

Biological control

Organisms used for biological control include insects, bacteria and fungi applied directly on plants or released into a site. Used correctly, biological control has a lower environmental impact than chemicals and can be a long-term, self-sustaining management option.

Typically, only organisms that affect specific hosts are permitted, and they may take 2 to 10 years to become effective as populations become established. In addition, biological control options have not been tested and approved for all potentially undesirable species. Therefore, it should be used as part of an integrated vegetation management plan employed on a site.

Biological agents may affect native plants and ecosystems in unexpected ways and should be used carefully and infrequently.

Steam treatment

Steam treatment uses steam to control undesirable plants and seeds that are on or near the soil surface. This treatment is most effective on coarse, dry, warm soils.

However, steam treatment is expensive and energy-intensive. It requires specialized equipment and specially trained applicators and is not an efficient way to treat large areas. This technique is most useful for small, sensitive areas with appropriate soil conditions.

Steps for success

Chemical vegetation control, along with the non-chemical options discussed here, are valuable parts of an integrated vegetation management plan. The process begins with a site assessment to determine whether control is needed and which options are appropriate for the site.

Careful monitoring is necessary to evaluate the effectiveness of treatments and assess the need for re-treatment. Chemical controls are most effective when used in combination with other methods (e.g. mechanical vegetation management) as part of an integrated management plan.

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Aussi disponible en français sous le titre : Guide de la lutte contre la végétation avec des moyens chimiques et biologiques

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A Guide to Chemical and Biological Vegetation Control



Treating plants and soils
to meet reclamation
objectives

Reclaiming disturbed industrial sites involves many challenges, with undesirable vegetation posing an obstacle to establishing native, desirable plant cover. Chemical vegetation management is an effective technique for damaging or destroying undesirable vegetation, but it must be applied with extreme caution to avoid environmental damage or off-target effects.

This fact sheet also discusses the use of non-chemical controls, which may be more appropriate in areas of high environmental sensitivity or cultural significance (e.g. riparian areas).

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Chemical control toolbox

CHEMICAL CONTROL	HERBICIDE 	SOIL FUMIGATION 
Advantages	Quickly treats large areas	Destroys below ground seeds and roots
Disadvantages	Herbicide resistance of target plants, off-target effects	Treats small areas; may harm native vegetation

Herbicides

Herbicides are a popular form of vegetation control and for good reason: when used appropriately, they are an efficient tool for controlling undesirable vegetation. Manual or aerial application may occur before planting to prepare the site for target vegetation or after planting to protect seedlings from competition. **Only personnel with a pesticide applicator certificate are authorized to apply herbicides, and users should consult the *Forest Management Herbicide Reference Manual* and the current *Crop Protection* guide (“blue book”).** Herbicides should always be used according to manufacturer’s directions.

Risk management is an important element of herbicide programs. Buffers are required to prevent chemicals from entering sensitive areas such as streams, and spraying should only occur when there is little or no wind. Heavy reliance on the same chemical formula can promote herbicide resistance in the target vegetation. Also, local and Indigenous communities have raised concerns that herbicides can damage culturally important plant species.

Soil fumigation

Soil fumigation is a technique to control undesirable species before they germinate or sucker. For best results, it is employed during site preparation, prior to planting or seeding. This technique is most appropriate over small areas when soils (e.g. salvaged or borrowed topsoil) are known to contain large quantities of undesirable seeds.

As with herbicide use, personnel must have a pesticide applicator certificate.

Soil fumigation is performed by adding liquid solutions or granules to soils during soil reconstruction; they are broken down by soil microbes, causing them to release gases that damage or neutralize seeds in the soil. However, residues may persist in the soil, harming the growth of desirable species. Soil fumigation should not be used near environmentally sensitive or riparian areas.

Non-chemical control toolbox

NON-CHEMICAL CONTROL	BIOLOGICAL CONTROL 	STEAM TREATMENT 
Advantages	Low impact to sensitive sites	Low impact to sensitive sites
Disadvantages	Slow-acting; not available for all species; may have unexpected effects	High cost; narrow range of appropriate sites