



WEEDS

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OF ACS DISTANCE EDUCATION

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CREDITS

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WEEDS

A weed is any plant that is growing where you don't want it. A weed will compete with your desired plants for light, space, water and nutrients. A plant could also be a weed because of a particular characteristic; it could be poisonous to stock or humans, if it acts as a host plant to pests and diseases (of both other plants and/or animals), if it has damaging roots, or if it causes allergies.

Any plant has the potential to be a weed.

There are many different ways of controlling weeds, and literally thousands of different weed species which might need controlling. It is always important to use the appropriate treatment for the weed(s) in question. Young weeds are far easier to control than older ones. Some chemicals, for instance will effectively kill certain weeds when they are in the early stages of growth, but will not control other types of weeds. You may need to be able to distinguish between types of weeds to determine whether the chemical will or won't work.

CHAPTER 1 CONTROLLING WEEDS

You need to consider whether you want to kill or just control the weeds. When you know these things, you can consider which method is best for your situation.



Hand weeding

METHODS OF WEED CONTROL

1) SUFFOCATION

A popular weed control method is to suffocate the weed (block out light) and/or put a physical barrier over it which it can't grow through. This is more commonly known as mulching. Mulching kills weeds by simply smothering them. The weeds are deprived of light and in order for them to grow they have to break through the barrier formed by the mulch. A mulch can take the form of almost anything, but the more popular ones include: wood shavings and chips, pine bark, hay or straw, grass clippings,

leaf mould, newspaper, cardboard, seaweed (with salt removed), etc.

The depth of the mulch will be determined by the weeds that you are trying to control. Vigorous weeds will need a greater depth of mulch than perhaps small annual weeds. Most weeds seedlings will require a depth of mulch of 8-10 centimetres over the top of them.

Mulch mats, also known as weed mats, are usually made of a closely woven fabric that has holes large enough to allow water to penetrate through, but small enough to prevent most weeds from growing through.

Some trees and plants with dense foliage, or foliage at ground level, will shade out weeds. Examples of such trees include: Ash, Maple, Citrus, Salix, Casuarina, and Pines. Examples of shrubs which shade out weeds include: Diosma, Grevillea, Conifers, Coprosma, Echium, Elaeagnus, Aucuba, and Euonymus.

Other plants and trees drop lots of leaves, which create their own mulch. Examples of these are:

- **Conifers** - pine needles deter weed growth.
- **Eucalypts** - oils in leaves deter weed growth.
- **Melaleucas and leptospermums** - oils in leaves deter weed growth.
- **Acacias** - tannins are washed off the leaves by rain in some species.

A border of weed-suppressing plants can be grown around a vegetable patch to prevent the entry of spreading weeds such as couch and couch grass. Comfrey or lemon grass may be used for this.

2) BURNING

Weeds can be burnt with a flame, or with heat created by temporarily covering the weed with a plastic sheet (this is known as solarisation).

FIRE

Weeds can be burnt either using a flamethrower (if weeds are green or dry), or by lighting a “controlled” fire (if vegetation is dry enough to burn). When burning the weeds it is essential

to follow fire prevention regulations for your area. Contact the local fire brigade for details.

Burning will always leave a residue of charcoal, which is dirty, but will disappear with time. Flamethrowers are portable burners fuelled by paraffin or propane gas. They can usually be hired from a hire shop for a reasonable price. Care should be taken when using them as the heat generated can be quite considerable, and can also damage other plants as well as causing nasty burns to the operator. Flamethrowers are useful along fence lines, roadways or paths, or any other area where the flame won't cause unwanted damage.

Burning-off can be an excellent method of controlling large areas of weed growth, on vacant or rural land, or to control large clumps of problem weeds such as blackberry. It can be dangerous though if not done properly and under the right weather conditions. Never use fire on windy or very hot days. Never burn more than you can control easily with manpower and water available. Mow fire breaks before commencing a large burn to confine the operation to a series of small burns. Wear full clothing (e.g. firm boots, overalls and a hat), and have a first aid kit at hand. Above all, check with the local fire brigade before burning.

PLASTIC SHEET

This method is also known as solarisation. Large sheets of clear plastic are spread over the surface of the ground in warm weather. The sun's rays will cause the ground under the plastic to heat up enough to kill many types of weeds and soil diseases. After a week or so the plastic can be removed and the area planted. Solarisation is an

ideal method of ground clearing prior to planting a vegetable garden or annuals in a border, and is relatively cheap.

3) CULTIVATION

Cultivation (the digging of the soil) using either a spade or a hoe will often kill weeds - especially annual weeds. Weeds can be controlled by physically burying them in the soil, and regular hoeing of the soil surface may deter some types of weed seeds from germinating. Weeds that do germinate can be easily chopped off with a hoe. Regular hoeing of the soil surface will also assist in water penetration of the soil.



Cultivation with fork to remove weeds

In some cases where weeds have a vigorous root system, cultivation alone may not be enough, and the weeds may well have to be physically removed by hand. It is advisable not to water the soil directly after cultivating, as hot sunlight can kill exposed weed roots. Some weeds are almost impossible to control by hand, for example: couch, kikuyu,

Japanese knotweed, and wandering Jew, or weeds with bulbs or corms (e.g. oxalis, watsonia).

In some cases, cultivation can worsen a weed problem by chopping up and spreading underground parts such as roots, rhizomes or bulbs. Many weeds are adapted to invade cultivated or otherwise disturbed ground. Some weed seeds require light to germinate and cultivation can bring them to the surface - so mulching may be required as well.

- Soil which is cultivated often is easier to cultivate - so don't put the job off.
- Young weeds are damaged more by cultivation than established weeds.
- Do not water after cultivation (the hot sun kills exposed roots).
- Some weeds will die quickly when you cut the top from the roots (others will regrow from smallest piece of stem or root lying in the soil).
- There will always be some 'hard to kill' weeds which need removing by hand.
- Moist (but not wet) soil is easier to cultivate. Wet soils should not be cultivated because this destroys soil structure.

4) GRAZING

One of the best animals to effect weed control by grazing would without doubt have to be the goat. They will eat virtually anything, including ropes that act as a tether for them. They also have a great deal of strength and will easily break down weak barriers that

are designed to keep them in. With this in mind then it is important to only allow the goat access to the weeds and not the desired plants. In a small back garden it may be difficult to keep the goat under control, but in a large area this will not be so much of a problem. Probably the ideal use for a goat would be in cleaning up an area, before you make a new garden there.

Here are a few hints if you're considering keeping a goat:

- You're better to borrow one than buy one. Otherwise when you run out of weeds, feeding it can become a problem.
- Goats are best used to keep a wild area under control on a large property, or to clean up an area prior to making a new garden there.
- Goats are very strong. They can break small gauge chains, eat through ropes and pull stakes out of the ground. Use a heavy chain and tie them up to something very solid such as a fence post or large tree.
- Goats will stand on their back legs to reach plants, they will eat all types of plants and even strip the bark off trees.
- The goat makes a tempting target for roaming dogs, unless it is well protected (good fencing).
- Goats are feral pests in some countries where they destroy native habitats - make sure they do not escape.

Sheep can also be used for grazing, but can be a little more choosy in what they are prepared to eat. Chickens,

ducks and geese will also eat a variety of weeds, and cultivate the soil by scratching. Wire netting is sometimes placed on the ground in a poultry run to stop hens digging up the soil too much. Penned pigs will also cultivate the soil with their digging. Even pet rabbits, or guinea pigs can be caged and allowed to graze weeds.

5) MOWING/SLASHING

This involves cutting the tops off the weeds on a regular basis, ideally before any seed heads develop. Any cut foliage should be allowed to fall back on the beds and this will help to return nutrients to the soil. If the weeds are long when cut, then they may well act as a mulch, preventing other weeds from germinating and growing. The weeds should be cut close to the ground to effectively control them, and an ideal machine to use would be a brush cutter or whipper snipper.



Slashing tops of weeds in lawn

6) FLOODING

Flooding of an area will kill a wide range of weeds but not all. This method is sometimes used on flat sites prior to planting.

7) CHANGING PH

By raising soil pH you can discourage the growth of some weeds such as sorrel (*Rumex* sp.). Adding organic matter to the soil will also gradually cause sorrel growth to slow down.

8) BIOLOGICAL CONTROL

This involves introducing natural predators into an area to attack weeds. It is a method which has been used occasionally with dramatic results, but which can backfire if the full implications of introducing something new into an environment are not understood.

PRICKLY PEAR

Prickly pear (a cactus which was a severe problem in the past) was brought under control in Australia by introducing a parasitic moth which has a grub that attacks the plant.

BLACKBERRIES

A rust (fungal) disease was introduced into Australia in the 1980's in an attempt to control blackberry weeds. Although this has had some effect, it has only been a mild deterrent.

WATER HYACINTH

Insects have been used to control the spread of water hyacinth in the United States and Australia.

9) CHEMICALS

There are a wide variety of herbicides used to control weeds. The majority of these are used for agricultural purposes, by larger industrial concerns, government departments, or service agencies (e.g. water, power, sewerage authorities). The range of herbicides available for the home gardener is relatively limited by comparison and is only likely to decrease further as more and more pesticides become restricted or banned in many countries. The most commonly used herbicide in the world is glyphosate, though its usage is regularly reviewed. Banned chemicals in developed countries include 2,4-D, dicamba and MCPA. These are discussed in greater detail in chapter 2.



Spray on weed killer containing acid and salt that will kill plant cells. Interestingly, salt was used to kill weeds by ancient Romans!