



# Weed Control

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## Introduction

Weeds affect us all. Older gardeners will leave a property that they love because they no longer can keep up with the weeds. Newer gardeners can get discouraged because weeds can take the fun out of gardening. And all of us regret the time that we must spend dealing with weeds.

A weed is any plant that grows where it is not wanted. Besides taking up valuable space, weeds compete with other plants for nutrients, water and light. Vegetables have reduced yields or do not produce at all under weedy conditions. A weedy garden is also unattractive.

In the past, 2, 4 D and similar selective herbicides were used to control broad-leafed weeds. Glyphosate weed killers were also used in home gardens to totally remove all plants from a specific area. In recent years these have lost favour and have been banned by many communities. Blanket or preventive approaches, besides raising health and environmental concerns, often fail and sometimes cause unwanted side effects or require constant application.

Try to relax. A few weeds won't destroy your garden and some weeds are necessary. Milkweed, for example, is the required food of Monarch butterflies.

The following should give you some strategies for dealing with weeds in your lawn and garden, making this sometimes onerous task less of a chore.

## Getting to Know your Weeds

The more you know about a particular weed and its life cycle, the easier that you can develop an effective strategy to combat it. All weeds, whether they are perennial or annual should be prevented from going to seed and the seeds should be kept from germinating. A single crabgrass plant can produce 250,000 seeds in a season. Weed seeds in large numbers are already present in all soils and they remain viable for many years. For example, lamb's quarters seeds from under medieval ruins in Europe were found to be still viable after centuries. Most weed seeds lie in wait for signals that the competing plants have been removed from above them and that there exists the right conditions for their germination and survival. They wait for one or various combinations of light, warmth, fluctuating temperatures, moisture or increases in nitrates and other chemicals that are found in disturbed soils. Deep spring tillage, besides being hard on the structure of the soil, is just about the perfect source of these signals. For some vegetable gardens, and for some weeds, it makes sense to dig the garden, allowing the weed seeds in the top layer to germinate, and a week or two later, take shuffle hoe to the whole garden. This will kill most of the tender young weed seedlings, but not bring up many more new seeds. Weed-free organic layers added to the top of the garden such as finished compost can also be used to keep the surface cool and to eliminate light from the seeds near the surface.

Perennial weeds need to be managed differently than annual weeds. Biennial weeds such as Queen-Anne's-lace, form roots and a rosette of leaves the

first year and set seed the second.

### **Perennials**

The most effective way of controlling perennial weeds without the use of chemicals is to physically remove them or to discourage them through cultural practices. In many cases, all pieces of the underground roots and rhizomes need to be removed, particularly storage parts of the plants. Even if you cannot get the entire plant, repeated removal of leaves and stems, weakens weeds and eventually they give up. Examples of perennial weeds are dandelion, plantain, thistle, ground-ivy, quackgrass, and creeping bellflower.

### **Annuals**

Annuals should also be handpicked or killed by shallow hoeing at the seedling stage, but can be effectively controlled by preventing the spread and germination of seeds. Examples of annuals are crabgrass, barnyard grass, ragweed, wild buckwheat, smartweed, foxtail, lamb's quarters, purslane, pigweed, wild oats, and wild mustard. Winter annuals can also germinate in the fall and flower the following year. Examples of these are henbit, shepherd's purse, and chickweed.

Knowing your weeds helps with their control. Consider crabgrass as an example. Crabgrass is an annual, and one plant is capable of producing thousands of seeds per season. It normally invades lawns that are thin, weak and undernourished. The plants infest lawns during the spring and summer and then leave large voids in the fall and winter when they die off. Crabgrass has an unpleasant texture that often interrupts the uniformity of a lawn. In vegetable gardens, crabgrass can quickly out-compete desirable plants, causing considerable yield reductions.

Crabgrass germinates when soil temperatures reach about 15°C and air temperatures stay above 18°C for

at least five consecutive days. It usually establishes itself in mid to late spring. So effective control involves identifying the weed and assessing the level of infestation; employing cultural practices that favour the desired plants and a healthy turf over the crabgrass; preventing the crabgrass from going to seed; preventing what seeds are present in the soil from germinating; and hand picking or shallow hoeing when the weed plants are young.

## Weeding Techniques

The objective is to get as much of the plant as possible including all of the roots. It is best to grab the plant close to the ground, encircling its leaves with the fingers of one hand. A small-bladed knife, an English-style weeding fork or sharp-edged hand trowel in your other hand can be used in the soil to slide under the roots of the weed to loosen them helping to remove the plant. This works best when the soil is moist and crumbly. If you disturbing the surrounding soil, mulch, or leaf litter, you run the risk of bringing deeply buried weed seeds closer to the surface. Mixing uncomposed mulch with the soil also robs it of nitrogen.

Hand pulled weeds can be left on the ground to break down except for any that have developing or mature seeds. Seeds should be cut from the plants and bagged for curbside disposal. Perennial weeds might stay alive in the home compost, but you can put them in the sun in a closed plastic bag for a month to finish them off.

## Keeping Weed Seeds Underground

Most weeds are prolific seed machines and weed seeds can remain viable for many years. All they need is an opportunity and the right signals to germinate, so keeping this vast number of seeds buried is one of the most important things to do. Studies show that rototilling and other deep tilling

### ***Maintaining a Healthy Lawn***

Here are some hints for maintaining a healthy lawn.

- Mow frequently at a height of 6 to 8 cm (2 ½ to 3 inches)
- Keep your mower blades sharp and use a mulching mower leaving the clippings on the lawn.
- If you must water, water deeply and infrequently and only when there is insufficient rain. Some parts of your lawn will be brown, some years in August but in Peterborough it always comes back. A healthy lawn can survive several weeks in a dormant state. Excessive watering, fills up air spaces in the soil and reduces oxygen supply.
- If you are moving in to a new subdivision, insist that the builder lays down more than ½ inch of topsoil because grass needs more to grow properly.
- Avoid over fertilization. Feed the soil not the lawn by spreading compost on top on a regular basis.
- Overseed thinned areas to keep the turf thick. Try some of the new grass seed mixtures.

methods can do more harm than good by breaking down the soil structure and bringing weed seeds to the surface.

Topdressing perennial beds with at least an inch or two of well-finished weed-free compost reduces the number of weeds. This layer should not be dug into the bed. Instead, it should be left on top to act as a blanket blocking the light and reducing the temperature of the underlying layer. Compost is available from the City of Peterborough Waste Program. This finished compost is free of seeds, which is not often true for home compost. Smaller



quantities are available at the Ecology Park.

Compacted or poor soils favour many weed species. Yearly applications of compost contribute to the overall health of the soil and adding organic material alters soil structure of both sandy soils and clay soils. Aeration is improved with increased pore spaces allowing air to reach the root zone and the soil's ability to retain water increases with the addition of compost. A healthy soil often is all it takes to tip the balance in favour of your plants.

## Control of Weeds in your Lawn

### ***A Healthy Lawn Competes Well with Weeds***

A well maintained lawn resists weed infestations because there is no room for weeds and the desired turf species are growing under optimum conditions. In a dense lawn, kept cut at the right height, little light reaches the weed seeds so they will not germinate.

### ***Cultural Practices***

Weed seeds often require light for germination, so cutting your grass short allows light to reach the seeds providing the conditions for a weed invasion. Topdressing with weed-free compost also helps prevent seed germination.

### ***Choosing the Right Groundcover***

Grass may not always be the best groundcover for all situations. Compacted soils and soils with poor structure, favour weeds. Replace grass with paving stones or mulch in heavy traffic areas. Choose alternative ground covers in difficult spots such as steep slopes.

### ***Hand weeding***

Hand weeding the lawn is still one of the most effective methods of control.

- Pull up weeds before they go to seed and spread around the garden.
- Try to get the whole weed including the root. Don't weed when it is bone-dry or the roots will not come out cleanly.
- Younger weeds are easier to pull because they haven't established a strong root system.
- For taproots like dandelions pull straight up with a little pressure on either side of the stem using a tool with small V-shaped end.
- Try pouring boiling water on perennial weeds.

### ***Corn Gluten***

Corn gluten contains substances that inhibit the growth of new roots from germinating seeds causing the seedling to dry out and fail.

Corn gluten does not harm established plants, pets, beneficial insects, pond or stream life, or children. It is safe to apply even up until the day of harvest.

While most annual weed seeds germinate in the spring, some called winter annuals, germinate in the fall and remain alive all winter thereby getting a jump on spring.

Here is how corn gluten is used:

- It is available in powdered and pelletized forms, both of which work equally well. The pelletized form is easier to apply.
- Spread evenly on lawns at a rate of twenty pounds per 1,000 square foot. Avoid any bare spots where you are reseeding grass.
- Sprinkle on cracks in driveways and sidewalks.
- Water in if there is no rain to activate it.. Then allow area to dry for 2-3 days. Plants need dryness for corn gluten to effectively kill emerging weeds. If excessive rains occur, reapplication may be needed.
- Timing is critical. Apply in early spring, 3-5 weeks before weeds sprout (when crocus and early daffodils bloom). And in early fall when temp turns cooler.
- It should remain effective for five to six weeks each time you apply it.

Don't expect to see instant results from using corn gluten meal. Every consecutive year you apply should give better results than the year before.

When you use corn gluten meal you are also fertilizing the lawn, which encourages it to grow thicker and help exclude weeds. It is equivalent of 10-0-0 in a slow release form. Applying it at the recommended rate gives more than enough nitrogen to meet its needs. It does not supply phosphorus or potassium.

Potential problems with corn gluten meal stem from the fact that extensive moisture and microbial soil activity can reduce its effectiveness. You can control how much you water right after applying corn gluten, but you can't control rainfall. Sometimes seeds that had been prevented from forming roots can "outgrow" the problem. Another potential drawback is price and availability.

The only potential hazard that is documented so far is potential allergic reaction from inhalation of dust with certain individuals.

Corn gluten lasts 5-6 weeks. There is no carryover. After this time seeds can be planted in treated areas without being effected.

## Control of Weeds in your Garden

### ***Don't let Weeds get a foothold in a new garden***

Keep the weed seeds in mind, when making a new flowerbed. Don't remove turf because you would be wasting valuable organic matter. Provide a biodegradable barrier for weeds and grass using a layer of cardboard or newspaper (6 to 10 newspaper sheets thick). Next add a layer of topsoil or triple mix to a depth of four to six inches followed by a layer of compost (three to four inches). The compost layer suppresses the weed seeds that can be present in the soil layer or the triple mix. Beds constructed this way, can be planted right after they are built.

### ***Weeding Old and Overgrown Gardens***

If the bed is choked with weeds and has not been used for years, dig out the large weeds, cover the area with clear plastic and fasten it in place for two months in the heat of summer. This will 'sterilize' your soil and leave it ready for amendment and planting in the fall.

### ***Mulch***

The trick is to make sure your mulch is deep enough to discourage weeds and to make removal of those determined to invade your garden, easy to pull out. But do not mix the mulch with the underlying soil

because it robs the soil of nitrogen. Even minor mixing while planting through the mulch can have an effect on your transplants.

### ***Controlling Weeds in Patios and Walkways***

For weeds growing between cracks in pavement, decks, etc., try pouring boiling water over them to kill them. Killing weeds with a torch also works but with both methods, you need to wait to see if the weed dies from the heat. If this doesn't get them all use a weeding blade, a thin blade with 90-degree bend and sharp edge for cutting between stones, bricks, etc. Plant competing plants in the cracks. Acetic acid or vinegar has also been used.

## Garden Thugs and Invasive Plants

Any plant that encounters just the right conditions for optimal growth and reproduction, can become a garden thug, but invaders from other countries are particular problems because they have no natural controls.

Dog strangling vine has invaded large areas in the US at the eastern end of Lake Ontario and has been found in Peterborough. This vine is related to milkweed so much so that monarch butterflies will lay eggs on it, but the young do not survive. You can recognize it by its slender green pods and it has no natural predators. It's poisonous to deer, goats and other grazing animals. It grows in stands as big as 500 acres, crowding out all native plants.

Many of you have a bush or tree on your property known as European Buckthorn and you may not even know it is there. It looks harmless, but it is not. If left unchecked, it will take over.

The annual spring rite of plant sales is fraught with dangers for the uninformed. The plants you sometimes find at the sales could be better labeled as assertive. If you are buying from the plant sale, choose carefully and if you are donating, consider composting your excess goutweed, ribbon grass, lily of the valley and periwinkle. They are the gifts that keep on giving.

## For Further Information

OMAFRA Publication 505, Ontario Weeds

OMAFRA's Weed Gallery

<http://www.omafra.gov.on.ca/english/crops/facts/ontweeds/weedgal.htm>

Identification Guide to Weeds of Quebec, Conseil des productions végétales du Québec Inc., (phone: 418-646-5766)

