

CHAPTER 8 GROWING AND CARING FOR PLANTS

Plants need to be treated differently in warm climates. The effect of temperature creates different growth responses to those seen in cooler areas.

These responses are generally seen as:

- Faster growth
- An extended growing season
- More tender growth

The warm climate also tends to encourage a greater amount of pests and disease problems. This is the result of extended breeding periods available to the pests. The higher humidity that occurs in many warm climates promotes fungal diseases. It is important to note that this should not be seen as a disadvantage. Warm climate plants have adapted to the climate and to the increased incidence of such pests and diseases. Damage is resisted, overcome by abundant growth or tolerated by most plants. In effect, it is the plants not suited to the climate or the site that become most affected by the pests and diseases.

Warm climates may promote such excessive growth that plants may become weed-like and invasive; lantana, for example, grown in cooler areas are very ornamental and controllable, however when grown in warm climates they tend to become environmental weeds.

SPACING PLANTS

In humid warm climates, spacing can be critical for many plants. Tropical plants like humidity therefore appreciate close spacing so that nearby plants help to maintain a humid microclimate. However, if temperate plants are grown in warmer climates, this close spacing may lead to plant death due to increased humidity. By spacing these plants further apart, the ventilation will remove excess humidity and the plants should have a better chance of survival. Spacing can also be used to reduce the incidence of diseases. If plants are crowded too close competition for sunlight, water and nutrients may lead to slowing down of plant growth. This may lead to poor plant health and attack by pests. When spacing plants out in the garden, consider the natural spread of the plant and the overall appearance desired in the garden.



PLANT ESTABLISHMENT

PLANTING

Basic Planting Procedure

Plant most containerised plants as follows:

- Thoroughly soak the plant in the pot; to help the plant come out of the pot easier, then allow it to drain. The best way to do this is immerse the pot in water (e.g. a bucket or trough), and leave it until air bubbles stop rising to the surface. After this, remove the plant from the water and allow it a few minutes to drain before planting.
- Dig a hole one and a half times the depth of the pot, and about twice the width of the pot. Fill the hole with water and let it drain. That way you can check that drainage is adequate and it also thoroughly dampens the sub-soil. In poorer soil (e.g. hard clay, or shale) the hole should be dug larger. If the soil is poor, use compost to mix with the soil from the hole, mix it with the natural soil in a 1:1 ratio at the bottom or sides of the hole. Don't add fertiliser to the hole if planting trees especially bare-rooted species (this has been shown to have an adverse effect on root establishment).
- Carefully take the plant out of the pot.
- Loosen any exposed roots (i.e. if most of the roots are inside the soil ball, you might not need to do much. If there is a tight mass of roots on the outside of the soil ball you may need to break a centimetre or so into the ball all over). Always free any roots circling the bottom.
- Place the plant in the hole and cover with soil. Firm down.
- Make a lip of soil around the base of the plant to hold water.
- Soak thoroughly with water.
- Apply mulch.

Fertiliser

You can get concentrated, fast acting fertilisers, which will feed more nutrients to the plant very quickly; or slower acting, long term fertilisers. There are many possibilities in between these two extremes. Avoid direct contact between the roots of a young plant and the stronger fertilisers. Usually a slower acting fertiliser is more appropriate with planting, particularly in sandy soils. Blood and bone, osmocote (3 month formulation), or something similar is ideal for planting most plants.

Whatever fertiliser you use, read the instructions carefully and use the recommended quantity. Too little will not do the job, and too much can burn the roots.

Staking

Staking is not always necessary (it can in some cases do more harm than good). Plants might or might not be tied to a stake. If tied, it should not be tied tightly. The plant must always have room to move a little, and to grow without being ringbarked by the tie.

Plants are staked for the following reasons:

- To support weakness in plant tissue until it strengthens (i.e. if wood is soft and liable to break, the stake supports it till it gains strength).
- To reduce likelihood of damage through movement wind may break the plant at the base.
- To reduce likelihood of physical damage (e.g. through vandalism, mowing or cultivation) by actually placing a physical barrier to disturbing the plant.
- HINT: If stakes are removed by vandals; try smearing grease on the stakes to deter them.
- To support transplanted plants (where the root system was cut back), until the roots can regrow and establish a firm hold in new ground.
- To mark the location of small plants (i.e. those in 5-7cm tubes), so it is not inadvertently damaged by mowing, cultivation, etc. by allowing you to see where the plant is while it is small.

The main dangers with staking are:

- Leaving ties on a plant too long, in which case the stem grows, and the tie cuts into the bark ringbarking the plant.
- Tying too tightly to the stake. If the plant does not move in the wind, the root system/trunk may not develop adequate strength to support the plant when the stake is removed.

Time of Planting

Avoid planting on hot or windy days. Plants are more likely to dry out in these conditions. The availability of a particular type of plant can affect when you plant (e.g. some plants (e.g. bulbs) are only readily available from nurseries at a certain time of year.

If plants are likely to get a lot of attention, they can be planted successfully at almost any time of year however; if they are going to be neglected they are best planted prior to the cooler months; or wetter time of the year. If planting in warm areas where the wetter months are over summer, such as the tropics and northern parts of Australia, you can plant almost any time of the year as long as you provide sufficient moisture during dry periods, and good drainage during wet periods.

High rainfall areas with good rich soils can be planted at most times of the year.

Areas prone to strong winds should not be planted until after the windy time of year is over. This gives plants a chance to establish before the next windy season.

Exposed, hot areas are best planted after the hottest time of year allowing time for establishment before the next hot season.

Areas prone to flooding (even if planting flood tolerant plants) are best planted after the wet season so that the young root system can get a firm hold on the soil before the plants face their first wet season. This means the young plants will have a better chance of holding in the soil when they face their first flood.

Mulching

Mulching has several advantages in the tropic climates as follows:

- Helps control weeds.
- Conserves soil moisture (helps prevent drying out).
- Can improve soil structure.
- Can put nutrients into the soil.
- Reduces fluctuation in soil temperature.
- Can promote earthworms.
- Can reduce soil erosion, and impact from heavy rains.

Almost anything organic (that is coming from plant or animal material) can be used for mulch. Here are just a few examples: wood shavings, saw dust, tan bark, pine bark, leaf mould, paper, old rags, straw, prunings, weeds, lawn clippings, leather, cardboard etc. There are even some inorganic materials which are useful as mulches (e.g. gravel, scoria, blue metal, coarse sand, river pebbles etc.).

Inorganic mulches don't have all of the same advantages which organic mulches do.

NB: plastic has been used as mulch extensively in the past - while there is a technique for successful use of plastic in some horticultural crops (e.g. strawberries), general home garden use of plastic mulch has in the past been wrought with problems. The plastic cracks after a few years and weeds grow. Water doesn't penetrate the plastic and plants suffer from drying out. The ground sweats under the plastic and ground water levels can be affected.



Stone mulching

PROTECTION

Protection may be needed to prevent damage from wind, hail, grazing animals and in mountainous regions, frost. It can be achieved the following ways:

- Having a vertical wall (temporary or permanent) close enough to the base of the plant, and high enough to overshadow the plant (i.e. this wall must be twice the height of the plant and located within a distance of half the plant's height - or 4 times the height of the plant and located no more than a distance away which is equal to the height of the plant). This can be achieved by planting close to a fence, wall or other structure, or by placing a temporary wall/cover around the plant (such as a hessian bag fixed over stakes). This can provide very good frost protection, plus may also protect from grazing animals.
- The crowns of tender tropical plants can be covered by organic material such as dry straw over the winter. In frosty mountainous regions, sensitive tropical plants can be cut to ground level and covered with straw over winter for protection from frost and snow.
- Water: sometimes watering is enough to stop cold damage.
- Covering: shade cloth, greenhouse film etc. erected over plants will help protect from sunburn, bird attack, hail, etc.
- Birds that eat fruit or damage the living leaves and branches are best deterred by bird netting, scare crows, scare-away fibre draped through trees, scare guns or possibly poisoning, although this last option is not desired nor legal in most countries.

PROPS

These are used to physically support branches which are in danger of breaking. They are often used in orchards to support branches heavily loaded with fruit. They may be used in ornamental gardens to preserve the shape of old, established trees.

PRUNING

Plants are pruned to control their size and shape, or to encourage a particular affect such as more or larger flowers or fruit. They can also be pruned to simply remove dead or diseased vegetation which, if left, could spread infection to other parts of the plant.

Always cut to just above a bud, and on an angle to ground level. This reduces the chance of die back. The bud which is below your cut will probably produce the strongest growth. Consider the direction in which it points. That is where the growth will go.

Always use clean and sharp tools.

GOLDEN RULES

- Remove all dead and diseased parts and preferably burn to stop disease spreading.
- Remove weak or spindly growth.
- Remove situations where growth is rubbing (and wounds could open up).

WHEN TO PRUNE

Most plants can be pruned at any time of year, but you may be cutting off the next season's fruit or flower buds, or encouraging a flush of tender growth that will be exposed to the harshest conditions of the year.

General Guide of What to Prune When:

PLANT	TIME
Spring flowering shrubs and trees	Prune immediately after flowering
Hedges	Prune several times a year, whenever they look untidy.
Fruit trees	Normally prune after fruiting is finished. Don't prune when buds are moving.
Australian native plants	Most are best to be tip pruned often, all year; but avoiding peak flowering times.
Cold sensitive plants	Prune after the colder period is passed.

METHODS

- Thinning removing old, twiggy, crossing over, weak, diseased and excess wood to reduce density of growth without reducing height or width.
- Heading - producing more compact and better shaped plant, reducing height and any imbalance in width (e.g. unsymmetrical growths)
- Shearing cutting to predetermined lines (e.g. trimming a formal hedge)
- Rejuvenation hard pruning aimed at replacing basic framework of the plant with a new framework made from new, vigorous and healthy wood.

TOPIARY AND HEDGES

TOPIARY

Topiary or sculptured plants are popular features of traditional gardens. The most common topiary shapes are balls on top of tall stems. Topiary plants can be purchased from most good nurseries or if you have the time and patience you can try training some yourself.

Hedges are basically rows of plants trimmed into a solid line. They occupy less space than untrained plants due to their controlled growth habit. If space or ground is limited, you can produce small hedges in pots that can be rearranged to suit occasion or mood.



Openings can be created to provide views or vistas to the surrounding landscape by arches or “windows”.

The hedge can be embellished by sculpting different topiary forms into sections of the hedge, such as round balls or pyramids at the end of pathway hedges.

Topiary sculptures such as finials, turrets, even birds and cats may also be utilised in the garden design. Texture can be contrasted by leaving some specimens more natural than others or clipping only one side.

A well-made hedge is the foundation of any topiary design. Spacing is determined by materials chosen and design wanted. As a guide use: 1 metre spacing for plants over 2 m high; 60 cm spacing for plants 1.5 2 m high; 30 50 cm spacing for plants 1 1.5 m high.

Ensure plants are planted in a straight line, if that is the desired effect, and water well and mulch. Keep weeds at bay by mulching or spraying.

When shaping your hedge, make sure the base is wider than the top. This produces what is referred to as a “batter” which decreases in width 5 to 10 cm for every 30 cm of height. Due to this shape light reaches the bottom most leaves producing strong growth. Depending on the plants chosen, some hedges may need clipping only once a year while others may be more frequent.



Pleaching is a technique used to produce living tunnels or formal palisades. The plants are allowed to grow and tied together to form natural grafts that strengthen the structure. Once the shape is set, pleached shapes need only be pruned every year or two.

Hedges are a simple way to provide a low edge to a garden bed or a tall barrier to a section of the garden. The best plants for hedges are ones with fine textured foliage, and preferably ones which do not react badly to pruning. In warm climates, humidity can lead to fungal diseases where plants grow close together in a hedge; so it becomes important to choose varieties which are relatively disease free.

While hedges and topiary can add a great deal to the look of a garden, these are also high maintenance features. If you are not prepared to get out and prune them regularly, you are better to avoid them.

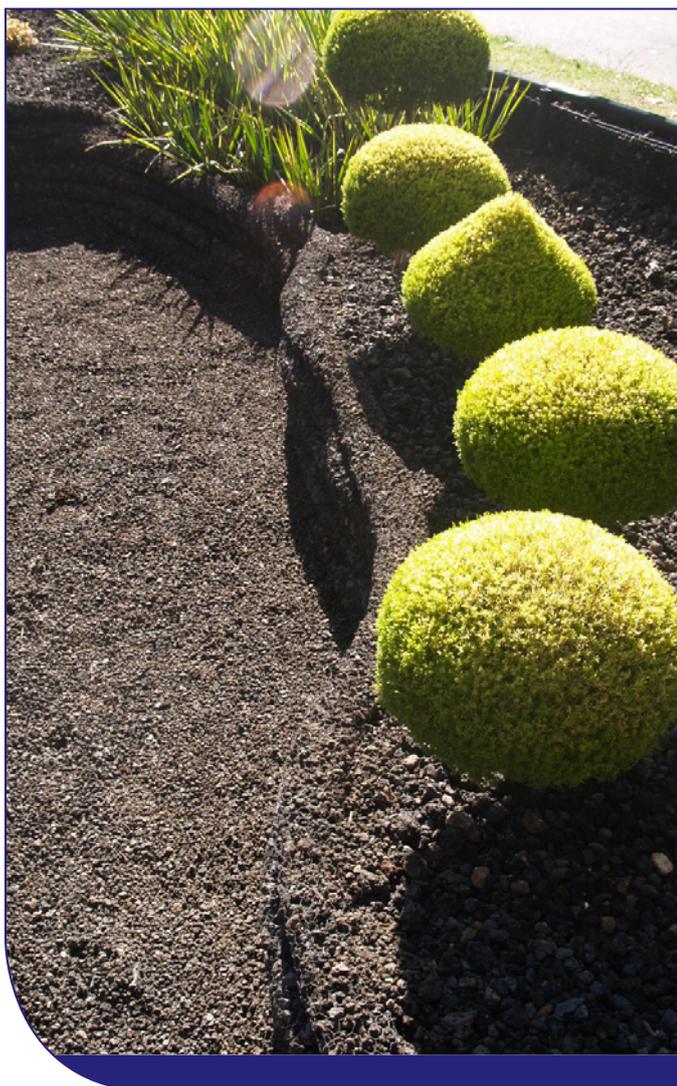
Topiary Standards

This is a particularly popular form of topiary. A standard is characterised by a single straight, nonbending stem that is crowned by a mass or ball of foliage. Figs, citrus, bay are common examples used for standards.

One plant that not only looks superb as a standard but also smells good is the rosemary it is a long-time favourite of many people.

Making a standard: the rosemary plant must first have the lower leaves removed – be careful not to damage the primary growing tip. The plant is supported to prevent damage by wind. Side growth is removed until height desired is reached. At this point lateral growth is encouraged and trimmed to stimulate bushiness. If the apical growing tip is cut the plant will continue to grow more lateral as opposed to upward and the stem will become thicker. To make multiple balls, leave several centimetres of leaves in patches on the stem as it grows to the desired height. Each patch will produce branches that can be pinched and pruned into balls.

Standards need manicuring frequently in order to maintain shape. Pruning material can be used in the kitchen. Use either scissors a knife or pruning shears.



FERTILISERS AND SPRAYS

It's an unfortunate part of gardening, but if you want to get the best out of your garden, you have to feed it and, unless you are a keen organic gardener or permaculturist, you need to use some sort of pesticides (either naturally or artificially derived) to control pests and diseases. The other option is to have less healthy plants, and live by the law of "the survival of the fittest". If you don't mind losing weaker plants, and are not too irritated by the things looking a little sick or shabby from time to time, this is a feasible option.

None of us like to use too many chemicals these days, particularly around our home. Not all chemicals are alike though; and with a little intelligence, we can keep our gardens looking good and our plants healthy while still avoiding any serious long term consequences to the health of our plants, animals, property or ourselves. It is important to note that when we refer to the use of chemicals in gardening that we include not only the synthetic ones but also those derived from natural products, for example, organic fertilisers and sprays.

THE WAY TO USE CHEMICALS

Consider the Weather Conditions

Spraying in very hot, wet, humid or windy conditions can be more dangerous. Chemicals move more under such conditions and end up in places where you might not want them; on other plants, in neighbouring areas or even on or into the human body. In wet conditions chemicals can be washed away from the places where they have been applied so that they are not very effective against whatever pest or disease that they are being used to control, or they may be washed into areas where they may cause damage to other plants or animals, for example, onto lawns or into fish ponds.

Hit the Target.

Make sure the fertiliser or pesticide goes where you want it and stays there.

Use a screen or temporary barrier of some sort (i.e. plastic sheeting is useful) to stop spray from drifting, and put fertiliser into holes punched in the ground rather than spreading it over the surface, particularly on sloping ground where it can be easily washed away.

Don't Overuse Chemicals.

Overuse can harm beneficial insects or animals (e.g. lady birds, stick insects, birds). Overuse of pesticides can build resistance within the things we spray, and can result in the build-up of dangerous residues in the environment. Overuse of fertilisers can leave toxic residues that may damage plant growth, change soil pH, or can result in excess nutrients being washed or leached away into streams, dams, lakes, ground water, and eventually oceans often resulting in such problems as algal blooms. Overuse of such chemicals is also simply wasting your money.

Carefully read the manufacturer's instructions on what amounts to use, how often to use it, and when to use it.

Be Careful not to Burn Plants.

Sprays or fertilisers which are normally useful on plants can cause foliage burn if overused or when sprayed in the wrong climatic conditions or at the wrong time of day.

Store chemicals properly

Avoid leaky sprays, bags or bottles with holes, and keep in a locked shed or cupboard away from children. Store in correctly labelled containers. Dispose of used pesticide containers, and residues from washing out containers or application equipment, according to manufacturer's instructions or ring your local council Health Department, state Environment Protection Agency (or similar body), or Agriculture Department for advice.

Handle all Chemicals Safely.

Chemicals which are thought to be safe today may be found to be dangerous tomorrow. Wear protective gear (e.g. rubber gloves, a respirator, gum boots, long sleeves and trousers).

Don't breath in fumes. Don't dump excess chemicals either in the garden or elsewhere (i.e. drains, sewers). Think about what you really need before you buy or make it up, and you shouldn't have any excess. To prevent contamination and possible damage to your plants, you should use one sprayer for weedicides and another one for insecticides, fungicides and fertilisers. All equipment should be washed out thoroughly after use, and the washings should be disposed of in a safe manner.

It is also a good idea to have the phone number for your local poisons information service written down in a prominent position near your phone in case of problems. Such numbers are listed normally in the information sections at the front of your phone directory.

Vary what you Use.

Alternate several different types of fertilisers and several types of pesticides, so problems don't compound over time as one particular chemical builds up in the body or the environment.

The alternating use of pesticides also helps prevent the build-up of resistance of pests to a particular pesticide.

CHOOSING THE RIGHT CHEMICALS

Before using any chemical, always consider your other alternatives. Ask yourself whether the problem is the problem really worth any cost or danger involved in using a chemical. Are there non-chemical methods you can use? Even if they may be a little more expensive, or time consuming, or require more effort on your part, or are perhaps not quite as effective. Consider the potential advantages compared with the disadvantages. If you decide to use a chemical, then list the different alternatives and select the one which best suits your needs.

Often it is best to use the least toxic chemical to attack a problem first then if the problem persists, try something more poisonous. Sometimes though, it may be more sensible to use a stronger chemical first, either because you know that the softer option just won't work, and if you delay action you may end up using more of the stronger chemical; or alternatively, because the problem is just so important that you cannot afford to take the risk of it not being controlled.