

Sangam SKM College – Nadi
Lesson Notes – Week 1
Year 12
Agricultural Science

Strand	AS11.3 Agronomy
Sub Strand	AS12.3.2 Horticulture
CLO	AS 12.3.2.3 Ornamental Horticulture

ORNAMENTAL HORTICULTURE

INTRODUCTION

Ornamental plants are grown for decorative purposes in gardens, landscape design projects, as houseplants, for cut flowers and for specimen display. The cultivation of these plants is called ornamental horticulture.

Ornamental trees, palms, shrubs, herbs, creepers, vines and grasses are plants used as part of a garden or landscape setting, for their flowers, their texture, form and shape, and other aesthetic characteristics

CLASSIFICATION OF HORTICULTURAL PLANTS

NOTES

Plants are classified according to various features and uses. Each of these specialised plants can be further divided into groups and has a part to play in ornamental horticulture.

Plants are classified in a number of ways, some of which are listed below:

Herbaceous or herbs	- succulent seed plants possessing self-supporting stems
Climbing plant	- a climbing or trailing plant. It may be soft stemmed [vine] or hard stemmed
Trees	- plants having a single central axis
Shrubs	- plant having several upright stems

1. by growth habit

2. by leaf drop

Deciduous	- plants which seasonally lose leaves e.g. Kapok tree
Evergreen	- plants which retain functional leaves throughout the year e.g. Sandalwood

3. by life span

Annual	- a plant that completes its life cycle, from germination to the production of seed, within one year, and then dies. (lettuce, watermelon)
Biennial	- a flowering plant that takes two years to complete its biological lifecycle
Perennial	- a plant that lives for more than two years

4. by temperature tolerance:

Tender plant	- damaged or killed by large temperature variations.
Hardy plant	- a plant that withstands changes in temperature.

5. by temperature requirements

Cool-season plant	- prefers cool temperatures (peas, lettuce, cole crops)
Warm-season plant	- prefers warm temperatures (pepper, eggplants)

6. by sunlight intensity requirements

Photophilous Plant	- is receptive to, seeks and thrives in direct sunlight.
Sciophilous Plant	- is receptive to, seeks and thrives in less direct sunlight or shade

7. by habitat or site preference

Xerophytes	- plants that have adapted to survive in an environment with little water, such as a desert or an ice- or snow-covered region
Hydrophytes	- plants that grow partly or wholly in water whether rooted in the mud, as a lotus, or floating without anchorage
Mesophytes	- terrestrial plants which are adapted to moderate water conditions: neither a particularly dry nor particularly wet environment

8. pH preference

Acid tolerant	- certain plants tolerate a range of soil pH values	
Salt tolerant plants	Halophytes	- plants that grow in waters of high salinity, mangrove swamps.
	Glycophytes	- plants that will only grow healthily in soils with low content of sodium salts

Student Activity

1. Explain the importance of developing salt tolerant plants?
2. Briefly discuss some ways in which horticultural plants are classified?
3. Make a list of the ornamental plants growing in the school compound classify them according to their water adaptation?

Reference

Pg 66,67,68,69 of Y12 Agricultural Science text book.

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Lesson Notes- Week 2

Subject: Agricultural Science

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Notes:

TYPES OF ORNAMENTAL PLANTS

Ornamental plants can be divided into florist plants, landscape plants and lawn and turf plants according to their intended use. Types of ornamental plants are:

Florist crops	- The cultivation of flowering and ornamental plants for gardens and for floristry.	E.g. -Cut flower plant - Pot plant - Foliage plant - Bedding plant
Landscape plants	- plants which are used to improve the aesthetic value of a landscape	E.g. - trees -shrubs - flowering plants -climbing plants - ground cover plants
Lawn and turf plants	- plants, like grass, which are planted in an area of soil-covered land, which are maintained at a short height	E.g. -grass

Reference Pg. 70

COMMON ORNAMENTAL TREES

Ornamental trees are species cultivated for gardens, parks and landscape setting, for their shade, flowers, texture, form, shape, and other aesthetic characteristics. Types of common ornamental trees

Weeping Ornamental Trees	Any tree which has a bent crown and pendulous branches that can cascade to the ground.
Evergreen Ornamental	Any tree having green leaves throughout the entire year, the leaves of the past season not being shed until after the new foliage has been completely formed.
Seasonal Ornamental Trees	Any tree producing leaves and flowers in different seasons in relation to favorable climatic conditions.

COMMON ORNAMENTAL PALMS

Palms are perennial monocotyledons belonging to the family Palmaceae. Fiji is blessed with many species of palms which make beautiful ornamental plants.

E.g. 1. Solitary palms, 2. Clustering palms 3. Aerial branching palm and etc.

COMMON ORNAMENTAL SHRUBS AND HERBS

Shrubs and herbs are commonly planted as ornamentals. **Herb** -any seed-bearing plant that does not have a woody stem and dies down to the ground after flowering. **Shrub** -woody plant that is smaller than a tree and has several main stems arising at or near the ground.

COMMON ORNAMENTAL GRASSES

Grasses, sedges and rushes are ornamental plants which add colour, flowers and texture to an area.

Grass -vegetation consisting of typically short plants with long narrow leaves.

Sedges -a grass-like plant with triangular stems.

Rushes - a grass-like flowering plant stem-like leaves.

Reference – pg. 71, 72,73,74,75,76,77,78

Student Activity

1. Differentiate among cut plants, landscape plants and lawn and turf plants?
2. Differentiate between three types of ornamentals trees?
3. Differentiate between herb and shrub?

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Lesson Notes- Week 3

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Notes:

ESTABLISHING LAWNS Once a site has been prepared, lawn can be established. Types of establishing lawns are:

Seeding	Broadcasting seeds over the site is the most common method of growing turf.
Hydromulching	The seed is mixed with water and a paper mulch material before being sprayed onto the site by a hydromulcher.
Sod Establishment	Sod is carefully harvested, rolled up then transported to the new site where it is unrolled
Sprigging	Is a form of vegetative propagation that is commonly used in place of seed.
Stolonizing	Is a form of sprigging that involves broadcasting sprigs or stolons over moist soil.
Plugging	Involves placing mature pieces or plugs of turf into the soil

MAINTAINING LAWN Once a lawn has been established, it needs to be maintained. Method of maintaining lawn

Mowing	Machine used for mowing depends on the size of the lawn.
Feeding	Mix fertilizing material with soil before applying to ensure even distribution and avoid scorching the grass.
Water control	Water availability is crucial to the survival of the grass.
Scarifying	Grass clippings and smothering plants and harbouring pests and diseases.
Edging	A clean line is created where lawn meets other surfaces, structures or plants.
Spiking	To allow water infiltration and aeration, small holes are made in the soil surface

ReferencePg 79,80,81,82

METHODS OF RAISING ORNAMENTAL PLANTS IN CONTAINERS

Any vessel which can hold plant growth medium and has drainage holes can be used to grow plants. Some methods used for growing plants in containers are:

- i) **Pot plant** – where a plant is grown in a container of planting medium.

- ii) **Bonsai** – growing ornamental, artificially dwarfed trees or shrubs.
- iii) **Terrarium garden** – growing plants in a covered or closed container, usually made of glass.
- iv) **Dish gardens** - plants growing in a shallow dish or bowl for a container.

When choosing containers ensure that the container is affordable and has:

1. Drainage holes
2. Eye appeal
3. Durability
4. Adequate space for roots and growing medium

POTTING MIXES

A potting mix must provide a plant with air circulation, optimum moisture conditions, nutrients, anchorage and pest and disease free growing conditions. Below are some ingredients used as growth medium or as ingredients in potting mixes.

Tree fern	'balabala' is suitable for plants which need a porous medium which is well aerated
Sphagnum peat moss	is a stable organic material that holds 15 to 30 times its weight in water and decomposes very slowly.
Wood charcoal	allows air circulation; maintains consistent moisture content
Coir	is a waste product of the coconut industry
Vermiculite	helps hold water and fertilizer in the potting mix and containers
Perlite	is lightweight, sterile and has a neutral pH
Coarse washed sand	sand can be used to add air space to the potting mix and increase its weight.
Limestone	both are used to increase the pH
Compost	Compost alone does not have the optimal water holding characteristics

Student Activity

1. Differentiate between feeding and water control methods used to maintain established lawns?
2. Differentiate between Stolonizing and Sprigging methods used to established lawns?
3. Differentiate between Tree fern and Perlite used in potting mixes?

Reference

Pg. 83,84,85,86,87,88,89,90,91,92,93,94