

SAMPLE

Introduction to Arboriculture

Lesson Aim

Describe measures to provide healthy trees in different situations, including appropriate plant selection.

TREES IN THE GARDEN

Before attempting your plant collection or tree reports for this lesson, read all of the following notes.

All too often trees are the forgotten giants of our garden areas. A shrub or ground cover plant is far closer to the human eye than a tree, and these plants usually get most of our attention because they are so easily seen. With trees, it often seems to be "out of sight, out of mind".

Trees are in fact potentially far greater problems than shrubs. If a shrub blows over, it creates a bit of a mess and a gap in the garden bed. If a tree blows over, it can destroy half the garden, make a large hole in the roof of a house, or crush your new car. Trees, like people, can be hurt, they can get sick, and sooner or later they will die. They need to be fed and watered, and they do need "doctoring" if their life is to be extended to the fullest. Some trees, like some people, are hardier and never seem to become ill. In the same way, however, many trees have "medical" problems which no one seems to notice until it is too late!

The only real way to avoid a catastrophe with a tree is to closely monitor the plant. It should probably be checked (on average) once every six to twelve months. If any problems are found, they should be treated immediately.

Increasingly, tree care is recognised as an advanced science. We now understand the importance of regular attention being given to trees and, in studying this subject, you have a responsibility to monitor the trees you are seeing and let people know of their condition.

Start at the Beginning

One of the biggest problems with trees in gardens is planting in the wrong position. Some examples of this are as follows:

- People are misinformed of the spread and height of a tree when they plant it. They might plant small seedlings under power lines which then grow into 20 m trees. At best, the tree becomes an eyesore when the electricity company cuts (or more usually 'hacks') away the offending branches. At worst, the tree is a significant safety problem, potentially bringing down live electricity wires during storms. Another common problem is when property owners plant very tall trees up against the wall of the house and branches rub on the roof, dislodging tiles etc.
- Trees which cause damage to drainage or sewer pipes are planted too close to the pipes. The pipes then become blocked and either the tree has to be removed or regular expense is incurred as the pipes are cleaned out.
- Trees which have damaging root systems are planted too close to paving or building foundations. Walls can be lifted and cracked, paths or driveways destroyed.
- Often a tree which is expected to grow to 6m is planted in the front of a window for shade. When it reaches 20m, the room it is shading has become so dark that a light must be turned on, even on bright sunny days.

CHOOSING PLANTS

We all want the best value when we buy a tree but there often the cheapest plants are not the best ones to choose. What is the value in buying an inexpensive tree if it doesn't live, or grows slower than a more expensive plant?

There are two decisions to make:

- What plant variety you should choose.
- Which plant from those available you should choose.

What Variety?

Some plants are very easy to grow; others are a great deal more difficult. Choose plant varieties according to your own capabilities and the amount of time and effort you are able to devote to caring for the plant.

If you don't have the time to water, feed (or otherwise tend) to the tree after planting, it is better to choose varieties that do not require such aftercare.

If you don't have the expertise to identify and spray pests and diseases when they come along, choose plants that are resistant to such problems.

If you have limited water available and live in a dry climate, you might be better growing drought-tolerant trees, rather than struggling with water-loving plants.

Even professional Arborists often try to grow the plants they dream about, and end up with a collection of sick or slow-growing trees. These same people could have had a collection of healthy but different plants, if their choice of plants was better matched with their ability to care for them.

Be Prepared to Replace Sick Plants

All plants have a limited lifespan – and that time varies from place to place.

Some trees (e.g. Atlantic beech) may last for thousands of years; most last for hundred, but some may only last a couple of decades.

Some may be long-lived and resistant to pest or disease in one locality, but in another country or region could be highly susceptible and likely to have a shorter life span. For example, English elms in Europe are prone to Dutch elm disease but in Australia the same genus of elm trees is resistant to the disease, even though the beetle that carries the disease does exist in Australia.

Which Plant?

At the nursery, you'll be confronted with lots of choices, even after you've decided on the type of plant you want. Large, small, covered with flowers or not, bushy, or thin and tall – what's going to give you the best results?

General Guidelines

Plants that are healthier and not pot bound are more likely to grow faster and overcome the effects of disease or insect attack.

- Larger plants may (according to species) take more effort to get established, but if you are prepared to put the effort in, will give a more immediate effect. If you don't put the effort in, they are more likely to die.
- Plants with a good, uniform shape, i.e. straight stem, uniform branches and a good coverage of leaves, will get off to a good start as soon as they're planted out.
- Trees with several leaders (growing tips) may need side shoots removed or left (depending on variety) to encourage the proper development of a healthy crown.

- Watch out for plants with lots of soft, lush new growth – these aren't necessarily the healthiest or best plants to buy. Unless you can give the plant ideal conditions (moist, fertile soil in a sheltered position) lush growth is likely to wilt and die back once the plant is put in the ground. The plant will most likely recover but it may take several weeks for new shoots to grow.
- A plant covered with flowers is appealing, but isn't necessarily in good health. Even very sick plants can flower well. Instead, look for sturdy well-formed plants with healthy green leaves. If you really want a plant that will give you flowers quickly, choose one with lots of buds rather than fully opened flowers.
- Check that your plants have not been exposed to a fluctuating water supply that will cause problems later on.
- Try and ascertain whether the plants have been fed, and if so on what. A change in their nutrient supply can be devastating.
- If the plants have been stored in a shade house, behind a windbreak, or in a greenhouse, they may need acclimatising. A tree guard may be essential, and for large plants that may be difficult or expensive to provide.
- Avoid plants with any sign of insect attack or visible disease. Not only are these plants potentially going to die, but they could devastate the rest of the garden by spreading pests and diseases.
- Observe the standards set around the nursery you purchase trees from. A clean and tidy site where health concerns are readily observed is more likely to produce healthy plants than one where cuttings are left lying around, compost is left exposed and pots are not sterilised before re-use.

Don't Be Afraid to Ask for Advice

A reputable nursery will give you sound advice on what are the best value plants for the garden. They won't try to pressure you into buying their most expensive plants, nor will they flog off old, tired stock; after all, they need your repeat business.

Give the sales staff a clear indication of what you want – in terms of plant size, type and maintenance requirements – and you'll be more likely to get the right plants for your garden.

HOW TO PLANT A TREE

Planting a tree might seem to be simply a matter of digging a hole and 'bunging in' a plant, but many trees fail due to poor planting techniques. If you follow these guidelines, your tree will have its best chance to grow to its full potential.

- Select a site where there is ample room for the tree to grow to its full size. Do not plant close to buildings, under power lines, or over gas and water pipes.
- Excavate the planting hole. The hole should be the same depth and approximately twice as wide as the container.
- Avoid creating smooth sides to the planting hole. Roots will be unable to penetrate into the surrounding soil.
- Remove the plant from its pot. Uncurl any circling roots, and if necessary, give the roots a light prune.
- Plant the tree so that the soil level matches the level of the surrounding soil.
- Backfill the hole with the excavated soil. If the soil is particularly poor, mix in an organic fertiliser before backfilling.
- Gently firm the soil around the plant. Do not heavily press the soil down with your feet. This will compact the soil, preventing roots from penetrating.
- Water in thoroughly.

How to Water a Newly-Planted Tree

- Remove the fitting from the end of your garden hose.
- Insert the bare pipe into the disturbed soil around the new plant.
- Turn on the tap to a gentle pressure. The planting hole will act as a sump, filling with water.
- When water appears at the surface, turn off the tap.

Planting Bare-Rooted Trees

The procedure for planting bare-rooted trees is much the same as for other trees, except for the following:

- Plant when the tree is dormant (mid-winter).
- Keep the roots of the tree wrapped up and moist until you are ready to plant.
- Dig a hole that is reasonably deep and wider than the root system.
- Mound some soil in the middle of the hole.
- Place the trunk of the plant on the centre of the mound and spread roots away from the trunk.
- Backfill and water in as above.

Planting Advanced Trees

- Advanced trees provide an instant effect, but they can be difficult to handle:
- When moving advanced trees be careful not to strain your back.
- Use machinery, or plenty of people.
- Use wheelbarrows, crowbars and trolleys, and take it slow.
- Once the tree is near or inside the hole, use a crowbar to manoeuvre it into position. In some cases, it is easier to break or cut the container than try to lift it out of the pot.

Helping the Tree Settle In

Once you have planted your tree, there are a number of things you can do to help it recover from the shock of transplanting.

- Use an anti-stress spray (a spray that puts a coating over the leaf to stop water loss)
- Use a root hormone (chemical or natural e.g. seaweed)
- Water regularly – never let the soil dry out during the first six weeks after planting.
- Apply a fertiliser – regular applications of foliar fertiliser will get evergreens off to a great start.
- Remove damaged stems or roots.
- Install a tree guard to protect the tree from wind, animals and people.
- Only use stakes if the tree is in a very exposed, windy position, and never leave the stake in position for more than one season.

Contrary to popular belief, mature trees do not have a single tap root. In fact, most plant roots are in the top 10cm (4 inches) of soil. For this reason, the planting hole should be wider than it is deep.

HOW TO TRANSPLANT A TREE

Large trees should only be transplanted by a properly equipped professional, but with proper preparation and care, small trees can be transplanted by the home gardener. Here's how:

- Dig a trench around the tree to be transplanted approximately three months before transplanting. This will allow the tree to recover from the shock of having its roots pruned before it experiences the shock of being moved.
- Water the root zone a few days before transplanting. The soil needs to be moist enough to bind together easily, but not so saturated that it will be too heavy to move.
- Remove any flowers or fruit from the tree. Prune any unwanted branches.
- Excavate the trench around the tree. When digging, aim your shovel away from the trunk, taking care not to damage the foliage. This technique minimises damage to important roots.
- When you have reached a sufficient depth, begin excavating underneath the tree until you have created a root ball.
- Turn the tree onto one side and place either a hessian or strong plastic bag on the exposed soil.
- Turn the tree back the other way so that the root ball is on the bag.
- Pull the bag under the root ball (this can be difficult!)
- Firmly tie the bag around the trunk, taking care not to damage the tree.
- Carefully transport the tree and its bundled root system to its new home.

Plant Guards

Plant guards are invaluable for protecting small and newly-planted trees from wind, frost, rabbits and other problems until they establish.

Some of the options are:

Plastic Tubes or Sleeves

These are placed over the plant and held in place by stakes. Commercial plastic tubes are stabilised against UV rays so can be re-used for a number of years.

Hessian

Bags or cloth are held in place by stakes. Hessian can also be used to make a temporary canopy which is placed over the plant on frosty nights.

Milk Cartons

Plastic soft drink bottles and short lengths of plastic pipes. These are useful for protecting seedlings against wind and frost.

Aluminium Foil

This is sometimes used for protecting the stems of young fruit trees. It is also useful for protecting against grazing stock and rabbits. The foil must be removed when the frosts have finished as it keeps the stem damp, increasing the risk of fungal infection.

Shade-cloth, Newspaper, etc.

Shade-cloth, newspaper or any other material that can be thrown over the plant before the frost settles is useful as an emergency measure.

Plant Your Tree at the Right Time

- Do not plant during very hot weather or during the hottest and/or driest time of the year.
- Do not plant when the conditions are very windy, as this will cause rapid water loss from the plant leaves.
- Except for deciduous trees, do not plant when there is a risk of frost.
- Do not plant when the soil is waterlogged, or when heavy rains are imminent.

The following tree report form can be used when surveying trees. It is an example and can be adjusted according to the situation.

SAMPLE TREE REPORT FORM

REPORT BY DATE

LOCATION

TREE SPECIES COMMON NAME

COMPLAINTAS RECEIVED

.....

CONDITION OF TREE Very Healthy [] Healthy [] Sick [] Very Sick [] Dead []

MATURITY Young [] Mature [] Old []

ESTIMATED HEIGHT..... ESTIMATED BUTT..... ESTIMATED LIFESPAN.....

PROBLEM	PROBLEM		SEVERITY OF PROBLEM				
	Existin g	Developi ng	Very Extensiv e	Extensiv e	Mediu m	Min or	No Proble m
1. Branches overhanging footpath							
2. Branches overhanging road							
3. Branches overhanging private property							
4. View of traffic obstructed							
5. Leaves, fruit, twigs dropping							
6. Branches in power lines							
7. Wood rot in core of main trunk							
8. Wood rot in main branches							
9. Borers							
10. Other diseases ()							
11. Dead wood on parts of tree							
12. Root damage to kerb/footpath/road/etc.							
13. Root damage to drains							
14. Suckering							
15. Root damage to private property							
16. Likelihood of branches dropping							
17. Danger							

RECOMMENDATION	PRIORITY OF TASK					OPTIONS	
	Top	High	Medium	Low	Bottom	No Alternative	Strongly Recommended
Remove Tree							
Tree Surgery							
Pruning/Thinning/Crown Reduction							
Pesticide Treatment (with)							
Repair Damage (to)							

TIME REQUIRED NUMBER OF MEN

EQUIPMENT REQUIRED

ADDITIONAL COMMENTS

.....

SECOND OPINION REQUIRED Yes [] No []

RECOMMENDATION AUTHORISED SIGNED

SET TASK

This task is to be completed in accordance with question 4 of this lesson's assignment.

Run a quick survey on your street or in a nearby local park or garden. You may have to put a limit on the size of the area surveyed. Submit your results with the assignment.

Additionally, it may be of assistance if you can contact your local council, or a professional Arborist, and ask about tree surveys they carry out.

TREE REVIEW WORKSHEETS

With each assignment in this course, you will be required to prepare plant (tree) reviews. Each tree should be named, described and illustrated.

Seven specimens should be submitted for each lesson, making a total of 56 for the course.

Naming the Tree

Include the tree's common name, scientific name and the plant family name. If you cannot provide these details, write a note to the tutor. Providing you submit a clear illustration (drawing or photograph, ideally presenting not only a leaf, but also a flower, fruit or seed head)) and description, your tutor should be able to help you at least identify the genus.

Describing the Tree

You should record any information that might be important to selecting and using this tree in the landscape.

The main details to include are:

- Height - How high does it grow in your locality?
- Width - How wide does it grow in your locality?
- Flowers – If relevant, what colour and when does it flower?
- Fruits – Does the tree fruit? When? Under what conditions?
- Leaf colour, shape, texture - What colour are the leaves when and mature? Are the leaves round, feathery, lobed, spiky? Are the leaves fine or coarse textured?
- Scent - Are the flowers, foliage or any other parts scented? Does the scent change with time of day? Describe the scent.
- Hardiness - Is it frost tender? How does the wind affect it? Does it tolerate drought?
- Culture – Are there special culture requirements? Does it need good drainage? How often should it be fertilised?
- Pests and Diseases – Which pests and diseases are particularly bad for this plant? Or which pests does it resist really well?
- Maintenance - Are there any maintenance requirements for the plant such as pruning or raking fallen leaves in winter?

Write approximately up to half a page for each plant.

Illustrating the Tree

This may be done any of the following ways:

- Submit a photograph or drawing of parts of the plant.
- Send a scan of a photograph or drawing. (Do not send large graphics files over the internet. Consult your student manual for details.)
- Refer to a web site page location where you have found the plant illustrated on the internet.

See the following page for an example of how to lay out a plant collection sheet.

EXAMPLE OF A TREE REVIEW WORKSHEET

Tree No. 1.

Sketch or Photo

Plant Family

Genus.....

Species.....

Common Name.....

Plant Shape.....

Height.....Spacing.....

Life Span.....

Deciduous or Evergreen.....

Hardiness

.....

Culture

.....

Pest and Disease

Maintenance Requirements.....

.....

Uses.....