



Sustainable Maintenance Tips - Weed Control - *Managing Weed Seed Banks*

Buried in the upper layers of the soil is a collection of weed seeds that have accumulated over decades. Weed ecologists call this a 'seed bank'. It works like a bank account--but this is one bank that you want to empty rather than fill. Seeds in the bank came from weeds and native plants that were blown or carried to the site. They can lie dormant in the soil for years until conditions favour their germination. For example, seeds of chickweed and mustards can remain viable for 10 years, Canada thistle for up to 20 years, purslane and redroot pigweed up to 40 years and curled dock over 80 years! The seed bank is the source of all those weeds that spring up so quickly when the soil is left bare, whether after a garden is cultivated or after herbicides are used.

The following describes ways to manage this ever present weed source and make weed control efforts in lawns and gardens more effective.

Shade the Soil

Many weed seeds actually need exposure to light to germinate and all seedlings need light to grow. Therefore, preventing light from reaching the soil is an effective control. Ways to do this include:

- Maintain a dense, healthy lawn without thin or bare spots (for tips, see the Naturally Green fact sheet: Sustainable Turf Maintenance).
- Cover the soil of ornamental and vegetable beds with natural mulches or synthetic fabrics. Organic materials, such as shredded leaves, clean straw (not hay, which is full of seeds), or other materials need to be at least 20 cm deep to prevent weeds from germinating. Black landscape fabric can be laid on the soil surface around plants in permanent beds. The fabric is usually covered with bark mulch or gravel to improve the appearance.
- Plant competitive, ground covering plants under ornamental shrubs and trees.
- Plant vegetables close together in raised beds, rather than in long rows, so that the crop plants shade the soil. Grow white Dutch clover or sod between vegetable beds and keep it mowed to prevent weeds from growing in pathways.

Minimize Soil Disturbance

Every time the soil is disturbed, buried seeds are brought to the surface, giving them a chance to germinate. To keep soil disturbance at a minimum in lawns:

- Hand weed correctly (see below) to leave the smallest possible disturbance.
- Avoid 'scalping' lawns by mowing too closely; mow with care on uneven ground.
- Minimize thatch removal from lawns: A 1 - 2 cm layer of thatch is beneficial. Energetically raking out thatch (or moss) often leaves sparse turf with bare space for weeds to spring up. If the thatch layer really is too thick, rake gently to remove only the upper layers of thatch. After de-thatching (or moss removal), immediately sprinkle lawn seed over the area to help fill in bare areas quickly.

Empty the Seed Bank

Before seeding a lawn or planting garden beds, it is well worth investing time in emptying the seed bank. Cultivate the soil, allow weeds to germinate for 1-2 weeks, then cultivate again. Doing this at least twice (more, if possible) makes a substantial dent in the number of weeds that will appear in the

future. For maximum effect, cultivate deeply the first time, then make each successive cultivation shallower than the last one. This avoids dragging deeply buried seeds up into the top layers of soil.

Prevent Seed Deposits

All those seeds in the bank came from plants nearby. To cut off the supply of new seeds:

- Mow weedy areas before seeds set. Weedy areas, such as roadsides, ditches and fencelines, are often mowed after the weeds have started to flower. This can be too late to stop the spread of seeds because some flowers will have developed to ripen seeds even after the plants are cut. Mowing should be done before the first flower buds open.
- Avoid using soil amendments likely to be a source of weeds, such as uncomposted manure or spoiled hay. Don't put mature weeds with seed heads into the garden compost.

Hand Weed Correctly

Knowing about the seed bank, you can see why the effort spent on digging out lawn weeds using tools that tear holes in the turf could result in even more weeds to contend with next year. Weeding methods should disturb the turf (and the soil beneath it) as little as possible and should result in fewer weeds to remove each year. Hand pulling lawn weeds isn't the answer, however, as this usually breaks plants close to the surface, leaving enough root behind to regrow.

Fortunately, there is a simple, old-fashioned tool, called a weed fork, that is ideal for weeding lawns (it is particularly effective on dandelions). It has a V-shaped tip on a shank and comes in short- and long-handled models. The correct way to use the tool is to slide it straight down beside the weed at enough of an angle to cut the tap root 5 cm, or more, below the surface. Withdraw the tool the same way it went in, so that it doesn't open a hole in the turf. Do not use the tool to pry out the weed because this is what tears up the turf and brings more weed seeds to the surface. With the root severed, it is easy to lift the plant by the leaves. The benefit of using the long-handled weed fork is that you can 'putt' the severed plant with a golf swing, knocking it into a central pile or onto a tarp for easy disposal.

When weeds are removed using this method, they leave behind small openings, just the width of a root. Small holes can simply be pressed shut with your heel. For larger holes, where several weeds were removed in the same spot, it is a good idea to drop in turfgrass seed before tramping it closed.

It is a myth that it's necessary to remove every piece of root when weeding. If a root is severed well below the soil surface it may rot before it can sprout. Even if it does send up shoots, they will be weak and unable to push through if they meet a dense covering of vigorous turfgrass.

With a bit of planning and proper lawn management, the need for chemical pesticides can be greatly reduced, if not eliminated. Easing our dependency on chemical lawn additives is better for both human and environmental health and is a necessary step toward the attainable goal of sustainable gardening and landscape maintenance.

For more information...

On the Pesticide ByLaw (P-800) including signage requirements, which products can still be used, alternatives to pesticides, sustainable maintenance practises, or to access details on our public awareness sessions, visit one of the HRM Customer Service Centres or log on to our website at www.region.halifax.ns.ca. You can also call our representatives at 490-4000 or email us at Pestbylaw@region.halifax.ns.ca.