cuttings
- Flowers from May-August, berries ripen from late July-September
- Canes and leaves die in the winter and re-grow the next spring.



How to manage:

- Physical**
- Cut back 5-6 times per year, continuing several years in a row to exhaust roots while avoiding other non-pest vegetation
 - Cut when flowering for short term suppression, particularly before berry ripening
 - Pull or dig up as many roots as possible

Chemical ➤ Apply products in late summer or early fall, ensuring good coverage. Use lower rates so the above ground tissue does not die before herbicide can be transported to the root system

Disposal ➤ **Do not leave any stems or roots on the ground as it will re-grow. Incinerate all debris**

Yellow Nutsedge (Perennial)

Aggressive growing; crowds out seedlings; produces many tubers (often incorrectly called 'nutlets') that sprout immediately and are easily spread



Info and how to ID

- Grass-like plant, very persistent, primarily reproduces by tubers
- Light green leaves with distinct mid-vein and pointed tip
- Triangular stems, in cross-section, can grow 15-60 cm tall
- Can tolerate drought if well established, shade inhibits tuber formation
- Tubers/nutlets are dark, irregularly-shaped, and form at end of root rhizomes, each plant produces one yellow- brown and spikey flower head
- Tubers overwinter, can remain viable for three years, easily mistaken for pebbles or clumps of dirt

How to manage:

- Prevention** ➤ Clean equipment when leaving infested fields to prevent spreading tubers
- Physical** ➤ Hand-pulling is most effective on small infestations, if all tubers are removed.
➤ Deep till small plants every 2-3 weeks before tubers form to prevent establishment
- Chemical** ➤ Treat in late spring to early summer, may require 2-3 years of control as plants continue to emerge from tubers. Use registered post-emergent herbicides, referring to the label for most effective use
- Disposal** ➤ Plant parts with tubers must be disposed in landfill

Links and resources:

Download a helpful weed guide: fieldcropnews.com/2016/09/weed-id-guide-for-ontario-crops/

Invasive weed ID:

Fraser Valley Invasive Species Society: fviss.com

Invasive Species Council of BC: bcinvasives.com

Product usage information:

productionguide.agrifoodbc.ca/ and pr-rp.hc-sc.gc.ca/lr-re/index-eng.php
and invasive.org/gist/products/handbook/07.herbicideguidelines.pdf

Selected apps:



Spray guide. Designed to assist agricultural applicators and farmers with the proper tank mixing sequence and to conveniently maintain accurate spray logs for easy record keeping.



Weed ID. By Monsanto Inc. The Weed ID app is a new tool specific to Canada that will help you identify weeds based on key characteristic selections you have identified. It also allows you to search for weeds, view the weed database, and provide detailed descriptions and photos of the weeds. The Map It section of the app uses a WiFi connection and your GPS coordinates to map and track the weed pressures you have identified year-over year.

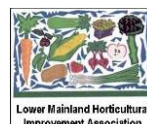
Other weed identifier and agricultural apps are available on Apple and Android devices

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british columbia
raspberries



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