

This book offers comprehensive knowledge on selection and placement of right plants for the right place in landscaping. Even though there are many books that are devoted to the landscaping, it seems to be a need for a textbook at intermediate level which dwells on the practical aspects of selection placement of right plants for the right place in landscaping. This book is designed to meet that need.



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Plants Selection and Placement in Landscaping

Selection and Placement of Right Plants for the Right Place in Landscaping



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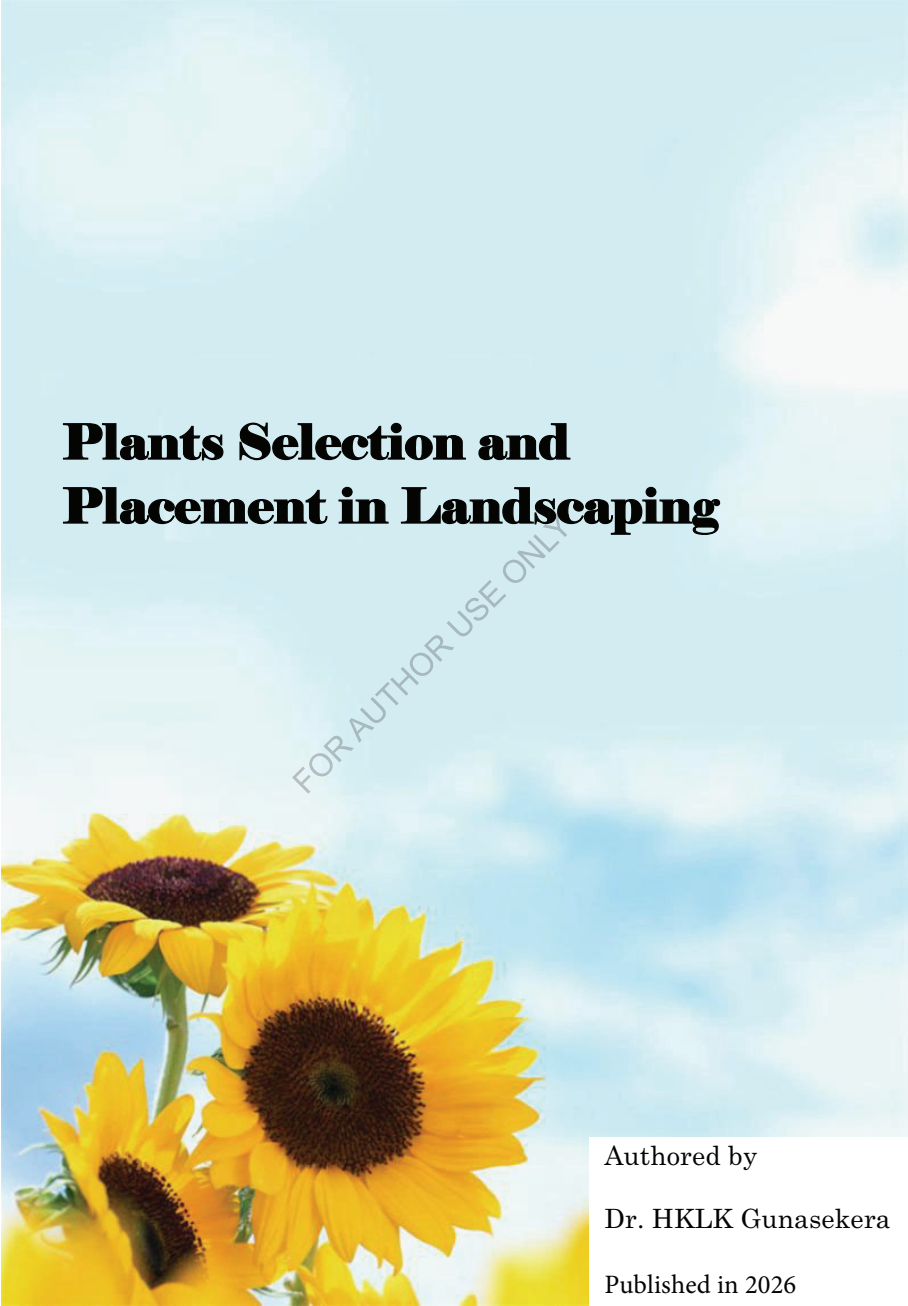
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Preface

This book offers comprehensive knowledge on selection and placement of right plants for the right place in landscaping. Even though there are many books that are devoted to the landscaping, it seems to be a need for a textbook at intermediate level which dwells on the practical aspects of selection placement of right plants for the right place in landscaping. This book is designed to meet that need. In addition to that, this book has brought knowledge on establishment and maintenance of lawns in landscaping. The last chapter of the book explains the fundamental aspects of caring ground after installation of the plant material in order to provide overall practical knowledge to the readers.

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Chapter One

Introduction to Landscaping

What is Landscaping?

Landscaping is a part of the ornamental horticulture. The ornamental horticulture uses plants and other materials for decorative purposes. Ornamental horticulture combines the principles of art with the science of growing plants. Landscaping is the segment of the green industry that focuses on the beautification of outdoor terrain and, to some extent, interior settings. Landscaping is challenging work centered on improving the appearance of land. Landscaping begins with a landscape plan or design.

Landscaping is an activity in which beauty, as well as function may be determined by the customer. To one person, landscaping may mean a couple of fruit trees or just plants on the property. To another person, plants in the landscape must not only be carefully selected but also strategically arranged. Hence, landscaping means different things to different people. However, a good landscape is the result of careful planning and implementation of a sound design that includes the proper choice and location of plants, the functionality of the design and the general aesthetic appeal.

Landscaping is the process of making an environment more habitable (to live in planned manner). Therefore, the broad objective of landscaping is creating an environment to keep people for a longer time as much as possible. In landscaping combines elements of art and science to create a functional, aesthetically pleasing extension of indoor living to the outdoors. It improves the appearance and value of a portion of land which the eye can view at once.

Why do Landscape?

- Creation of pleasant, functional and personal environment.
- Beautification
- Comfort (change the environment with providing shade, smooth surface, steps etc)
- Privacy (cover the place, cut wind, noise and dust)
- To increase the value of the site/place
- To increase efficiency of the land
- For easy to maintenance

Landscape Horticulture

Landscape horticulture involves both the growing of ornamental plants (trees, shrubs, vines, groundcovers, and herbaceous perennials) and their use in designed, constructed landscapes. Such designed environments are not just “pretty;” they add functionality by modulating temperature, abating noise, reducing glare, and increasing privacy and security. Closely associated

with the art of gardening, landscape horticulture also involves the science of plants and the business associated with producing and using these plants. Landscape horticulturists must know many different kinds of plants and their basic characteristics; how they grow, develop, reproduce, and adapt to different environments as well as the optimal growing conditions for specific plants and potential problems associated with them, such as pests and diseases. Landscape horticulturists must also know the business of managing plants, landscape projects, and construction materials; they must also know how to manage employees and to deal with customers. The artistry and creativity of landscape design and manipulation allows landscape horticulturists to exercise their creative abilities. Landscape professionals can apply this knowledge to enhance the quality of life by developing and managing our environments, residences, commercial operations, roadways, parks, golf courses, and playgrounds.

Goals of Landscape Horticulture

- I. Beautification
- II. Mental satisfaction
- III. Environnemental protection/improve microclimate & air purification
- IV. Value addition of land
- V. Appropriate utilization of land
- VI. Conservation & comfort
- VII. Safety, privacy and convenience
- VIII. Easy maintenance etc.,

Importance of Landscape Horticulture

A well-designed landscape is a pleasure to the family, enhances a community and adds to the property's resale value. Landscape design involves much more than placing trees, shrubs and other plants on the property. It is an art which deals with conscious arrangement or organization of outdoor space for human satisfaction and enjoyment.

A good landscape design does not just happen. It is the result of your willingness to work and plan, to use the materials that are adapted to your climactic area and yours site, and to follow through with good management. Therefore, your properly established, well managed landscape design is a joy, not a headache.

It is a known fact that landscaping can help you make your yard more beautiful; but this is not the only advantage that landscaping offers. Some other important advantages of Landscaping are discussed below:

▪ Landscaping to increase productivity

Studies have indicated that well landscaped offices tend to have lower cases of absenteeism and job shifting. It has also been found that employees serving in offices featuring colorful landscaped entrances show better productivity. The reason for this can be attributed to the basic fact that humans have a fundamental desire to keep contact with

nature. Our perception and moods are highly influenced by the colors we see in and around us.

- **Landscaping to help recover people faster**

Most hospitals include well designed landscapes in their site to help patients recover faster. With proven results, most doctors today believe that the positive effect that a landscape can have on a patient's mind is huge which helps him in recovering faster.

- **Landscaping for air purification**

It is a known fact that plants generate oxygen taking in carbon dioxide to produce food thereby purifying the air. Thus, landscaping your backyard with trees and other plants can help you minimize the bad effects of pollution.

In addition to purifying the air, plants can help disperse fog, reduce wind speeds, reduce noise effects, control erosion and influence snow deposition.

- **Landscaping for energy savings**

Landscaping can help save energy and thereby help reduce energy bills hugely especially during summer months. During the transpiration process plants tend to soak up heat from the air and release water vapor that acts as a coolant. In addition, trees help in reducing solar radiation and reflection, thereby preventing walls from heating up.

Deciduous trees used in landscaping help in cooling down your property in summer. They also help in warming it up during winter months by allowing the sun to shine through. Similarly, vines help in providing direct shade on the walls that helps in keeping the surface temperature down.

Shrubs on the other hand can prevent architectural features like glass doors and windows from conducting heat thereby keeping the overall

temperature of the interiors down. On an average a landscaped house can save at least 40% on energy bills as compared to a house that lacks this feature.

- **Landscaping to increase property value**

Landscaping can hugely enhance the sales appeal of a property thereby increasing the overall property value. The factors that seem to contribute in increasing the property values include greenery, walkways, arches, patios, decks and ponds.

- **Landscaping can provide privacy and home security**

Landscaping can help you effectively cover your outdoors thereby helping you block unpleasant views from outsiders or your own neighbors. Building huge walls to achieve this would be undesirable when the same can be achieved beautifully through landscaping.

Landscaping consists of following sub divisions;

- **Landscape architecture** is the art of planning, designing, and managing public and private landscapes and gardens. Landscape architecture is a broader term which embraces garden design, landscape management, landscape engineering, landscape detailing, landscape assessment and all the sub-categories of landscape planning.
- **Landscape art** is the depiction of scenery in landscape painting,
- **Landscape design** is the design of open space urban or rural areas.
- **Landscape engineering** is the application of mathematics and science to create useful land- and waterscapes. It can also be described as green engineering but, the design professionals best known for landscape engineering are landscape architects. Landscape engineering is the interdisciplinary application of engineering and other applied sciences to the design and creation of anthropogenic landscapes.
- **Landscape planning** is the planning of large scale and/or long term landscape development. It is a branch of landscape architecture.

- **Landscape management** is the care of human-made or natural landscapes.
- **Landscape ecology** is a sub discipline of ecology that investigates the ecological causes and consequences of spatial pattern, process and change in landscapes.

Components of landscape design

Landscape construction should extend the house or building into the outside area. For this reason, it is best to repeat the materials, such as wood, brick, and stone, used in the building construction in the landscape features. In addition, since landscape construction materials should harmonize with the building materials in terms of texture, colour, and scale, the proper choice of materials is necessary.

Prime consideration in the planning of a landscape design is the surface that will be applied to the earth. In some instances, the earth can be left in its natural state, as in a wooded area. In most cases, however, some type of natural or artificial surface is used. The expense, durability, and ease of maintenance vary considerably with the different materials used, so it is important that these surfaces be selected carefully. They make a satisfactory surface for walks in private areas or wherever there is not much traffic. Their colours are natural and tend to tone down the colour scheme. However, such materials are not very durable and must be replaced frequently. Gravel and rounded river rocks are more durable. They can be applied directly to the ground or laid over plastic. These materials can be used for walks where there is moderately heavy traffic. When using gravel or rocks as surfacing material, it is best to enclose the area with wooden or metal borders at ground level to keep the rocks from being scattered on the lawn. A garden is a planned space, usually outdoors, set aside for the display, cultivation, and enjoyment of plants and other forms of nature. The garden can incorporate both natural and man-made materials. There are two kinds of landscape materials, i.e. Hard landscaping materials and Soft landscape materials.

Plant Materials /Soft landscape materials

The various plant materials-shrubs, trees, ground covers, and grass-are used in different ways in the design for accent, softening, screening, surfacing, shade, framing, and background. Shrubs are used as accent and specimen plants, as foundation plantings, and as borders and hedges. A shrub used as a specimen plant should be a perfect example of that plant's special characteristics. It is usually planted alone, possibly against a fence or in an easily viewed spot. It can be incorporated into a border, but it should have a different height and may vary from the other plants in texture, form, and colour. Repeating the accent plant at several places in the landscape gives unity to the design.

Soft landscape materials are mainly:

- Turf grasses/lawn
- Shrubs/bushes
- Ground covers
- Vines
- Hedges
- Bed plants
- Water plants
- Fische/birds etc.

Structural materials/Hard landscape materials

These materials are non living things. The initial cost of establishing is much higher when compared to the soft landscape materials.

Hard landscape materials are:

- | | |
|---------------|-----------------|
| ▪ Ponds/water | Drive ways |
| ▪ Water falls | Lighting |
| ▪ Summer huts | Fences |
| ▪ Pergolas | Tables |
| ▪ Benches | Barbeque places |
| ▪ Statues | Bird paths |

- Urns (large pots) Ramps (A path can use disable people)
- Paving (tiles) Gates
- Arches Pots
- Rocks Gates
- Paths Bridges
- Steps Walls

Sometimes non-living materials such as fences are a better choice than living materials such as a hedge. Both materials should provide privacy, but the hedge may require considerable time to grow where the fence provides immediate privacy. Also, if space is limited a fence may be the best solution. Maintenance is also frequently a concern. Usually non-living materials (brick, wood, etc.) require less maintenance than living materials which may require watering, trimming, etc.

Landscape Accessories

Landscape accessories are details which may have no functional purpose, such as surfacing or enclosure, but do have definite visual effects. Accessories also help express individual tastes and preferences. Major accessories, however, should not be afterthoughts; they should be planned as the design evolves. Accessories add character and dimension to a garden, but poorly selected and placed accessories may spoil an otherwise well-designed landscape.

Many landscape accessories are available. Much of what is available; however, has little or no aesthetic value. To determine whether or not to use an accessory in the garden, ask yourself these questions:

- (1) Does it have practical use?
- (2) Is it beautiful in itself?
- (3) Does it fit or relate to the overall landscape design?

Probably the most important of these three questions is the last one. Garden furniture offers a real opportunity to add utility, color and beauty

to the landscape. Comfortable and attractive items are now available in a wide variety of low maintenance outdoor furniture. Outdoor furniture must be large enough to be practical and must be in scale with its surroundings. Built-in furniture has the added value of being permanently in place and enhancing the overall design. Occasionally the surface of a retaining wall or raised planter can serve as a seating area. The living terrace is the most usual place for outdoor furniture.

An interesting piece of driftwood, tree roots or limbs, boulders or rocks provide interesting substitutes for good sculpture. These items are easily blended with the design and may be readily available.

Birdbaths are often used in home landscapes. To be useful they should be shallow, not exceeding 1 1/2 inches in depth, and contain fresh water. Bird houses and feeders should also be selected on the criteria discussed earlier.

Other accessories, such as stained glass, relief sculpture, outdoor chandeliers and plant containers are finding their way into the well-designed landscape. A stained glass window, partially enclosed in an outdoor area, or a burning outdoor chandelier may be added for interest, illumination and possible insect-repelling qualities. Hanging or conventional container plants can add a great deal of interest. With the current trend to return to natural materials and handmade workmanship there is an almost limitless variety of accessories available for our use. The temptation to "overdo" has never been greater. Like other fine things, garden accessories should be used with considerable restraint.

Outdoor lighting can add a great deal to the attractiveness and usefulness of the landscape. Specialists often recommend two separate lighting systems: one for functional and safety purposes and another designed to be beautiful and interesting. Dimmers, low voltage units and other special lighting equipment have become popular and add versatility to outdoor lighting.

When placing outdoor lighting for beauty only the effects of lighting should be seen; the source or fixtures are usually hidden in the ground or in tree branches.

Many people feel that they obtain double enjoyment by including well-designed outdoor lighting to increase the hours of pleasure from their outdoor environment.

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Chapter Two

Selection and Placement of Plants in Landscaping

Introduction

Plants are the foundation of landscape designs. There are a number of reasons for choosing plants for the landscape. Identification, selection and placement of right plant for the right place is an important consideration for all types of landscaping. Even the best planting practices will not help a plant to thrive if it is poorly suited for a particular site.

Plant selection is the last step in the design process. Plants are selected on the basis of climatic adaptability to the microclimate of the location, plant architecture and availability. No matter how well a plant meets the physical characteristics for a location, if it is not adaptable to the conditions there, it will fail. These microclimate conditions include sun intensity and duration, soil conditions, rainfall, air circulation and temperature. Some plants perform better in partial or full shade than in full sun. The length of daily exposure to a particular light level also influences plant responses. Soil pH, soluble salts level and drainage properties influence plant adaptability greatly.

Plants can be selected to tolerate varied soil conditions, but the designer must have a working knowledge of available plant materials. Some locations in a landscape may be characterized by little or no air movement. Plants susceptible to mites, scales and other insects will usually be attacked more severely in areas with poor air circulation. Also locations in the landscape differ as to the maximum or minimum temperatures and daily fluctuation between these extremes. Plants can be selected to tolerate one or more of these conditions.

There are a number of reasons for choosing plants for the landscape. We may be attracted to their ornamental appeal or call upon them to serve a specific function or purpose in the landscape, such as providing a screen, blocking unwanted views, or stabilizing a soil bank.

Therefore, plant selection is an organized process that examines several factors: function, aesthetics, site adaptability and management. In the design process, landscape designer has literally thousands of plants from which to choose for use in the landscape. How does designer go about determining which plants from which to choose for use in the landscape? First, the designer must decide what function of a plant in the landscape. Is it to be tree or shrub? How large should the plant? Is the plant to blend in with others or is it to be high interest or attract attention? Also, plants are living organisms. These are some questions a designer must answer before selecting specific plants to serve specific functions.

Plants are selected for their form, size, texture and color as well as for their climatic adaptability to the location. Some plants perform better in partial or full shade than in full sun. We take into account common insect and disease problems for plants we expect to include in a plan. Desirable plants are those resistant to or tolerant of pests like mites, scale, nematodes, borers, root rots, powdery mildew, wilts, galls, blights, and leaf spots. Plants in some locations must be tolerant of human abuse, air pollution and animals. Plants in large areas or groups are generally spaced to cover an area in 3 to 5 years. We do our best to minimize the amount of maintenance required in our landscape designs. Even the most perfectly designed and installed landscape will fail if maintenance fails. Complex designs usually require more maintenance. We generally limit the number of plant species and create well-defined planted areas by avoiding the scattering of plants throughout open areas. We like to arrange plants in groups of like species to create a mass effect. Planting trees within beds often eliminate trimmings, reduce lawn mower damage to tree trunks and increasing the speed of mowing. We use edging to create a clean line and reduce maintenance.

Design elements

Landscape design is defined by manipulating mainly any of its five elements; colour, line, form, texture, and time. These elements are then arranged and laid out with consideration to eight basic principles; unity, balance, accent, focalisation, scale, proportion, harmony, and rhythm. The principles of landscape design work together to create the overall look of the garden. These principles interact with the elements of color, texture, line, form, and scale to develop a unified landscape design that blends the beauty of nature with the splendor of modern architecture.

- Colour - match the colours
- Line/outline - long flowering curves, solid structures
- Form - natural shape of the plant
- Texture - smooth or rough
- Simplicity
- Space/mass-volume & nature of the floor etc.,
- Light/shade
- Scent - Gardinia, Jasmine etc.,
- Time - growing season etc.,

Colour

Colour brings variety, as well as personality, to your landscape design, but selecting the right year round **color scheme** for your outdoor plan would be a difficult task. Colour can be one of the

We use color to direct attention within the landscape because it is the most **powerful** elements in your landscape design.

Occasionally we work with tints and shades of a single color to achieve a dramatic effect. Sometimes we combine colors that are side-by-side on the color wheel. Colour variation can best be explained by use of a colour wheel (Figure 2.1). There are three types of colours.

- Primary colours: red, blue and yellow.

- Secondary colours: Orange, green and violet colors

Secondary colours are combinations of two primary colours. The secondary colors are violet, green, and orange. Mixing red with blue makes violet. Blue mixed with yellow creates green. Mix yellow with red to get orange.

red + blue = violet

blue + yellow = green

yellow + red = orange

Tertiary colours are the fusion of one primary and one secondary color. These colours would be between primary and secondary colours.

The use of Colour

Usually we combine colors that are directly across the color wheel from each other. Often we vary the color scheme from one area of area of the landscape to another. We always consider color changes throughout the entire year when developing a landscape design.

We also use color to visually change distance perspective. Warm colors and light tints like red, orange, yellow and white make an area appear closer. Cool colors and deep shades make an area appear to be farther away. Cool colors are restful while warm colors express action and are best used in filtered light or against a green or dark background.

Complementary colour schemes combine colours directly across the colour wheel. For example, red and green would be complementary colours. A complementary colour scheme may be achieved by using plants with green foliage against a red brick house.

It is possible to have varying colour schemes in one area of the landscape as the seasons change. White and pink flowers can yield a monochromatic colour scheme with a red brick house. The green foliage would produce a complementary colour for the red brick. Berries would be an analogous

colour to the red brick in the fall. The landscape designer should consider the colour changes throughout the year when developing a landscape plan.

Colours can be used to visually change distance perspective. Warm colours and light tints like red, orange, yellow and white advance an object or area toward the observer. These colours and tints placed near the foundation of a house would make the house appear closer to the street. Cool colours and deep shades like blue, green and black recede and can be used to make the house appear farther from the street. Cool colours are restful while warm colours express action and are best used in filtered light or against a green or dark background.

Colour can be used to direct attention in the landscape. Due to this strong characteristic, colour should be used carefully. When colour is used for this purpose, consideration must be given to year-round colour not just too seasonal colour. Consideration may also be given to the time of day when this colour will be enjoyed. White or light tints could be used to create interest on a patio. Dark colours would add little to family enjoyment of this area as the daylight hours passed.

Colour is used to convey emotion and influences the mood and character of the overall landscape design or parts of the design. It has three properties: hue or chroma, value, and intensity. Hue or chroma refers to the relative purity or strength of the colour. Value determines how light or dark the colour is, whereas intensity refers to how bright or dull it is.

Colour theory is a very complex and very personal matter that expresses individual taste and feelings. Warm colours such as reds, oranges and yellows tend to advance towards to viewer while blues, violets and greens tend to recede into the landscape. Warm colours read well and affect the eye more quickly than do cool colours. When using warm colours, they should be used in sequence which must be smooth and gradual. For example, red to scarlet to orange scarlet to orange to bronze to orange yellow to yellow to pale yellow to cream to white.

Consideration of the use of colour in plantings requires a thorough, practical understanding of the personality of the plants. To vigorously use colour and effective colour combinations requires a thorough knowledge of plants, their colours and seasonal changes with detail of twig, leaf, flower and fruit as well as principles of colour.

How Line influences design

Line creates order by directing eye movement or flow. Lines in a landscape design give the eye directions about where to look. Lines may be used to draw attention to an object, divide a space, group related objects together, or separate unrelated objects in landscape design. In landscape design, these can be achieved through the arrangement of plants and borders.

Line and linear flow can be created many different ways:

- **Straight lines**, like paved edges or hedge rows, encourages movement and directs attention to a focal point.
- **Curves** and natural linear patterns invite lingering and free movement.
- **Arrangements** and design of planting beds and natural areas defines the overall linear style of the landscape.
- **Vertical lines** of your outdoor design can be enhanced by altering the height of plants and trees.
- **Within small**, enclosed spaces, like entryways, line is created by the patterns of leaves and branches on the surrounding plants.

The concept and creation of line depends upon the purpose of the design and existing patterns. In the overall landscape, line is inferred by bed arrangement and the way these beds fit or flow together. Line is also created vertically by changes in plant height and the height of tree and shrub canopies. Line in a small area such as an entrance or privacy garden is created by branching habits of plants, arrangement of leaves and/or sequence of plant materials.

Straight lines tend to be forceful, structural and stable and direct the observer's eye to a point faster than curved lines. Curved or free-flowing lines are sometimes described as smooth, graceful or gentle and create a relaxing, progressive, moving and natural feeling.

In curvilinear design, lines should be dramatic, done with a sense of flamboyancy and be very expressive in their shape. Curvilinear lines that have weak, scalloped edges will not be visually interesting or pleasing to the eye. Curvilinear, meandering lines suggest a naturalistic look that invites the user to casually stroll through and experience the landscape.

On the other hand, linear lines such as those found in a straight hedge or the edges of paving materials suggest quick, direct movement. Angled lines can create opportunities for creating the "bones or the framework of the landscape". Lines that interconnect at right angles create an opportunity for reflection, stopping or sitting. Through skillful use of lines in the landscape, the designer is able to direct the attention of the viewer to a focal point.

Form

Form and line are closely related. Line is considered usually in terms of the outline or edge of objects, whereas form is more encompassing. The concept of form is related also to the size of an object or area. Form can be discussed in terms of individual plant growth habits or as the planting arrangement in a landscape.

Form relates to the natural shape of the plant. Form is basically the shape and structure of a plant or mass of plants. The trunk, branches, and leaves together create the form of a tree and give definition to its shape.

The different plant forms are: columnar, round, vase, weeping, pyramidal, oval, and irregular.

The **shape and form** of the trees and plants you select are also important elements in a landscape design. Trees may have an upright growth form that allows placement near structures. While spreading trees are best

planted in an open location and are ideal shade providers. Weeping forms, like that of the weeping willow, are excellent accent shapes.

Plant forms include upright, oval, columnar, spreading, broad spreading, weeping, etc. (Figure 2.1). Form is basically the shape and structure of a plant or mass of plants. Structures also have form and should be considered as such when designing the area around them.

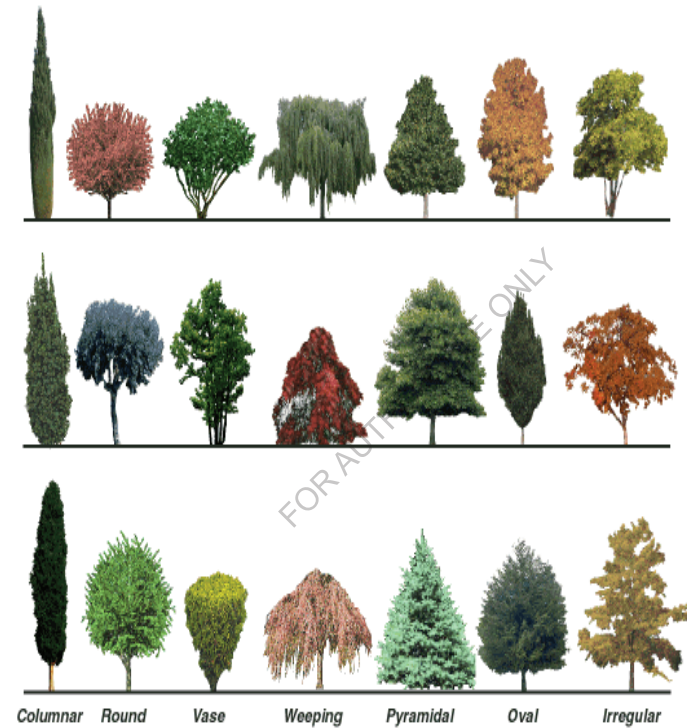


Figure 2.1 Tree shapes and forms

The Use of Form

Form relates to the natural shape of the plant. For example, a plant that is very fastigiated or upright in its habit of growth is said to have a vertical or aspiring form. Plants that are spreading in their habit of growth are said to have a horizontal or spreading form. When horizontal forms are placed

together as is the case in the hedge, the individual vertical forms take on a horizontal profile. Weeping, drooping of pendulous forms can also be used to create softer lines or as interesting accents in the garden.

Texture

Texture describes the surface quality of an object than can be seen or felt. Texture is how something feels when it is touched or looks like it would feel if touched. Both animate (plants) and inanimate objects (buildings and structures) in landscape design have texture. Surfaces in the landscape include buildings, walks, patios, groundcovers and plants. The texture of plants differs as the relationships between the leaves, twigs and branches differ. Coarse, medium or fine could be used to describe texture but so could smooth, rough, glossy or dull. Texture relates to the coarseness or fineness of a leaf, roughness or smoothness of the bark, heaviness or lightness of the foliage or other components used in the landscape plan.

The Role of Texture in Landscape Design

The look and feel of the plants and materials in your landscape design can be just as influential as the color schemes. Tree bark may be rough or smooth, grass may be thick or extremely fine, and plants may have smooth, glossy leaves or sharp, prickly leaves. The key to effective use of texture is creating a balance between various plant qualities in the garden. A large amount of smooth, fine materials should be used to balance coarse textured plants and trees.

Simplicity

Simplicity is the essence of design. This is an objective that has always tried to achieve in all residential, commercial, institutional and recreational designs. How a designer creatively combines plant material and other design components into a simple, unified scheme is always an exciting challenge. Simplicity goes hand-in-hand with repetition and can be achieved by elimination of unnecessary detail. Too much variety or detail creates confusion of perception. Simplicity is the reduction of a design to

its simplest, functional form, which avoids unnecessary cost and maintenance.

Mass

Made up of plants that cannot be seen in their entirety from any one vantage point. Seasonal stability and variety in plant mass is accomplished through a mix of evergreens and deciduous plants. Only rarely should a design consist exclusively of evergreens or deciduous material instead of a mixture of both.

To create a harmonious effect in any group, a designer should strive to properly fit together plant forms, textures and colours into a harmonious whole or mass. Size of any mass or composition depends upon its location in relationship to other factors such as the need for screening, proximity to other groups, etc. Mass can be any size, but smaller masses or clumps are not normally as effective as larger, bolder mass plantings.

Light /shade

Too much light or too much shade is not good for proper landscape design.

Scent

Scent like a fragrant. Fragrant plant establish by the side of front of garden or paths. People come and stay more time in these places.

Time

It takes time for preparing mature garden. With time, have to maintain landscape properly.

Plants as Elements for Landscaping

The basic elements that plants offer to the landscape design are form, texture, and colour.

Plants grow in a characteristic general form determined by genetics or the environment. **Form** generally refers to the silhouette or outline of the plant.

A plant can be selected for the way its form can be used in the landscape to complement the house or achieve the principles of design. For example, a prostrate plant can be used under a low window. Rounded trees or shrubs can be used with oval, spreading, or weeping plants in a pleasing border. Use conical plants carefully; they tend to dominate a landscape because of their prominent form.

Texture can refer to a plant's feel, but generally in the landscape visual texture is the main consideration. Large leaves cast distinctive shadows in the plant canopy, offering a coarse appearance. Finer-textured foliage offers a more uniform shade pattern. Texture can be used to affect the sense of scale. A fine-textured plant used near the viewer with a coarse-textured plant farther away gives a subtle sense of decreased distance. It makes your property or structure seem smaller.

Colour has a strong effect in the landscape; use color with discretion. Don't plan the landscape only with use of flowering plants in mind. Use 80 to 90 percent of the plants for foliage effect. Some variety in foliage color is needed, but green provides the continuity as well as the backdrop for carefully used color. Color should be used to focus attention on an area of the landscape and to complement the house. Colors should complement each other as well. Use similar hues together. Mass colors, don't alternate colors. Alternating breaks up visual sequence and is distracting.

Plants not only contribute to the aesthetics of a space or area, they also serve a function within the landscape. Plants can be used to accomplish a desired effect or for a specific purpose.

Plant Types

Plants are available in thousands of different shapes and sizes for landscape use. Each type of plant serves a different purpose in the landscape. Evergreen plants keep their leaves throughout the year. Deciduous plants shed all or most of their leaves at one time of the year.

Plants can be categorized as

- Trees
- Shrubs
- Groundcovers
- Vines
- Ornamental grasses
- Annuals
- Perennials

Trees

Being the largest plant in the landscape tree is dominant. A tree can be defined as a single-stem, woody, perennial plant reaching the height of 12 feet or more. An exception to this rule involves some trees have multiple stems. Trees are both the most important and most permanent of all garden plant material. Trees and shrubs come in all shapes and sizes. Trees and shrubs have a life span of many years and can become more attractive and functional with age. Trees are desirable for many ways in landscaping; shade, privacy, windbreak, fragrance, fruits etc. But poor planning of landscape improvements often creates trouble. Ensure proper plant placement and minimal maintenance before plant.

Shrubs

Shrubs are multi-stem, woody perennial plants that do not exceed 20 feet in height. No clear cut margin in between trees and shrubs. In general shrubs are about as tall as they are wide. They may be deciduous or evergreen. There are numerous varieties of landscape shrubs. Shrubs have many uses which include foundation plantings, privacy hedges, and specimen plants. They can be used to define the outline of plant beds, or to create seasonal interest. Shrubs are very important in average home gardens where trees can not be accommodate. However, before placing any shrubs into your landscape, you should first take into account the height and width of each matured plant.

Ground covers

Ground cover may be woody or herbaceous. It forms a mat less than 1 foot height covering the ground. Grass is the most common plant used as a ground cover.

Vines

Vines are woody or herbaceous (soft stemmed) plants that require some type of support. They may clime on objects or creep along the ground. Vines are the most versatile plants in the landscape. They can screen unsightly views, provide privacy on patios, lend character to solid walls, break up the monotony of long fences, accent or soften architectural details or cover the ground where either you don't want turf grass or it won't grow.

Ornamental grasses

Ornamental grasses are valued for their textures and colours which add interest to the landscape. Some ornamental grasses are annuals, others are perennials. Some grow best in warm climate, while others prefer cool climate. Use of ornamental grasses has grown in popular in recent years.

Annuals

Annuals are herbaceous plants that live for one growing season and are valued for the colour their flowers or ornamental foliage adds to the landscape. Common annuals are impatiens, marigolds, petunias, coleus and zinnias.

Perennials

Technically, a perennial is a plant that has a life cycle of more than two growing seasons. They may be woody as with trees and shrubs or herbaceous. In the landscape industry, the term perennial refers to herbaceous plants with life cycles of more than two years grown for their display of flowers or foliage.

Plant Selection and Placement

Primary considerations for selecting landscape plants

Height and Width are figured by the mature size a plant will reach in both upward and outward directions. Not calculating this can cause serious problems in the future.

Form is the shape of the plant and how it will occupy and accent space. Form and shape are considered as columnar, round, vase, weeping, oval, creeping, etc.

Texture is the fineness or roughness of plants. It can also be categorized in terms of leaf thickness and shade(light or dark) of plants. As a rule, plants with finer textures should be used in greater numbers than plants with coarse textures.

Seasonal interest and color are figured by the special features a plant has at different times of the year. Foliage, fruit, flowers, Winter color, changing colors, etc.

Secondary considerations for selecting landscaping plants

The artistic qualities of landscape design have been discussed, but there is also a very important aspect of plant science to consider. Plants are living things and, therefore, have basic environmental and maintenance requirements. As you select the plants that you want to use for your landscape design, it is very important that you consider these requirements. By giving careful attention to the growing conditions and unique needs of certain plants before you use them in your landscape design, you can reduce pesticide use; reduce maintenance efforts, like pruning; and encourage longer-living, better-looking plants. In other words you can save a lot of effort and money.

You need to consider several factors about a plant before you use it in the landscape:

- Climate, Soil and Terrain
- Light requirement.

- Moisture requirement.
- Soil drainage needs.
- Soil pH requirement.
- Pest susceptibility.
- Rate of growth and mature size.

Climate, Soil and Terrain

Consider the wind, rainfall, and overall **climate** around your property as well to help determine the best plants.

Soil condition will play a major role in selecting flowers, trees, and shrubs for your landscape design so the soil should be tested.

Natural **slopes**, changes in elevation, and other land forms in your yard can affect the drainage of rain water and influence the type of plants that will grow best in your landscape.

Light requirement. Plants can differ greatly in the amount of light that they need to thrive. For example, daylilies need full sun, while hostas can be damaged unless partially shaded. Select plants that require the amount of sun or shade available in your landscape.

Sun and Shade Patterns

Examine the sun and shade **patterns** of your home so you can appropriately position trees to provide relief from the sun where shade may be welcome, both inside and out. Finally, look carefully at every **angle** of your home and note the areas you would like to highlight and those you would prefer to downplay

Moisture requirement. As with light, plants can differ in their need for water. Santolina thrives in a dry site but dies if kept too wet. Try to select and group plants together that have similar water needs. This encourages plant survival and improves efficiency of water use in the landscape.

Soil drainage. Even plants that need a lot of water can be killed if they are planted in a poorly drained soil. Plant roots need some oxygen to function

normally; this is supplied in air spaces in the soil. If a soil has small air spaces between soil particles, it is more likely to hold moisture instead of draining out and being replaced with air. The result can be root death followed by plant decline. Many hollies, azaleas, dogwoods, and junipers are lost causes if soil has poor internal drainage or percolation. Check or correct soil drainage or select appropriate plants.

Soil pH requirement. If the soil pH is not in an acceptable range, some plant species have a difficult time taking up certain nutrient elements. The result can be a chronically yellow and poorly growing plant. Azaleas and other acid loving plants need a low soil pH. Check the pH with a soil test. In some naturally high pH soils, acid loving plants should not even be considered for the landscape.

Pest susceptibility. Some plants are very susceptible to insect and disease problems. You can spend a lot of time and money on pesticides to keep those plants looking good. Excessive use of some pesticides can also be environmentally unsound. The problem can be reduced from the start if you are careful about the plants you select for your landscape. Red tip (photinia) is just about guaranteed to have real disease problems.

Rate of growth and mature size. A common mistake in landscape design is to underestimate how big a plant will get. Keep mature size of the plant in mind when designing the landscape. Select plants that will reach an appropriate size for the location you have in mind. Or, select plants that can be kept in bounds with little effort.

Choosing the right plants for specific area

Knowing the agro-ecological zone is very important in plant selection but often times there are different zones or microclimates within zones. As a general rule, zoning maps are accurate but there are a few variations that could affect you. Native plant selection is also something that you should consider. These plants are already adapted to your area and chances are they're already growing "right in your own back yard".

Arranging plants in the Landscape

In most residential landscape situations, plants are used or arranged in seven basic ways.

1) Specimen plant

The **specimen plant** is a center of attention. It deserves a prominent place in the landscape. However, you should use plants sparingly in this way because the specimen can dominate the landscape so much that it detracts from the overall landscape unity.

2) Accent plant

An **accent** is like a specimen but more subtle. Consider it a featured plant in a grouping of other plants.

3) Corner plantings

Corner plantings are groups of plants used to “tie down” the corners of the house. Corner plantings blend the vertical line of the wall with the horizontal plane of the ground. The corner planting should not grow higher than two-thirds of the height of the eaves, although this is not a hard and fast rule and creativity can be the overriding consideration. However, the corner planting should involve a sequence of lower-to-higher or higher-to-lower plants.

4) Foundation plants

Foundation plants, like corner plantings, help anchor the house to the ground. The foundation planting should also direct the eye of the viewer to the entrance. Generally, taller plants are placed on, or beyond, the corners with height of plants descending toward the entrance. Do not think you have to put plants all the way across the foundation. The main idea is to anchor and direct, not camouflage.

5) Entrance plantings

Plants used to identify an entryway like the driveway, a garden gate, or an entry to the house are called **entrance plantings**. Groupings of plants should be used in such a way to clearly invite the viewer to the designated place of entry.

6) Border plants

Groupings of plants used to divide and define spaces in the yard are called **borders**. Borders, especially in the corners of the property, often should be taller near the center and taper to the ends. Leave spaces between borders to avoid monotony and create windows to enhance views. However, borders don't have to be tall. For example, a low border can be used to separate a driveway from the lawn. It can serve to direct foot traffic.

7) Screens

Screens are groupings of plants used to hide or cover unwanted views or objects. The screen needs to be at least 6 feet high to be effective. Landscape plants should be arranged in defined, mulched beds. Planting beds should have either straight or gradually curving lines to make maintenance easier and to make them useful to easily direct the eye. When planning your landscape design and choosing plants for it, always keep in mind an idea of what you want to create. This guiding idea is the same as an approach, concept, or theme. It should fit with your home and its surroundings. A landscape design without a guiding theme can be neither effective nor attractive. Keep your landscape simple. Use a small number of plants with different characteristics; and repeat these. Use even fewer unusual plants. Use simple lines for edges of borders, walks, and drives. And, use simple arrangements for groupings of plants. Simplicity is the key to both lower maintenance and effective landscapes. Simplicity, combined with your creativity, is the key to a landscape which your family can use and enjoy.

Functional uses of plants that can be used in the landscape designs

Besides adding variety and beauty, plants can achieve the following functions through appropriate design application:

- Streetscape
- Foundation
- Barrier
- Screen
- Surface erosion control
- Parking area
- Wind control
- Noise abatement
- Glare control
- Surface Erosion Control

Streetscape

Trees planted along a street can reduce glare, define transportation network hierarchies, and soften the man-made environment while dramatically increasing overall aesthetic quality.

An ideal street tree possesses the following characteristics:

- 30 to 45 feet in height
- Forms a canopy
- Relatively free of debris
- Highly tolerant to pollution, diseases, and pests
- Deeply rooted and drought tolerant

Barrier

Barriers control or divert vehicular and pedestrian movement. Massing of plant material can be effective in controlling access to certain areas.

Screen

Plant material can be used to screen undesirable features such as mechanical equipment, substations, pump stations, transformers, dumpsters, service areas, docks, and electrical switch gear. Densely foliated evergreen shrubs are most effective as screens.

Circulation

Circulation is the pattern and flow of pedestrian, bicycle, and vehicle traffic. Streets and sidewalks are parts of landscape design as they connect the functional areas or facilities on the installation.

Parking Area

Plants used in parking areas need to be hardy varieties that can thrive in confined growing areas and are able to withstand drought, reflected heat, and are pollution tolerant. They should be relatively clean and free of potential nuisances such as fruit, berries, sap, or pitch.

Wind Control

Plants can modify wind speed on the ground for distances up to thirty times their height.

Noise abatement

Trees, shrubs, groundcovers, and turf buffer noise. Plants break up sound waves, changing their direction and reducing their intensity when sufficiently massed.

Glare and Surface Erosion Control

Trees, shrubs, and other vegetation can effectively reduce glare and reflection when placed between the light source and the observer. Wind and water can erode valuable top soil. Ideal plants for erosion control are fast-growing, self-rooting native groundcovers with exceptionally shallow and fibrous root systems.

Chapter Three

Selection and Placement of Trees in Landscaping

Landscape trees

Landscape trees will make any garden look special. Their shape, size, texture form, sense of scale may create special features and make them very noticeable in landscape. Trees can have considerable effects on the microclimate of areas of heavy human population. They absorb heat as they transpire, provide shade that reduces solar radiation. Trees can have a significant beneficial effect on the cost of air-conditioning of buildings. They break up urban “heat islands” by providing shade.

Mature trees provide shade and scale to the built environment. Evergreen trees can be used to frame building or other structural elements and to provide relief from large facades. Deciduous trees can be used to veil building elevations and can be interspersed with Evergreen trees for solar control.

Shrubs, ground cover and mulch provide an opportunity to introduce color, fragrance, and texture to the landscape palette. These materials are easily seen as people visit the particular building or site. It is important to keep trees and other plants alive and healthy to ensure an appealing appearance for the building and/or site.

Uses of Landscape trees

Ornamental trees provide a basic contact with nature and heighten pleasure in human surroundings. Their value is difficult to quantify in economic terms but some of the aesthetic benefits they can provide are:

1. Provide beauty to the environment, a variety of colour, form, texture and pattern;
2. Softening of harsh architectural lines;
3. Formation of vistas, frame views, provision of focal points and definition of spaces;
4. Absorb dust, noise, smoke, cut down pollution and air purification
5. Trees can make enticing play areas, wind breakers, provide shade and Shelters;
6. Cooling effect, pleasant fragrances, intriguing sounds and serene settings;
7. Give privacy & cover unwanted places/structures
8. They can create the impression of a well-established place in new residential areas and reduce the raw “unfinished” look.

Disadvantage of trees in landscape

- i. Over shading
- ii. Defoliation Eg. Cottamba
- iii. Roots may crack walls
- iv. Take long time period to mature
- v. Safety problems
- vi. Less flexible, i.e. difficult to cut/remove etc.,

There are 3 main categories of trees. Here are some of their attributes and also specific ways to use them in the landscape.

- **Ornamental Trees**
- **Evergreen Trees**
- **Shade Trees**

Ornamental trees in the Landscape

Landscape and ornamental trees are an important part of human life. They provide shade and beauty around homes, schools, markets and shopping areas, places of work, along streets and highways, in city parks and other areas. They also help conserve energy and the quality of air, water and soil.

Virtually all species of trees are important landscape and ornamental plants and fulfill one or more functions in landscape design. As good as all countries have some level of nursery industry that offers for sale planting stock for landscape and ornamental purposes. Small-scale nursery operations are often an excellent opportunity for small business or family-run enterprises.

This type of tree has a special place in the landscape. It is of smaller stature than shade trees. Therefore it can be located in a place that shade trees normally cannot, due to their size. Ornamental trees also usually give flowers and can add showy displays of color.

In addition, these trees are usually smaller than shade trees. There are so many wonderful uses for ornamental trees.

- These landscape trees can be used at house corners or near the front door. It's very welcoming to approach the front door and walk near a beautiful tree.
- Ornamental trees can be used as **driveway entry trees** or as an avenue along the driveway. They form a "frame" to go through.
- When creating plantings for privacy, they can be used in front of evergreen trees as a focal point. Multi stemmed ornamental trees can

be used for privacy themselves. These trees have numerous stems or trunks emerging from the ground, rather than a single trunk.

- Ornamental trees are lovely near a patio or **close to a water feature**.

Evergreen Trees in the Landscape

Evergreen trees are not only stately and beautiful, but also can be used for specific purposes in landscape design. As their name implies, they are evergreen, meaning they will keep their leaves throughout the year.

Evergreen trees have wonderful features and uses in the landscape. Here are a few:

- They stay green all year, as their name implies.
- They can be used as screening along a property border to block a view or create privacy. When using them for screening, a staggered line is much more interesting than a straight one.
- They form one of the best backgrounds for other plants, causing flowers, textures, berries and leaves of ornamental trees and shrubs to stand out.
- An evergreen tree can be used at the corner of a house for framing and strength.
- Evergreen trees can also be placed in the landscape as a focal point.

Shade trees in the Landscape

Choosing a shade tree for the home landscape requires planning and forethought. A tree should fit your needs now and in the future when the tree matures. Size is important, since a very large mature tree may shade the whole yard and dwarf a house on a small lot. There are many smaller trees available that would suit the location better. A tree of mature height and spread should never interfere with overhead power lines. The tree should also be adapted to the soil type in the area where it is planted. A tree dominates a landscape so it should be attractive in all seasons. The branch structure, shape, foliage, texture and colour of the tree all provide

different effects at different times during the year. Flowering and fruiting habits provide interesting effects in the garden also. Other important aspects in choosing a tree are hardiness and disease and pest resistance.

One of the major purposes of broad-leaved ornamental trees is to provide shade. Many tropical broad-leaved trees characteristically have spreading crowns, dense foliage and provide excellent shade. Planting of trees along roadsides in towns and cities provides not only welcome shade on warm summer days, but they also soften the sharp edges of homes, office buildings, factories and other structures.

Specimen and character trees

The purpose of a specimen or character tree is to have a shape or form that will be attractive to look at throughout the year. They can be used in a variety of different situations such as marking the edge of a vista or characterize a particular space. The size of a specimen tree must be in relative proportion to its surroundings. If the space available is tall and narrow, a tree with a pyramidal or spire-like crown is most suitable.

Shelters, screens and buffers

Shelter plantings are usually designed to protect adjoining areas from effects of wind, rain or glare. The subjects they protect can range from other plants, to homes or greenhouses. Trees are also important for screening unsightly areas such as industrial areas. The tall, columnar form of the *Polyalthia Longifoia* makes it an excellent choice for this purpose. The broad, spreading form of *Colvillea racemosa* also makes it a good screen tree.

Wall trees

Trees with restricted root systems can be used for close planting to walls and homes without fear that the roots will damage foundations.

Desirable characteristics of landscape trees

Desirable characteristics of the trees selected for this purpose include genetic variability, foliage colour and density, overall form, growth rate (both fast and slow growing plants may be desired) and ability to grow and survive under a wide range of climatic and soil conditions.

Genetic variability

Genetic variability within species is a desirable trait to have in trees and plants used as ornamentals. Many trees have one or more distinct varieties. Varieties are considered to be one step below the species level in the taxonomic hierarchy. Varieties appear in nature, are genetically stable and reproduce from seed. Cultivars are mutations or distinct forms of plants, initially found in nature, and propagated asexually by cutting or grafting with the objective of maintaining those characteristics for a saleable plant.

Growth

Rapid growth is a desired characteristic of trees established in new developments so that the harshness of new construction is minimized in as short a time as possible. In other situations, trees with relatively slow rates of growth may be required. Examples include small gardens or patios where a fast-growing tree would quickly outgrow available space.

Colourful flowers and fruits

Flowering trees are especially popular and some species produce abundant flowers before leafing out. Some outstanding examples are *Tabebuia rosea*, *Tabebuia chrysantha*, *Cassia fistula* and *Delonix regia*

Ability to tolerate harsh conditions

Landscape and ornamental trees are often established under harsh environmental conditions. These include cities where there are high levels of air pollution, exposure to high levels of reflected heat, and limited open soil surface for air and water. Some trees that are able to tolerate these

conditions include *Peltophorum pterocarpum*, *Spathodea Campanulata* and *Colvillea racemosa*. Ability to withstand salt spray is a factor that must be considered when landscaping near the seashore.

Selecting Trees

Trees are the largest and most permanent plant material used in the landscape. Some shade trees may grow 100 feet tall and some may live for hundreds of years. Because of their size, fewer trees are used in the landscape than shrubs or ground cover plants. Trees give vertical appearance the design. Proper selection of trees for the landscape involves the line, form, texture and colour. Proper selection is also important in terms of the future health and vigour of the tree. Selecting trees tolerant of the growing environment results in an attractive landscape many years after the trees have been installed.

Factors to be considered when selecting trees for landscaping

What is the ideal tree to plant for this area? It all depends on what you want in a tree. The "ideal" tree is in the "eye of the beholder."

Trees are selected for different purposes. It is important to consider the purpose a tree will fill in your landscape. A tree may meet a variety of aesthetic objectives. It may be selected for its flowering, fruiting, fall color, bark character, foliage texture or crown shape. A tree can also serve functional purposes such as screening noise abatement, traffic control, wind modification, or heat control. A shade tree is obviously selected for the shade it will provide.

Function

When selecting a tree, consider the function it is intended to serve. Some trees lend themselves well to specific uses. Large trees with spreading canopies make good shade trees. Shade trees are preferred for use in residential lawns, parks and alone streets. Trees that are smaller and have high ornamental value are often called ornamental trees.

During the design process, allow for the mature size of the tree. Avoid placing a large trees too close to the house/building. The view of the house may be blocked as the tree grows or structural damage may be caused. Also, avoid planting large trees below power and telephone wires. Deeside if the trees are to stand alone or if they are to form a group. If grouping is desired, lace the trees closer to one another. Grouping of visually active, upright evergreens soften the visual effect of an individual tree.

Select for adaptability

Selection of a tree must involve the tree's adaptability to the location you want to plant it. It must be able to grow under the environmental conditions of wind, exposure, and soil that your selected planting site provides. You must consider the tree's ability to tolerate the extremes of temperatures in the winter and summer that it will experience in our area.

Select for ease of maintenance

In selecting your tree you may want to consider the amount of maintenance involved with a certain tree. Leaves, fruit, nuts or seed pods are sometimes a hindrance. Certain trees will require regular pruning to keep them attractive. Avoid trees that have severe pest problems that require regular pesticide applications to manage. Avoid trees with pest problems for which there is no control. There is usually no control for borers!

Messiness

Avoid using trees that are known to be messy. Messiness may be in the form of fruits, leaves fall, peeling bark and easily broken twigs that litter the landscape. Messy trees increase the labour needed to maintain the appearance of the landscape.

Life expectancy and growth rate

Another consideration is the life expectancy of trees. Some trees can be expected to live hundreds of years. Some trees may show signs of death after only 15 to 20 years in the landscape. Short lived trees tend to be fast growing. While fast growth is desirable to some one in a new landscape, it

does have drawbacks. Fast growing trees have weaker wood and are more likely to suffer wind damage.

Hardiness /Pest resistance

Select trees that are hardy. Hardiness refers to the ability of a tree to withstand the environment. Hardiness of trees more important than just survival. A wide variety of pests and diseases affect shade and ornamental trees, many of which can cause significant damage. Because shade and ornamental trees are commonly planted under conditions vastly different from those in their natural ranges, they are often more prone to stress and subsequent invasion by pests and diseases. Choose trees resistant to disease and insect problems. If a tree has beautiful characteristics, but is susceptible to insect infestations and diseases, its value is reduced. Some trees are vulnerable to certain problems, while other are not. The smart designer selects trees known to be relatively disease free.

Physiological factors

Trees may suffer physiological diseases. A common problem involves the pH of the soil. It is much wiser to select trees that tolerate the soil pH found on the site than to change the pH of the soil to accommodate the tree.

Select trees that tolerate the moisture level in the soil. Most trees prefer loose, well- drained soils.

Other considerations

There are other considerations when selecting trees. Avoid using trees with thorns that could present safety hazards in certain settings. A basic consideration for plants selecting for industrial or urban areas is the tree's tolerance to pollution and salt.

Selecting Landscape trees; the right tree for the right place

Different trees have specific characteristics that make them useful in the landscape, but they also have different growth requirements that should be considered. This creates a complex series of factors for you to consider to select the right tree for the right place.

Determine the function of the tree (*e.g.*, shade canopy, windbreak) and check with your source or references that the tree meets that function. However, it is more critical to the health of the tree to be sure the mature size and form of that tree match the planting location. A common error made by home owners is picking young trees that will become large and planting them too close to buildings or under utility lines that eventually compete with the height and spread of the canopy of the tree. Compare the two figures below for their planting considerations. Your consideration of the amount of soil area for root growth is also required for successful growth to maturity. Most homeowners do not realize the amount of space needed for mature trees. Figure 2-4 below demonstrates a typical root zone for a mature tree. A limited root zone will have a negative influence on the establishment and survival of landscape trees. In any case of limited space to grow, the tree will lose, needing excess pruning or eventual removal from the site. You must also consider the type of soil and especially the water drainage conditions of the site. Collect a soil sample from the planting root zone and have it tested for pH and fertility. You can check soil drainage by digging a hole about a foot deep, filling it with water and waiting overnight, and then refilling it and timing how long it takes to drain. Ten to twenty-four hours is a satisfactory drainage period. Less time to drain may indicate a concern for relatively dry root conditions; more time may indicate that trees tolerant of wet conditions should be selected. Many homeowners do not bother with these simple tests, but if tree survival is the goal, they should be completed. Although roots require moisture for growth, adequate air exchange in the root zone is even more critical. Make a good selection for a healthy tree, install the tree with proper planting procedures, and follow establishment techniques to reduce the stress factors that will weaken the tree.

Chapter Four

Selection and Placement of Ornamental Plants in Landscaping

Herbaceous ornamental plants

Colours of the ornamental plants contrasted with green trees, shrubs and lawn in the landscape. Can you imagine a world without flowers? Their textures, colors, scents, and forms inspire gardeners, artists, and writers. The desire to grow flowers often motivates novices to take up gardening and moves experienced gardeners to become specialists. Annuals, biennials, and herbaceous perennials offer variety and interest to gardens of all styles. Today, designers normally place the flower beds in the backyard where they can be enjoyed by family and friends. Planting flowers in the private area also adds many colourful features to the landscape.

Masses of colorful annuals filled park and home display beds. Herbaceous perennials, laid out in long borders, demanded intense management without providing year-round interest. Plants in contemporary gardens are selected not only for their flowers, but also for characteristics such as leaf form, foliage texture, and color.

Flowers remain important, but the gardening world is taking advantage of new possibilities offered by an enormous range of ornamental herbaceous plants.

Types of herbaceous Ornamental plants

Herbaceous plants do not form permanent woody branch structures as shrubs and trees. These include annuals, biennials, perennials, and bulbs.

Annuals

Annuals live shortly. They germinate, grow, bloom, and go to seed in 1 year. Because they die at the end of this cycle, they must be replanted the following season.

Many annuals come up on their own from the previous year's seeds. Colorful, long-blooming, and easy to grow, annuals offer much to gardens. Annuals are particularly useful for colorful window boxes, container plantings, hanging baskets, and school or youth gardens.

Biennials

Very few garden plants are true biennials. "Bi-" means "two," so, a biennial generally completes its life cycle in two years. True biennials are vegetative in their first year of growth (meaning they don't flower). That's when they store lots of energy in their root systems. In the second year, they use up all this energy to flower and set seed. They require 2 full years to complete their growth cycle and die after the second year.

Perennials

Unlike annuals and biennials, perennial flowering plants live year after year. Perennials may be placed in subgroups of herbaceous or woody types. Trees and shrubs are woody perennials. Mature garden, park, and arboretum landscapes often are composed mostly of woody perennial plants.

Tender perennials differ from annuals because they do not complete their life cycle in 1 year. They have perennial characteristics such as energy storage in roots and the capacity to revive for successive seasons in appropriate growing conditions.

Bulbs, corms, rhizomes, tubers, and tuberous roots

Many garden plants are classified botanically as bulbs, corms, rhizomes, tubers, or tuberous roots. All of these have underground organs that store food for the plant.

Bulbs are composed of a thin, flattened stem surrounded by fleshy, dried leaf bases called scales. Roots grow from a basal plate. Onions, garlic, tulips, and lilies are examples of plants that form bulbs.

Tubers are swollen, modified, underground stems. They don't have basal plates where roots originate.

Tuberous roots are composed of root tissue. Dahlias and tuberous begonias are examples of plants with tuberous roots.

Rhizomes are specialized stems that grow horizontally at or just below the soil surface.

Herbaceous Groundcovers

Ground covers are low-growing plants that spread over an area. They often are used to solve a problem with erosion or maintenance of steep slopes. Where shade is too dense for growing turfgrass, ground covers are suggested.

Ground covers are recommended around trees when the trees' roots are at the surface and cause mowing problems. Ground covers should not only be thought of as a solution for problem areas but also as a way to visually unify divergent components of a landscape or to soften the edges of walks, steps, and drives

As a foreground, a ground cover can be the unifying factor in a collection of plants. They may function as a traffic barrier or visual guide to the entry.

A ground cover defines space. It gives a crisp, permanent definition to the form of a garden. A low ground cover provides a transition between the lawn and taller plants. The aesthetic qualities of ground covers include attractive foliage, colorful flowers, and bright fruits, adding color and texture to the landscape. Careful selection of a ground cover will add to the year-round beauty of your landscape.

Flowering plants

Annual and perennial flowers provide an accent of colour to the landscape. The bright flower and foliage colours are visually appealing. Annual flowers are used primarily to brighten the landscape with abundant amounts of color. They are unsurpassed for adding interest to beds or borders or in pots or containers on the patio or deck. They may also be used for cut flowers, rock gardens, window boxes, hanging baskets, screens, temporary fillers and groundcovers.

Everyone enjoys the addition of a bright flowering plant to their home or office. Flowers of all colors are available for interior use and a few can be kept year after year for a continuous or once-a-year show of color. As with all houseplants, appropriate selection and the correct plant care will determine your satisfaction with the potted plant you purchase.

Flowering plants are available from plant retailers--florists, greenhouses, garden centers, supermarkets, department stores, etc. Potted flowering plants should remain bright and colorful for two to four weeks in the home. Some may last up to three months when given the correct home care.

Flowers are the attractive portion of plants we use for indoor or outdoor decoration. For plants, however, flowers assure pollination and reproduction. Plants utilize much of their energy to form flowers; their effort determines the continuation of their kind. Flowering is a crucial time in the life of a plant. Plants in full flower are at the end of their practical life. Thus, flowering plants are more sensitive to cultural mistakes--over watering, insufficient water, high temperatures, inadequate light, etc. than foliage plants..

Flowering plants usually require more light than foliage plants. To generate enough extra energy to produce flowers, flowering plants should receive bright reflected light all day or full sun for two to five hours each day. If any of the following plants fail to flower, the problem is usually caused by insufficient light.

Flowering Annuals

A true annual completes its life cycle (bears seed) in one season. Annual flowers are used primarily to brighten the landscape with abundant amounts of colour. Flowering annuals are easy to grow and provide colour to landscapes a short time after they are planted. They are adding interest to beds or borders or in pots or containers on the patio or deck. They may also be used for cut flowers, rock gardens, window boxes, hanging baskets, screens, temporary fillers and groundcovers.

Flowers in front of shrubs in planting beds create a flower border with the shrubs. Tall-growing flower varieties should be planted at the back of the flower bed and short varieties at the front edge. Flower bed design should be kept simple. Try to plant groups of the same flowers together.

Flowering annuals are generally used to:

- Annuals typically are used in flowerbeds or borders to add interest and colour to the landscape.
- Massed displays, borders, clumps in the garden, containers, hanging baskets
- In beds, annuals add colours at or near the front of the border, which may contain perennials, ornamental grasses or even woody ornamentals.
- Fill spaces between shrub plantings or other perennials and give colour when these plants are not blooming.
- Additionally, annuals fill bare spaces and add colour to dull areas.
- Supply cut flowers

Using herbaceous ornamentals in garden designs

Garden design, based on harmonious color patterns, bloom throughout the year give year-round texture, depends entirely on each gardener's taste.

Selecting flowering annuals

Great improvements have been made in the quality and vigor of annual flowering plants. Select annual and perennial plants for the best possible growth qualities. The popularity of flower gardening encourages plant hybridizers and growers to offer improved plants with more vigor, larger flowers, longer bloom periods, and more attractive leaves. When deciding which annuals to grow first consider the purpose of the plant and where it is to be planted. Be sure to consider height, keeping shorter plants in front of beds.

Select plants with colours that will blend in well with one another. Hanging baskets of annual flowers are very popular. These add new dimension to the display of plants and their use in the landscape. Baskets are often used to create an attractive floral display or focal point on the patio or at the main entrance.

Growing flowering annuals

Flowers grow best in well-prepared beds. The planting bed should be free of weeds. Organic matter should be added to improve soil texture and increase water holding capacity. Some flowers require full sun, while others need a shady planting location . Plant right plant in the right place. Therefore planter should know the different kinds of flowers and their individual growth requirements.

Soil preparation

If you follow some sensible basic steps when installing a new garden, you'll have good results. For perennial gardens, soil preparation is a key to strong future growth. Later applications of fertilizer can't compensate for poorly prepared soil. First get rid of weeds.. Then dig thoroughly, loosening the soil to at least 12 inches. (Double-digging often is recommended for

herbaceous perennial gardens. This process involves digging 20 to 24 inches deep, loosening the soil. This practice increases air and nutrients available to roots.

Spread 3 to 4 inches of organic material across the soil surface and dig it in well. This addition will help increase the soil's water-holding capacity and improve root penetration and aeration. Commercial compost, homemade compost, chopped or composted leaves, composted sawdust, fine bark, and composted manure make good amendments. Soil testing is helpful when starting a garden on an unfamiliar site or when expanding an existing garden. Many herbaceous perennials grow well in slightly acid soil, but some need supplemental lime if the soil pH is below 6.

Propagation

Annuals and biennials

These flowers generally are started from seed or purchased as small plants. Many annual seeds can be sown directly in the garden. For annuals that are hard to transplant therefore direct seeding is necessary. Many other annuals and biennials do best if started in a propagation bed or tray and then transplanted as small plants.

Division

As herbaceous perennials develop established root systems, they spread into large clumps. Thus, many can be propagated by division.

Select vigorous shoots from the outer part of a clump. Divide the plant into several sections of three to five shoots each. Make large divisions, because small pieces will not bloom much the first year after planting. Before replanting, add compost or other organic materials to the soil.

Cuttings

Many plants can be propagated from either tip or root cuttings. Generally, tip cuttings are easier to grow than root cuttings.

Maintenance of Flower Gardens

Regular, planned maintenance keeps plants healthy and a garden looking attractive.

Fertilizing

Annuals need regular fertilizing. Well-prepared soil and organic mulch help make nutrients available to plants, but annuals grow so rapidly that supplemental fertilizer helps.

Weeding

Keep annuals and perennials free of weeds. A combination of hand weeding and mulch is effective. Weed regularly to prevent seeds from becoming established.

Watering

Most annuals need regular water because they don't make deep root systems. To use water efficiently, group plants according to water needs. Till the soil deeply and amend it with compost or other organic material. When you water, use efficient methods such as soaker hoses or drip irrigation systems, and apply water slowly and deeply.

Mulching

Organic mulch is useful in perennial and annual flower beds. Use compost, (commercial or homemade), composted sawdust, chopped or composted leaves, or other materials for mulching. Two applications each year are helpful. Apply 2 to 3 inches after weeding and fertilizing to retain soil moisture, suppress annual weed seeds, and improve the bed's appearance.

Staking

Many tall herbaceous flowering plants must be tied to stakes or provided with another support system, especially in windy and exposed areas. Wind, rain, or the weight of foliage and blossoms will bend or break these plants' stems and ruin the display. Broken stems also can lead to disease problems.

Deadheading and disbudding

Regular maintenance for annuals includes removing flowers before they go to seed. This process is called deadheading. By preventing seed formation, you can extend the bloom period. Deadheading herbaceous perennials may not prolong the bloom period, but it does improve a garden's appearance.

Pest management

All flower gardens eventually have some pests or diseases. Strong plants resist disease and insect problems better than weak ones do. The following practices reduce disease infestations and cut down on hiding places for insects and other pests such as slugs:

- Space plants properly to allow good air circulation.
- Clean up litter and dead leaves.
- Control weeds.

Whenever possible, choose disease-resistant cultivars. Some insects damage a wide variety of plants. For example, aphids suck juices from many flowering plants. Learn the life cycles of garden pests and use broad-spectrum insecticides as little as possible to protect beneficial predators. Aphids, for example, have many natural enemies, including lady beetles, wasps, and birds.

Slugs and snails attack tender shoots of bulbs, lilies, and young transplants. Hand picking and selective use of baits can help you manage slugs. Consult relevant publications and experts for specific controls. Make sure you have properly identified the problem before applying any control.

Specialized herbaceous flower gardens

Container plantings

Almost all gardeners have some form of container plantings, often in addition to other types of gardens. Containers allow even those with limited space such as a rooftop, balcony, or front stoop to have vigorous gardens. The potting material contributes vitally to the success of container plants. Plant roots must get sufficient air. If the soil is too dense, it packs down, thus contributing to root rot or other difficulties. Choose a container suited to the plant's eventual size, and be sure it has sufficient drainage holes in

the bottom. Soak new clay pots before planting. Fill the clean pot full of potting soil. Renew the potting mixes year after year, unless the plants in them were seriously diseased.

Plants in containers need regular fertilizer. Many potting mixes contain few, if any, plant nutrients, and watering leaches what nutrients there are. Be consistent; fertilize about every 3 weeks. Liquid fertilizers are simpler to use with containers than are granular types.

Avoid using too much nitrogen on plants being grown for bloom. If overused, they can reduce blooming.

Water regularly. Hanging baskets may need water daily during summer. Be sure the pot drains well, and remove any attached saucers or decorative wrappers that might trap water against the plant's roots. Over-watering can rot plants, so water only when needed and in moderation.

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Chapter Five

Selection and Placement of Hedge Plants in Landscaping

Introduction

Shrub hedges make very effective dividers that can separate areas of the landscape. They can separate a vegetable garden or fenced in dog area from the rest of the landscape.

Shrub hedges can be grown at various heights, from very low to quite high (over 10 feet). Although used as a barrier, hedges can also provide security if thickly grown and prickly or thorny. A hedge is a more or less uniform row of plants planted closely together. Hedges can be grown naturally or trimmed to formal shapes.

A hedge can screen an unsightly view or act as a visual barrier and sound buffer. Whatever type of hedge you plant – and for whatever reason – even the most functional and utilitarian of them brings its own unique quality to both the sight and sound of the garden. While they may take a little bit of effort in the early days – and make ongoing demands for clipping, pruning and shaping – once established, they amply repay all the work involved and certainly add something quite special to any plot of land.

Shrubs

Shrubs have multiple functions in the landscape. They can be used as specimen plants, group plantings, hedges, screens, foundation plants or shrub borders. Select shrubs based on their intended use. Also consider their flowers, foliage, branching habits and suitability to the growing conditions.

Different uses of shrubs in Landscaping

Specimen plants

A specimen plant displays outstanding form, texture and colour. Because of its qualities, it can stand alone.

Group planting

Group planting consist of several different species of shrubs. The importance of each individual plant is lower within group plantings than it is with a specimen plant. The individuals of each species are located so they will overlap slightly with each other to form a mass or there may be some space left between the plants.

Hedges

Hedges consist of all one type of shrub. They define space, they tie other landscape elements together. And they may screen views. Some hedges are tall while other may be only one foot in height. Hedges can be clipped for a formal appertence or they can be unclipped for an informal, natural look.

Screens

A screen is a solid mass of one type of shrub. It serves as a living wall that effectively blocks views. The ideal shrubs for use as screens are tall, narrow, upright plants.

Foundation plants

Foundation plants are shrubs placed around the foundation of the house. They help the house to the landscape by softening the corners and they block the view of the foundation. It is best to use shrubs that do not get very large.

Shrub borders

A mass of many shrubs on the border of the property is called a shrub border. Shrub borders help to create the outdoor living room, screen views and serve as a backdrop for annual and perennial flowers. Unlike the group

planting, draw all the shrubs in the shrub border to touch or overlap one another to form a single mass.

Boundaries

The look of the garden can be influenced strongly by the boundary impinges. Planting can be used to modify the boundary line or a line between an area of rough grass and smooth, depending on the size of the plot. Introducing internal boundaries, perhaps in the form of hedges or group of shrubs, can help break up a garden.

Hedges vary their colors throughout the seasons dramatically. Hedges, being strong features in a garden, are often used to divide sections of the garden. However, since they use the moisture and nutrient from the garden soil to grow as well as other plants, they may not be a good choice and may bring a negative effect to the other plants.

Besides the boundaries that are made up of plants like the hedges, walls made up of various materials can be built between regions. There are broadly three types of walling material: stone, either random or coursed, brick, and concrete in its various forms. It is good to determine what color, size, and texture will be most appropriate for the garden before actually building the wall.

According to Brookes, fencing can offer an alternative solution, is the walls are too solid for the region of the garden. There are several numbers of fence types that can be used for a garden: animal-proof fence for country situations, peep-proof fences for the suburbs, and urban fences that provide shelter from the winds in exposed roof-top gardens and create internal barriers.

Hedge Shrubs

Hedges are walls made up of plants. Some of them mostly serve a decorative function, but others are used for a practical purpose like affording some security to a property. If a hedge is to be used for security purposes, it is ideal to select plants that have thorns or prickly leaves. However, there are

other practical uses for hedges aside from enhancing a property's security. Hedge plants can also serve as privacy screens or windbreaks. In the case of windbreaks, small trees are the plants most commonly employed. Hedge plants, whether they are used as privacy screens or windbreaks, are usually allowed to grow naturally rather than trimmed to a particular size and shape.

There are numerous varieties of landscape shrubs. They can range from smaller varieties on up to the larger tree-like forms. Some retain their color and leaves (evergreens) year-round, while others only have a short bloom time. Shrubs have many uses which include foundation plantings, privacy hedges, and specimen plants. They can be used to define the outline of plant beds, or to create seasonal interest. However, before placing any shrubs into your landscape, you should first take into account the height and width of each matured plant. You want to allow enough space for your shrub to grow. Choose varieties that will not block windows or walkways. Plants which have foliage from the ground up are good for screen duty. Shrubs can keep passersby off your lawn and landscaping. A low shrubs along a walkway can prohibit pedestrians from walking on the grass. For an impassable fence, the use of thorned plants is generally successful. Planting shade tolerant shrubs adjacent to the trees will help the appearance, as well as protecting the tree trunk from injury.

Importance of hedges

Provide Shelter, Privacy, Physical and Psychological Barriers

Landscape garden hedges can be formal or informal. They provide shelter, privacy and barriers. Shelter from prevailing weather patterns, privacy from invasive noise or views, and psychological as well as physical barriers.

Psychological barrier hedges: usually one to three feet high. They outline areas or serve as visual traffic stoppers. In reality, humans and animals can easily step over or through them. At the lower end of this height range, psychological hedges are in reality ground covers.

Physical barrier hedges: range from three to over five feet high. These hedges actually stop through-traffic. At the upper end of the height range, these close-knit hedges also provide visual barriers.

- Cover unwanted views
- Use for partitioning
- Can show border of the land/demarcation
- Beautify the place
- Privacy, barrier and protected from animals
- Pollution control/wind breakers
- Focalization and illusion
- Soil erosion control/improve biodiversity

Types of Hedges

Landscape hedges are simply trees, bushes or shrubs that have been planted in a row. They are planted close enough to allow them to spread and grow together. There are generally two ways to grow hedges: formal and informal. Formal hedges are pruned and trimmed into a geometric shape, generally a rectangular wedge. Formal hedges must be wider at the bottom, to allow sunlight to reach to lower foliage. Informal hedges are not pruned to shape. They are allowed to grow into whichever shape is natural. These types of landscape hedges, while not requiring as much care, will only work in naturalistic designs. Informal landscape hedges will not look attractive in a garden that is highly manicured. Landscape hedges are fun and easy to grow, and provide an attractive, natural looking border. Many people use landscape hedges instead of fences, because fences, especially chain link fences, can look very unappealing to the eye.

Four types of hedges

- I. Formal hedge
- II. Informal hedge
- III. Internal hedge
- IV. Hedge as screens

Formal hedge

- Use in front areas
- Thick hedges for screening purposes
- Cut into different shapes (use templates)

Informal hedge

- Mostly for ornamental purposes
- Can use mixed borders (flowering plants, different colour shrubs etc.,)

Internal hedge

Internal hedge for demarcate the place

Hedge as screens

Bamboo is one of the most attractive plants to use for a hedge or screen. Since it is one of the fastest growing plants in the world, bamboo is a quick and inexpensive option for creating a privacy screen. The spreading or running forms of bamboo can be planted at fairly wide spacing to fill in within a couple of years. Bamboo can be purchased and planted that is already 10, 20 or even over 30 feet tall for an instant screen. Of course bamboo that is already 30 to 50 feet tall will be expensive, but the cost to install a 50 ft tall screen with any other plant would be astronomical. There are many varieties of bamboo to choose from. Almost any bamboo that grows to the height that you wish can be used, although it is important to make sure that you have the correct growing conditions, i.e. sunlight exposure, cold hardiness, and heat and humidity tolerance. Most bamboos take a number of years (5-10) to reach maximum listed height, and some may never reach that height unless your growing conditions are ideal. Some are more upright than others, so be sure to read the description of the bamboo you plan to use. The following selections are plants we have found to be most useful for creating dense hedges and screens.

Choosing Plants for Hedges

Much of the decision depends on the hedge's intended function – whether, for instance, you are looking to create a strong barrier on your boundary, provide screening and privacy, cut out noise or give some shelter to the more tender plants you are growing. Plants which have foliage from the ground up are good for screen duty. Shrubs can keep passersby off your lawn and landscaping. A low shrubs along a walkway can prohibit pedestrians from walking on the grass. For an impassable fence, the use of thorny plants is generally successful. Planting shade tolerant shrubs adjacent to the trees will help the appearance, as well as protecting the tree trunk from injury.

Qualities that expect from hedge plants

- Dense bush growth (full of leaves & compact)
- Slow growth expected, i.e. easy maintenance
- Quick recovering/cropping ability
- Withstand to drought (well spread root system)
- Resistant to pest & diseases
- Not palatable to animals

Other points to consider when selecting your hedging plants include their eventual height, spread and speed of growth, how hardy they are and whether or not they will suit your type of soil.

Planting and Maintenance of Hedges

Field establishment

Landscape hedges are simply trees, bushes or shrubs that have been planted in a row. They are planted close enough to allow them to spread and grow together.

Soil preparation

It is important to give your hedge a good start by preparing the area properly. Remove all weeds, and dig in cow manure generously. After you have prepared the soil, water well, and leave for a week or so before planting.

Planting

Spacing of the plants is necessarily close so as to form a dense mass of foliage and stems to ground level. A hedge with the plants too far apart may take years to grow together - so spacing is most important. Most plants used for hedges should be spaced $\frac{1}{5}$ to $\frac{1}{4}$ of the average spread of a free standing specimen apart - e.g. a plant width of 2.5m - 3.0m will require a spacing of 6m . After planting, ensure the hedge is thoroughly watered. It is recommended that the soil be suitably mulched. Mulch will help control weed growth and conserve moisture in the soil during the drier months.

Clipping

Clipping should commence during the first year. Shears must only be used lightly until the hedge has developed a bushy side growth. The general aim should be to make a short bushy hedge first then allow the height and width to increase as required. This method usually takes a little longer, but the dense well-leafed result will be worth the effort.

Watering and fertilizing

Because hedge plants are planted close together, special attention should be paid to regular watering and feeding.

Pests and diseases

Because hedge plants are very close together, it is important that any sign of an insect or fungal problem be treated quickly, as it can rapidly spread through the hedge.

Maintenance

Pruning for a Hedge

Pruning a hedge on two sides will allow lots of new growth for dense privacy. The aim in pruning evergreens is in cutting them back to shoots that face outward. The two pruning methods for hedge maintenance demand slightly different tools and skills. They are:

- **Shearing:** predominantly for formal hedges. Young shoot tips are headed back (cut off) resulting in re-growth of tips and dense bushy plants. This technique is best for small-leaf evergreen shrubs. Shearing plants that produce conspicuous flowers, instead of trimming and thinning them, leads to loss of next season's flower buds.
- **Thinning:** removing plant portions and entire branches at their points of origin. Thinning can reduce a shrub's height and spread, and its density. However, the shrub keeps its natural shape.

Creating a Topiary

If the goal is to prune a shrub into topiary, a plant with dense growing habits is needed. If trimming topiary for the first time, the gardener might consider an easy shape like a mound or cone. Spirals and animal shapes could be attempted with confidence, but a practice shrub might be useful. Good skill and eye is needed to create topiary.

After Pruning Care

After the shrub has been pruned, add fresh mulch and plant food designed specifically for evergreens. This will lesson the shock of the pruning and give it a good start for the growing season.

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Chapter Six

Lawn Establishment and Maintenance

Importance of lawns

Beautiful green turfgrass is appealing and useful in many ways. People enjoy lawns, laying fields, parks and other places with turf. Turf is an integral part of the landscape. The immaculately kept green lawn is the home owners dream; a perfect tapestry of soft, lush, bright green grass that everyone can admire as they pass your home. But the best way to achieve it is to understand the properties of the different types of grass, how to care for them and things to be aware of when planting. Having good turf is more than throwing out a few grass seeds. Turf requires the same care as other plants. The soil must be tested and fertilized the seedbed property prepared, good grass seed selected, the soil watered, and pests controlled. Therefore this session will discuss the importance of lawns their establishment and maintenance in the tropics.

Why lawns are important aspect in Landscape horticulture?

- i. As a ground cover
- ii. Increasing the beauty of background landscape plants (Beautification)
- iii. Fill the space (2 D view)
- iv. Lawn as a foundation, to create fore grounds, back grounds etc.,
- v. It improve the appearance of the building

- vi. Functionally, it plays a part in local and general ecology by cooling on a hot sunny day, helping to keep dust and dirt out of your home, and contributing oxygen to the air.
- vii. Thick grass prevents soil erosion, filters contaminants from rainwater.

Lawns provides the proper setting for public-view landscape plantings and home. You can bring out the beauty of your trees, evergreens, shrubs and flowers with a good lawn. Back lawn provides a foreground for the landscape scenes that are your family's own.

A good lawn does not just happen. It is the result of your willingness to work and plan, to use the materials that are adapted to your climactic area and yours site, and to follow through with good management. Therefore your properly established, well managed lawn is a joy, not a headache.

Healthy grass provides feeding ground for birds, who find it a rich source of insects, worms, and other food. Thick grass prevents soil erosion, filters contaminants from rainwater, and absorbs many types of airborne pollutants, like dust and soot. Grass is also highly efficient at converting carbon dioxide to oxygen, a process that helps clean the air.

Other than that lawns are used in playgrounds. Stripes of lawn are an integral part of roadside design in the layout of central dividers in boulevards, roundabouts and planting strips along roads.

Qualities of the lawn

- i. Good quality lawns always neat and uniform in colour, surface and species.
- ii. Absolutely flat on top/surface
- iii. Ends should be very neat (no scalps or meandric)
- iv. Free of weeds
- v. It should be in good texture
- vi. Free of patches and clean Two types of lawns

1. Super luxury lawns (100% uniform)

2. Utility lawns eg. Play grounds

Utility lawns should be tolerant to compressions. Therefore use trampling resistant grasses. Turf is a collection of grass plants that form a ground cover. Grass has three different uses in the landscape, i.e. ornamental or beauty, utility and sports. Turf quality is related to the common visual factors of density, texture, uniformity and colour.

Lawn grasses

Turf is a range of grass species that are used throughout various parks and homes around the world as an aesthetically pleasing and useful addition to a landscape. Turf provides a low cost surface for outdoor sport and leisure activities, a cost effective safety cushion against impact injury, opportunities for improving the mental health of people in urban areas, assists in controlling dust and soil erosion, increases the ground water recharge and lowers the fire hazard for surrounding areas. The incorporation of turf into a landscaped area offers significant benefits.

There are two types of lawn grasses. They are “warm season grasses” and “cool season grasses”. Warm season grasses are suitable for Sri Lanka. Some warm season grasses are mentioned below.

1) *Cynodon dactylon* (Bermuda grass)

Bermuda grasses (*Cynodon* spp.) are the most widely used warm-season grasses. Improved, fine-textured Bermuda grasses are used throughout on golf courses, athletic fields, and in high-profile residential and commercial landscapes where a fine-textured, dense ground cover is desired. Bermuda grass has excellent drought and salt tolerance characteristics. It establishes rapidly and is able to compete most weed species. Improved Bermuda grasses require high levels of maintenance. They have poor tolerance to many insect, disease, and nematode pests,

which limits their use in home lawn sites. This is the species used in most of the parks and lawns around the country. Its dark green leaves achieve optimal coverage and it has a great ability to adapt to changing climates. It needs the sun and does not do well in shady conditions. Improved Bermuda grasses require high levels of maintenance. They have poor tolerance to many insect, disease, and nematode pests, which limits their use in home lawn sites. They grow very aggressively from stolons (aboveground stems) and rhizomes (belowground stems) and can rapidly invade flower and landscape beds. This aggressive growth also fosters thatch buildup. Bermuda grasses generally have poor to medium cold tolerance and relatively poor shade tolerance. Since Bermuda grass performs best with higher levels of fertilizers and chemicals than other Florida lawn grasses, a professional lawn care company may best handle maintenance of this species.



Cynodon dactylon (Bermuda grass)

2) *Axonopus compressus* (Tropical carpet grass /Buffalo grass)

Very hard and trampling resistant grass. It is a grass that stands out for its intense green color, thick texture and its compact layout. It forms a soft, compact carpet has a very tight weave which hinders growth of weeds. It adapts to partial shade, high traffic support and has good resilience in case of deterioration. This variety of grass is the most expensive on the market due to the fact that it does not seed.



Axonopus compressus

3) *Zoysia matrella*

It forms extensive, velvety, green mats, spreading vigorously by stolons, or occasionally by rhizomes, once established. *Z. matrella* grows in low elevation preferring sandy soils where other grasses establish poorly. The stems are slender and prostrate, ranging from 5-25 cm in length. The leaves are alternate, produced at 1.5-3 cm intervals along the stem; they are slender, 2-10 cm long and 1-3 mm broad. The flowers are greenish, produced on erect racemes 6-35 mm long with a single 2-3.5 mm flower in each spikelet. *Zoysia* grass is grown as an ornamental grass, and is used for turf on golf courses and is planted for grazing stock among the trees on tropical coconut plantations. In addition to its ability to grow on sandy soils, it tolerates high salinity, making it ideal for erosion control and lawns in coastal areas.



Zoysia matrella

4) *Axonopus affinis*

This grass, known as carpet grass, has two to five ascending spiked seedheads from flattened, smooth stolons. Smooth leaf blades with rounded tips. Long hairs appear on leaf sheath margin and base margin. Seed and stolon reproduction. Prefers moist, low sites. Can be used with centipede grass. It requires little care and can take hard wear.

5) *Digitaria didactyla* (blue grass)

Small, strongly stoloniferous perennial grass with bluish coloured leaves. Narrow leaf blades up to 3 cm long and 5 mm wide with a fine setaceous tip, sward can grow to 20 cm high with very dense leaf if not grazed.

Inflorescence usually two racemes, conjugate and sessile. As a pasture grass, it has invaded native pastures under heavy grazing pressure, generally on lighter sandy soils. Withstands heavy grazing by horses. As a lawn or golf course grass, it is generally laid as turf. Some use as ground cover in higher rainfall areas.



Digitaria didactyla

Careful turfgrass selection is an important first step in establishing, overseeding, or renovating a turfgrass. Many potential problems related to turf use, appearance, environment, insect or disease pests, and cultural

practices can be avoided by properly choosing species and cultivars that best fit the situation in which the turfgrass will be grown. A turfgrass, when planted in areas where it is not adapted, often deteriorates or fails. The result of planting a turfgrass where it is not adapted is a poor-quality turf that requires excessive pesticide applications, fertilization, and replanting to retain a green ground cover. Determining the lawn establishment method is an important first step in the establishment process.

After selecting a lawn species, the practical aspects of establishment and maintenance need to be considered.

Establishing a Lawn

Lawns are a major part of most home landscapes. Basically, lawns are established for three reasons.

- i. They add beauty to the landscape. A well kept lawn is very appealing and inviting
- ii. They are used as play areas for sports such as baseball, football, basketball or for relaxation.
- iii. They provide an excellent cover to help control soil erosion while allowing the movement of air and water to roots of trees and shrubs in the soil below.

Turf grasses are grasses that act as vegetative ground cover. The turf areas they produce are usually mowed regularly. A properly managed turf area is very attractive. Turf grasses are able to withstand hard uses and some provide an ideal surface for sports fields and other recreational facilities.

Planning

Careful planning can ensure a new lawn is successfully established. Draw a plan of the garden and calculate the amounts of seed (or runners) and fertilizers required. Consider how large the trees and shrubs will grow to avoid sowing or planting a lawn which will later need to be removed or be

shaded. If planting vegetatively using runners, sprigs, plugs or cuttings, it will take time to establish the lawn. It is rare for a lawn to be planted in one day without a lot of planting material and a lot of help.

Methods of lawn making

Lawn making from seed is not a satisfactory method for tropical countries like Sri Lanka. The grass seeds are liable to be washed away during heavy rains and the seeds can be picked by birds and ground pests. Also the grass seedling cannot compete with other local grasses and weeds which can invade the area.

Seeds are not expensive and seeding requires less labor than sodding. Scarified seed, which has been chemically treated to enable faster germination, should be used when available.

Therefore grasses are established by vegetative propagation because its seeds have poor germination and do not remain true to type. Grasses (with aboveground stems) and can be planted by sod , sprigs , or plugs. Each of these methods can be equally successful if the site is properly prepared and maintained before and after planting. There are three common methods of lawnmaking. They are:

- Seeding
- Turfing
- Turf grafting
- Dibbling grass shoots

Planting the grass seeds

- A lawn from seeds is made suitable when grass roots are not available.
- About 30 Kg of seeds may be necessary for a hectare.

- The soil should be fine tilt and given a fine rolling.
- The seeds should be sown on a windless day evenly and thinly and covered with fine, light soil.
- The ground should rolled again and water regularly.
- The seeds take 5 weeks to germinate.
- Lawn mover may be used when the roots are well established.

Prepare a fine, level seedbed. Sow the seed evenly and get it to grow as quickly as possible. Higher seeding rates give quicker establishment

Seeding is a common method of establishing a lawn, which involves planting grass seed on a prepared seedbed. There are both advantages and disadvantages to seeding a lawn.

The advantages of seeding a lawn are:

- the desired species or cultivars can be used
- the turf plants develop in the environment in which they must ultimately survive
- establishment usually costs less than for sodding or plugging

The disadvantages of seeding a lawn are:

- the appropriate times for establishment are limited
- the turf is usually slow to develop into a quality stand
- reseeding areas with poor germination may be required
- quality seed may be difficult to obtain in some areas
- rain or irrigation may wash seeds off slopes
- weed encroachment is often a problem
- a constantly moist seedbed is required during germination

Vegetative propagation

There are some grasses for which seed is not available, or the seed that is available does not produce plants that are true to type. These grasses must be planted by vegetative method. Instead of sowing grass seed, various

grass parts can be planted to develop a new lawn. These techniques of planting grass parts are called vegetative propagation, which is establishing turf without seed. Sodding, plugging and sprigging are three different but popular techniques of vegetative propagation. Sod is the surface layer of mature turf. It includes the grass plants and a thin layer of soil. A plug is a small 2 inch square of round piece of sod that is 2 inches thick. Grass plugs look like biscuits. Plugs are sold by the tray or box. They are used to establish turf without making a solid cover over the entire area.

Turfing

Turf is pieces of earth with compact grass grown on them. This is the quickest and the most satisfactory method for low elevations. The turves should be obtained from a close-grazed pasture land or coconut estate in the locality, and cut to a uniform thickness. They are placed close together on the prepared ground and beaten down into position with a flat, heavy piece of wood or mallet. The surface should be rolled and thoroughly watered afterwards. Advantages of planting a lawn from sod are rapid establishment of the lawn and less opportunity for weed pressure or other stresses to cause problems. The primary disadvantages of this method are the expense and the labour required to lay the sod. Turfing is the instant method of establishment because it will produce an instant lawn. Although covered, the grass is still perishable at this stage. It is not yet safe for play or other activities and still needs to knit-in and root into the soil.

Turf grafting

- Turf is pieces of earth with compact grass grown on them.
- Turf should be cut uniformly, thin in square from the place where the grass is grown short, compact and free from weeds.
- They should be spread on the ground side by side.
- Gaps should be filled with the soil.
- The entire turf area should be rolled and watered regularly.
- This is the more fastest method of raising lawns

The common type of grasses used for these purposes are;

Carpet grass (*Axonopus compresses*)

Bermuda grass (*Cynodon dactylon*)

Zoysia grass (*Zoysia matrella*).

Production of Turf on Plastic/polythene Sheet

Basically, this new method involves planting of turf on the compost medium

The materials used are:

- black polyethylene plastics (1 m wide) as a mat
- compost
- wooden plank (1 x 3 in) and
- rooted (grass) stolons/seeds

The procedure

- 1) Prepare a planting bed with an area of 1.0 m x 15 m.
- 2) Spread the polyethylene plastic on the leveled bed.
- 3) Place the wooden plank (1 x 3 in) as a boundary on both sides of the plastic.
- 4) Spread the compost evenly on the plastic to form a layer of about 1.5 cm thick.
- 5) Erect a temporary shed structure for the bed to avoid direct impact of heavy rain. This shed should be removed after 1 & 1/2 months.
- 6) Spread the grass stolon/seeds uniformly on the compost layer
- 7) Spread another layer of compost, about 1.5 cm in depth, to cover the stolons/seeds.
- 8) Compact the compost layer.
- 9) Water the bed after planting.

Maintenance of turf bed

- 1) Water the turf bed 2-3 times a week with mist spraying. Avoid saturating the compost with water.
- 2) Apply 350 g of NPK 15:15:15 or Urea per 15 m² or per bed every 2 weeks.
- 3) Water the bed after fertilizer application.
- 4) Weed if necessary.
- 5) Turf is ready to be harvested or transplanted 2-4 months after sprigging, depending on the type of turf planted (Axonopus, 2-3 months; Zoysia sp., 3.5-4 months; and Bermuda, 2.5-3.5 months).
- 6) To ease transportation for transplanting, harvesting is done by rolling the turf mat.



Figure 6.1 Rolled grass ready for transplanting

Sodding reduces potential weed competition that is observed when using other planting methods that leave bare ground. Sod should be laid over bare moist soil with pieces laid in a staggered bricklike pattern and the edges fitted tightly together to avoid any open cracks. Rolling and watering thoroughly will ensure good contact with the soil for fast rooting.

The advantages of sodding a lawn are:

- an "instant" lawn is planted
- sodded lawns can be safely trafficked sooner than seeded lawns

- dust and mud are reduced
- erosion control is achieved
- sod can be planted any time during the growing season (provided the ground is not frozen and water is available)
- good sod is weed free

The disadvantages of sodding a lawn are:

- the cost is higher than for seeding
- choice of turfgrass species and cultivars used in sod production is limited
- sod is not produced in shaded environments
- a large volume of water is required during establishment
- incompatibilities between sod-farm soils and soils at the planting site can cause sod to perform poorly
- sod may shrink, allowing weeds to invade between pieces
- the speed of sod rooting changes with the season

Although it appears there are fewer advantages than disadvantages to seeding a lawn, do not discount the importance of being able to select the desired species or cultivars and the fact that the turf plants develop in the environment in which they must ultimately survive. For example, obtaining perennial ryegrass or fine fescue sod will be difficult, perhaps impossible, in most areas of the region. If these species are desired in the lawn, seeding is the only way to establish them. In addition, soil incompatibility sometimes develops when sod is grown on soil that is different from that of the lawn area. Soil incompatibility can result in poorly rooted sod that has little tolerance to environmental or pest stresses. Thus, in many situations, the advantages of seeding may outweigh the advantages of sodding.

Turf grafting

In the case of a large area, it is economical to lay the turves about 30 cm apart employing the triangular method of placing them and the surface beaten down firmly. The grass in the turves will soon spread and cover the intervening spaces.

Dibbling grass roots

This is the cheapest and slowest method. Small roots are dibbled about 15 cm apart into the prepared ground. The roots spread and grow underground in course of 6 months. This is very economical method of lawn construction. The soil is first brought to a fine tilth and uniform level and grass shoots with the roots are dibbled in about 10 cm apart during wet weather. The surface may be rolled with a light roller and watered. A green sward is formed within a few months. Weeding should be done until the grass grows and forms a complete cover.

Site Preparation for Planting

Proper preparation of the planting site can reduce many soil drainage and aeration, pH, and fertility problems that may not become evident until after the lawn is established. Correcting these problems after the turf is established is much more difficult than preventing their occurrence through proper site preparation, because the presence of the turf can limit your efforts. Thus, this critical step in the establishment process is important to long-term success of a lawn; efforts to provide the best possible soil conditions will not be wasted.

The preparation steps (identical for seeding, sodding, or plugging) are:

1. Control weeds at the planting site.
2. Rough grade the site and remove debris.
3. Conduct soil tests.
4. Amend the soil as necessary.
5. Work and thoroughly mix the amendments into the soil to a depth of 6 inches.
6. Fine grade the site.

Good soil is the foundation of a healthy lawn. To grow well, your lawn needs soil with good texture, some key nutrients, and the right pH, or acidity/alkalinity balance.

Start by checking the texture of your soil to see whether it's heavy with clay, light and sandy, or somewhere in between. Lawns grow best in soil with intermediate or "loamy" soils that have a mix of clay, silt, and sand. Whatever soil type you have, you can probably improve it by periodically adding organic matter like compost, manure, or grass clippings. Organic matter helps to lighten a predominantly clay soil and it helps sandy soil retain water and nutrients.

In making a lawn, the ground should be thoroughly dug by to a depth of about 20-25 cm, uniformly leveled, stones, roots and other obstacles removed and the surface ranked smooth. If soil is heavy and clayey in nature, it should be properly drained. In the case of sandy soils, some red soil should be forked in for the retention of moisture. Similarly, a heavy soil can be improved by the addition of some sand. Land preparation must be happen before 2-3 months.

On existing sites, unwanted vegetation should be removed by a non-selective herbicide such as glyphosate (Roundup). A soil test should be taken in the area to determine the pH and the need for plant nutrients. These nutrients need to be applied before planting, and tilled in if the soil is bare. If acidity level is pH 5.5 to 6.3, it is satisfactory for most grasses and grass-woody plant associations that create by landscaping. If fertility levels are below these ranges, have to apply fertilizer to bring nearly up to the top of the ranges. Lime can be added to bring them nearly up to the top ranges.

Proper fertilization of any lawn grass is an important component of the best management practices for lawn. Fertilization and other cultural practices influence the overall health and quality of your lawn and will reduce its vulnerability to numerous stresses, including weeds, insects, and disease.

If topsoil is moderately fertile and contains enough organic materials to be porous and easily crumbed, addition of commercial fertilizer may be all that is necessary before you proceed to work soil into seedbed and to sow seed.

Black topsoil is usually considered to be good. However, appearance can be deceiving and some of your black soils do not respond well to commercial fertilizer alone because of other poor qualities.

If top soil is poor, then may have much to do assure a good lawn. In some cases, it may be more economical for you to use additives to improve what is at hand rather than to purchase topsoil which may be little better, or not as good. Usually, a lack of organic matter is your greatest problem. Low fertility levels can correct easily and usually at much less expense than low organic matter levels. Poor sand, silt, or clay soils all respond to organic matter additions. Compacted soils can be changed which result from construction abuse or hard pans which occur naturally for the better provided and mix generous quantities of organic material to the depth of compaction soil.

The next step is the installation of a new irrigation system, or repairs to an existing system. Before any grass is planted, the area should be final graded and thoroughly moistened to help the establishment process. It is important to provide frequent irrigation when grass is establishing. Multiple, short irrigations throughout the course of the day for 7 to 10 days following planting will help the grass establish.

Finally, fine grade the site until it is smooth. Eliminate depressions that may collect moisture. Be sure that the slope away from buildings is 1 to 2 percent. Upon finishing this step, you are ready for seeding, sodding, or plugging your lawn.

Planting

Seeding — The seed label will provide valuable information about grass seed. Information on the label includes the name(s) of the turfgrass species and cultivars present in the package, seed purity, seed germination percentage, crop seed content, amount of inert matter, weed seed content, lot number, and last testing date. In general, select high-quality seed of turfgrass cultivars recommended for your area.

Different turfgrasses have different seeding rates. After choosing the turfgrass and determining the seeding rate, be sure to distribute the seed uniformly over the planting area. Use a broadcast or drop spreader. It is advisable to apply half the seed in one direction, such as north to south, and then the other half in a different direction, such as east to west, to uniformly cover the entire area.

After the seed is in place, there are two activities that are crucial to successful turf establishment. The first is making sure there is a good seed-to-soil contact. Accomplish this task by using a lawn rake to lightly mix the seed into the upper 1/4 inch of soil.

Follow the raking with a light rolling to produce a firm seed bed. A light rolling can be accomplished by using an empty water-ballast roller. Rolling not only increases seed-to-soil contact, but firms the seedbed and slows drying of the soil.

Mulch with a thin layer of clean straw to prevent drying. Don't apply mulch heavily; you should be able to see soil beneath it. The second activity crucial to seed establishment success is to make sure adequate water is available throughout the germination process. At the time of planting, irrigate frequently and lightly, wetting the upper 1/2 inch of soil. Continue watering during the period of germination. Water less frequently, but more thoroughly and deeply, as grass seedlings mature.

Average germination times vary according to the turfgrass species and the conditions under which germination takes place. Soil temperatures between 60° and 85°F for cool season grasses and 70° and 90°F for warm season grasses, along with a constantly moist seed bed, result in the quickest germination.

Sodding—Be sure to select fresh, healthy sod from a reputable dealer, and plant immediately after purchase. Sod often comes in 18-inch-wide strips that are 6 feet long. Look for sod with a thin soil layer—it will root faster and be easier to install due to its lighter weight. Most sod is harvested at a soil depth of 1/4 to 1/2 inch.

Plant sod in a bricklike pattern with sod edges tightly butting up to one another. Do not stretch sod-it will shrink as it dries allowing weed invasion between pieces. On slopes it may be necessary to use small wooden pegs to help keep sod in place until it roots. Under good conditions sod will begin to root within 14 days. Avoid planting sod on excessively dry soils.

Using a lightweight roller, roll sod immediately after laying to insure close soil contact. Initially irrigate heavily to make sure water penetrates beneath the freshly installed sod and wets the soil. Until sod is established, continue to irrigate frequently, making sure soil is dampened to encourage root development.

Lawn maintenance

Properly maintained lawn enhances its appearance and contributes to its environmental benefits. You don't have to be an expert to grow a healthy lawn. Just keep in mind that the secret is to work with nature. This means creating conditions for grass to thrive and resist damage from weeds, disease, and insect pests. There are some methods to maintain lawn properly.

Mowing

Proper mowing practices are important in maintaining an attractive lawn. Much depends upon the proper upkeep of lawns. It should be kept free of weeds and mowed at regular intervals with a lawn mower. Both height and frequency of cut need to be adjusted for the level of turf management. Mowing at this height and frequency requires more fertilizer and water to maintain an attractive lawn. Also, low cutting heights and high maintenance levels can predispose the turf to many pest problems.

To obtain this height with most home rotary lawn mowers , the highest wheel height setting should be used. This height will help the grass develop a deep root system and give a better appearance to the turf. Mowing frequency under moderate or low management should be adjusted to the amount of growth. No more than one-third the heights of the leaf blades

should be removed with any mowing. During periods of moisture stress, or if the grass is growing in shade, increase the mowing height. To obtain the correct height with most home rotary lawn mowers, use the highest wheel height setting.

However, it is harmful to use a mower before a firm, green sward has been formed. No hard and fast rules can be laid as regards the frequency of mowing. Very hard mowing is not recommended as it will lead to a thin mat.

Mowing too low can also cause problems in turf quality. Constant low mowing reduces the density and vigor. Weed problems in lawns can usually be attributed to a low height of cut and improper watering. Mowing too infrequently and improper watering can cause a thatch buildup.

Either a rotary or reel mower can be used for mowing. It is important to keep the blades sharp and well-adjusted to get a clean cut. Dull blades will give the lawn a brownish cast, because a ragged cut shreds the leaf blades rather than cutting them. During the growing season blades should be sharpened on a

A reel mower is preferred for cutting Bermuda grass. This gives a cleaner cut, and these mowers can also be more accurately adjusted to low heights. In a home lawn situation, a rotary mower may be used if the blades are sharp and well-adjusted to get a clean, smooth cut and if the cutting height is high enough for the mower.

The various types of mowers can be used for small garden. They are:

- Slashers
- Sickles
- Scissors (Grass cutting)
- Edge cutters (Nylon threat)

Grass clippings can be left on a lawn that is mowed at the proper height and frequency. Under these conditions, clippings do not contribute to the

thatch layer. Clippings should be left on lawns maintained with low to moderate fertility levels to help recycle nutrients and it is good to make decomposition. It avoids uprooting of grass too. Remove clippings if the amount is excessive (e.g., clumping occurs)

The frequency of mowing is depended on:

- Rain
- Growth of the grass
- Soil type

It is necessary to mow in very wet day.

Rolling

Rolling is done to press the grass. This can be done as soon as establishing, before the first cut. Rolling splashes the epical buds. It increases tillers, before the first cutting. Population of grass will be higher. Rolling is done time to time whenever it is necessary. This should not be done during the wet day. Compression will be higher.

Fertilizing

Maintaining a good quality lawn requires a properly planned fertility. First, decide how much time and effort can be spent on lawn maintenance. A low fertility lawn is best for those with little time to spend on lawn care. A high fertility lawn may be better suited to those with more time for lawn care.

Normally fertilizing is done once a year. A low-maintenance grass lawn should be fertilized twice a year. A slow-release, nitrogen-only fertilizer may be applied in between complete fertilizer applications Ammonium nitrate (2 kg /100 m²) is normally applied. As a stimulant, sulphate ammonia may be applied to surface at the rate of 25 grams dissolved in 4.2 liters of water.

Cattle manure is also applied, but pure cattle manure is not applied. It can be mixed with leaf mold, sand and loamy soils. Equal portions are used to

make mixture. Mixture is spread equality. Other fertilizers are added according to the symptoms.

High rates of fertilizing can also encourage insect damage to the turf. Additionally, the necessary amount of mowing and watering increases with the amount of fertilizer. Careful planning is necessary

Watering

The best way to irrigate an established lawn is on an as-needed basis. Grass blades will begin to wilt (e.g., fold, turn and bluish-green in color) as the moisture begins to be depleted in the soil. If 30 to 50% of the lawn shows signs of slight wilting, it is time to irrigate with $\frac{3}{4}$ inch of water. The turf will fully recover within 24 hours. The turf should not be watered again until it shows signs of wilting. This irrigation schedule works for any soil type and environmental condition. Proper watering practices will help maintain a lawn that requires less mowing and has little thatch buildup. Proper watering will also help develop a deep root system and encourage plants which are less susceptible to damage by pest and environmental stresses. If the diseases brown patch or gray leaf spot are a continuous problem, over watering and excessive nitrogen fertilization may be responsible.

Pest and Diseases

Pest and diseases are no common. Termites are the most troublesome pest in lawns. They easily controlled by using an insecticide like Chlordane. One teaspoonful of this chemical can be dissolved in 8.4 liters of water and poured into white ant nests after digging them. Cockchafer larvae and beetle grubs do a lot of damage to grass roots. These pests are difficult to control, and much damage is done during the rainy season from June to September.

Brown patch and gray leaf spot are the two major disease problems. Brown patch occurs in warm, humid weather and is encouraged by excessive nitrogen. Brown patch is generally most noticeable during spring and fall months. Gray leaf spot occurs during the rainy season and is primarily a problem on new growth. Both diseases can be controlled with fungicides. Refer to the section on disease problems for additional information.

Weeding

Weeds are the biggest problem comparing others. Weed problems in a lawn indicate that the turf has been weakened by improper management practices or damage from pests. Proper management practices can eliminate most weed problems. If weeds are a persistent problem, nonselective herbicides should be used. Hand weeding can be also used. Herbicides are applied after two hour dry period. Many commercial weed and feed formulations will provide control, but they should not be used every time the lawn is fertilized. Desmodium doesn't have to be removed, because it gives nitrogen.

Chapter Seven

Maintenance Activities in Landscape Gardens

Landscape Maintenance

This is one of the fastest growing divisions of the green industry. It is involved in caring for the grounds after the installation of the plant material. Maintenance program is to keep the landscape as attractive and functional as intended in the original landscape design.

Newly installed landscape will require intensive maintenance for several months to help it become established and look healthy. Controlling weeds, pests and disease along with properly watering and fertilizing your plants, is essential to the successful establishment of your landscape. Areas of your property that were once bare harbor dormant weed seeds and pests. Weeds will sprout quickly when water is applied and this vegetation will promote insect infestation. Weekly weed control is necessary for up to one year so that plants can grow easily without competition from fast growing weeds. Slopes are difficult to maintain, but it is important to keep them free of weeds. Controlling weeds and pests is much easier on a regularly scheduled basis rather than waiting until the garden becomes overtaken by weeds or pests. If you do not have the time to spend on maintenance chores, find a gardening service that will weed, cultivate planter beds, and control pests as part of their service. Periodically check newly installed lawns and plants to ensure that enough water is being applied, and to be sure you do not water too much. This is a very important task to perform especially for sod lawns and plants installed during hot summer months. Recently installed sod lawns should look green through and through and show signs of vigorous growth after three days. Walking on a newly planted sod lawn must be avoided. Immediate use of the lawn will cause depressions and soil

compaction problems in the future. Wait at least ten days to two weeks before walking on the lawn. Before using the lawn, the sprinkler settings for all lawn areas must be reset to water only one time a day on your sprinkler control timer. It should also be programmed to be off the day you plan to mow your lawn. If it is absolutely necessary to walk on your newly planted sod lawn, walk lightly along the edges and in planter beds when possible.

Most trees, shrubs, perennial flowers, and ground covers establish roots into the native soil within a period of weeks or months. Some plants may show no sign of new growth for up to a year. The rate of growth of a newly planted tree or shrub depends on many factors, but primarily it will involve the type of soil, the type of plant and its exposure, the amount of water to be applied, and maintenance needs.

Therefore landscape maintenance is important because it maintains the aesthetics of the landscape area; and the proper care of the aesthetics of the landscape area; and the proper care of the plant materials and other landscape accessories (patios, pools, mulch, inorganic chemicals) throughout the year.

Landscape maintenance involves the technical knowledge of the following skills:

- i. Replacement of plant materials
- ii. Application of mulch to proper depth around plants
- iii. Application of soil analysis (for proper pH levels and fertility needs)
- iv. Pruning
- v. Weed control
- vi. Planting and caring for flower beds
- vii. Proper mowing procedures
- viii. Maintenance of landscape accessories, i.e pools, fountains and lighting

Maintenance activities in Landscape

Landscape maintenance activities include:

- maintaining plants
- installing and removing plants
- managing the soil and water conditions of the landscape
- managing landscape pests and diseases

General maintenance

Maintaining a newly installed landscape requires time, knowledge, and persistence. Weekly maintenance is necessary in order for your plants to thrive, and to ensure that all watering systems are functioning properly. Landscape maintenance should include: weed control, mowing and edging lawn, removing dead flower heads from plants, pruning dead branches and leaves, raking fallen leaves, removal of debris from drainage inlets, pest and disease control, fertilizing, watering, and pruning. Plants develop abundant new growth in the spring and early summer months. During these months, damage from insects or disease is most likely to occur. Carefully check plants for disfigured leaves, stunted growth, or leaves damaged by chewing insects such as grasshoppers. During periods of rapid growth, plants require more nutrients to sustain their development. A noticeable decline in plant vigor during the growing season (spring), is often caused by nutrient-poor soil; this can be corrected with a well-timed application of fertilizer. However, before taking action, check plants carefully for signs of other problems. Solving plant problems can be frustrating because it requires experience and knowledge. Avoid problems by performing routine scheduled maintenance; the key to a long lasting and healthy landscape.

Watering

Over-watering is a common mistake among many homeowners who are unfamiliar with the amount of water a plant requires. A common sign of over-watering is yellowing leaves that easily fall off when touched, or soggy soil. Other signs of over-watering include: algae growth in planter beds,

puddles in planter beds, soil erosion, or excessive water flow through the drainage pipes that run out to the gutter. In hot summer months, certain plants are more susceptible than others to root rot soil-borne diseases. Root rot can cause plant damage or death by blocking a plant's ability to produce food and absorb nutrients. Affected plants and trees suddenly wilt within a couple of days and completely defoliate. Plants that recover from root rot may only send shoots out from the base of the plant, and may take several years to grow to recover. Plants in heavy soil with poor drainage qualities are usually more susceptible to root disease. In severe cases, sudden plant death may occur (especially if roots are inundated by irrigation water for long periods of time, during the hotter periods of the day). If sprinklers are inundating planter beds and tree wells, reduce the amount of time for that particular sprinkler valve or zone. It may also be necessary to periodically adjust the screw, on top of the sprinkler head, clockwise to reduce the amount and force of the water spraying into planter beds and sod lawn areas.

It is very important to check the condition of the soil moisture before increasing or reducing sprinkler watering times. Check several areas of the garden; those in shade and those exposed to the full sun. Probe the soil with a hand shovel to a depth of 6" inches, checking to see if the soil is moist below (in the plant root zone). The soil moisture should be uniform throughout. During hot weather, the top layer of soil in a planter bed can become dry, forming a hard crust. This may inhibit water penetration, causing plants to wilt. To prevent this, cultivate around the plant and spread a 1 to 1-1/2 inch layer of mulch over the entire planter bed and water sufficiently to thoroughly moisten the mulch and soil below. By keeping the top layer of soil moist, water is allowed to penetrate to the roots below. Properly maintained plants with a strong root system will be able to survive on a minimal amount of water in drought conditions.

Fertilizing garden plants

A key factor when fertilizing is coordinating the application with plant needs. Selecting the correct fertilizer for your landscape plants, and properly timing the application are crucial to plant growth. Fertilizers can be general in nature, or designed for a specific group of plants such as; palms, roses, camellias, fruit trees, or grass. Be specific when purchasing fertilizer, whenever possible, to obtain the best results. In general, fertilizers contain several elements, but contain the highest quantity of three primary elements: nitrogen, potassium, and phosphorus, (often referred to as NPK). The label on the product displays the NPK content such as; 21-7-14, or 15-15-15. These numbers vary depending upon the type of fertilizer and its purpose. These numbers and the ingredient label are known as the fertilizer's "analysis", and represents the percentage of NPK per pound that the bag contains. Fertilizers also contain trace elements known as micro-elements. A well-balanced fertilizer must provide a steady amount of nutrients during the plants growing season to sustain growth, and have a healthy appearance. Lawns require a fertilizer high in nitrogen and frequent applications to look its best Nitrogen is the key element in fertilizer which makes your lawn green. Depending upon the season, lawn fertilizers high in nitrogen will produce rapid greening, and are beneficial during the colder months of the year. It is important that fertilizers be applied to lawns and plants when they are approaching their growth periods, and during their peak growth period. Never apply more than the recommended amount of fertilizer to plants or lawns as this can cause permanent damage to plants. After applying fertilizer to your lawn and plants, it is important that you run the sprinkler zone for the area you have fertilized; this helps the fertilizer become soluble and immediately available to the plants.

Plant growth depends upon several variables: the type of plant, the climate, the location or exposure of the plant, the condition of the garden soil, and maintenance of the plants. Some trees and shrubs grow faster than others during the first year to two years after planting. Often, plants of the same species and variety may not grow at the same rates. The eventual size and growth rate of a plant often depends upon whether the plant was propagated from a seed, or from a cutting taken from a mother plant (a

vigorous plant of a particular species used to essentially produce clones with the same favorable characteristics). During the first few months after installation, plants are establishing root systems to sustain growth and a steady supply of water. Once established, many trees and shrubs require only a small amount of fertilizer to encourage growth; when new growth appears in the spring, apply fertilizer at the recommended rate.

Slow-release granular fertilizer is long lasting, efficient, and economical to use. This type of fertilizer slowly releases nutrients into the soil when water is applied. Liquid fertilizers applied in a solution of water, provide quick results when needed, but the effects are short-lived. If applying liquid fertilizer solution through a hose end applicator, do so in the early morning hours when the temperature is cool ,and the air is calm; this will ensure that the maximum amount of solution reaches the plants. If applied during hot or windy conditions, the solution will evaporate quickly and be less effective. Occasional use of liquid fertilizers is beneficial for ground covers, vegetables, and flower beds. Healthy and vigorous plants greatly benefit from a well-timed application of fertilizer.

Remember, the best time to fertilize is prior to and during periods of vigorous growth, Although there are many fertilizers available for lawns, shrubs, trees, and ground covers, always select a high quality brand name fertilizer for each particular purpose. Applying more fertilizer will not change the growth characteristics of a plant, and can hurt the plant's progress or damage it; in this case, more is not better. It is never recommended to fertilize a diseased or stressed plant: this will further harm or even kill the plant.

Weed control

As much as possible, herbicide should be avoided in the landscape, since people play on lawns and handle plants around the home. Cultural methods of weed control are preferred around the home. Weeds should not be allowed to overgrow and before setting seeds they should control. A hoe may be used to remove certain weeds, while others may be pulled. Ground cover is effective for suppressing weeds and may be used to cover bare soil.

Pest and Disease control

Landscape plants are attacked by a variety of insects (including mites and sucking insects) and diseases (including rusts and fungal types). In most cases, these pest attacks are not significant, except for the fact that blemishes distract from the aesthetic value of ornamental plants.

Removal of debris

All areas will be blown or swept to remove landscape debris caused by the weekly or annual services. All tree trimmings, shrub trimmings, and any other debris associated with landscape maintenance will be removed from the property by the end of the work day.

Care of landscape components

Soft Landscape Care

Care of Lawns

A healthy, vigorous sward of grass is the best defense against pests, disease and weeds. Grass requires intensive and continual maintenance throughout the year, including mowing, watering, aerating, fertilizing, top dressing, over sowing, weeding and control of pests and diseases. Try to retain original grass species and varieties - they contribute to the cultural heritage significance of the place. Although different grass species require different mowing heights, in general older sites are best left with longer grass length, especially in areas further from the buildings. When mowing, take care not to damage brick gutters, edgings, plants or garden ornaments. Avoid mowing grass paths with mowers that are wider than the paths. Take care with brush cutters and whipper snippers near garden ornaments, edgings or significant plantings as their use can result in damage to these elements and ring barking or plant injury.

Mowing sod lawns: Mowing a new sod lawn for the first time should be done at least 2-3 weeks after installation (depending on its growth and progress). Lawns grow faster in warmer months than in cooler months. At the time of the first mowing, the lawn may appear tall and overgrown, but should look vigorous and healthy. Do not allow a new sod lawn to become so long that it folds over on its side. If the lawn is tall, adjust the mower to the highest possible setting and slowly cut the lawn. Gradually lower the lawn mower cutting height after each week. Long, shaggy lawns may take two to three regular scheduled cuttings to reach normal height and appearance. Never cut off more than one-third of your lawn's total height at any one time, and always use a sharp blade. Be careful not to gouge out turf with mower tires when turning around. Bunching type grasses such as Fescue, or Rye, are cut with a rotary blade mower. Bermuda grass must be cut with a front throw reel blade lawn mower. Check the recommended mowing height for your lawn on the chart below. Before mowing, always check for lawn sprinkler heads stuck in the up position; to lower them, tap lightly on the top of the spray nozzle and it will retract back into the sprinkler body. Soil compacting can occur if you mow your lawn when the soil is soggy and wet, (especially if you have clay soil); to avoid this, reduce watering times and turn off the lawn sprinklers a day or two before mowing. Soil compaction inhibits root growth and prevents water from penetrating deep into the soil. Over the long run, soil compaction can eventually reduce the useful life of the lawn and cause bare spots. The best time of day to mow your lawn is late morning or early afternoon (when grass blades are dry). A dry lawn is easier to mow and results in a cleaner cut. After the initial mowing, cut and edge the lawn on a weekly basis, and check sprinkler operation by setting the sprinkler controller to manually water all stations. Observe the sprinkler operation; check for clogged nozzles and make necessary adjustments. After the system has completed its cycle, reset the sprinkler clock to "run" or normal operation.

How to repair pet damaged lawn areas

1). Mix one package of seed cover with a pound or two of grass seed, and keep it in a bucket or plastic bag.

- 2). Use the identical type of seed for the lawn you are repairing.
- 3). Flush the damaged area with plenty of water to remove any urine residue.
- 4). Apply the mixture with a hand shovel, or by hand, over the affected area.
- 5). Lightly sprinkle the area with water after applying the seed mixture. The seed will sprout in seven to ten days.

Care of Trees and Shrubs

Pruning of trees and shrubs is necessary to: control size; improve shape, flowering or fruiting; and remove diseased, dead or dangerous material.

Trees

Trees do not automatically need pruning. Left alone, most trees will grow and flourish without trimming. Pruning is, however a technique that can reduce or eliminate imperfections. Valid reasons for pruning any branch over one inch in diameter include dead, diseased, or broken branches; crossing lateral branches; sharp-angled, vertically growing branches such as water sprouts; branches that obstruct objects, utilities, or people; usually heavy foliage in areas of high winds; and branches that detract from the tree's desired appearance.

As trees mature, they may require corrective pruning to eliminate branching problems, or to reduce their total size. Improper pruning or topping will damage trees. Properly prune your trees when they are young to ensure proper growth. When your trees grow beyond the reach of conventional pruning equipment, hire a certified professional arborist to perform any major pruning tasks. As your trees mature they add value and character to your home. Stakes must be firm in the soil and rubber ties intact and in proper adjustment. Periodically check tree stakes and the rubber straps that secure the tree trunk. Loose straps will allow the tree to constantly sway, inhibiting proper root development, and binding straps will gouge the tree trunk. Readjust the rubber straps as necessary to allow the tree trunk slight movement but firm support. Tree stakes and ties can be removed after trees have added enough girth to their trunk, and are able

to support their structure. Exercise care when mowing and weed-whacking around trees to avoid scaring or gouging the base of the trunk. Install plastic tree guards around the base of trees for protection. Trees require minimal amounts of care once they become established. Most initial tree maintenance consists of pruning dead branches, removal of leaf litter, and fertilizing. Certain trees such as: deciduous fruit trees, ornamental cherry and plum, and other deciduous plants that are susceptible to fungal diseases require an application of a fungicide when dormant. Drooping or disfigured leaves, dead leaves, deeply split branches or trunk, sap oozing from the trunk or branches, and chewing damage on leaves are signs of plant health problems.

Shrubs

Shrub care consists of pruning dead stems and leaves, and removing spent flowers to improve the appearance of the plant. Initial pruning should be limited to removing dead or broken stems and branches. Excess leaf litter around shrubs increases as the plant grows larger. Rake up excess leaf litter to reduce the chance of pest infestation and plant diseases.

When growing a hedge, prune the top and the sides of the plants first to gradually establish the height and width of the hedge. Do not chop individual shrubs into square or round shapes. This practice will reduce the life of the plant. Ornamental pruning should be limited to certain plants and for a specific purpose. To keep plants compact and to control their height, prune those long shoots that grow faster than the rest of the plant on a regular basis.

Pruning and shaping plants and trees for ornamental purposes, such as for topiary, is a gradual process that requires experience, and takes place over an extended period of time. If you plan to experiment with ornamental pruning, seek professional advice or purchase a book on the subject.

The goal of pruning shrubs is to help them develop their natural beauty and fulfill their purpose in the landscape. As with trees, shrubs do not need to be constantly pruned to create odd shapes, or balls. Shrubs and ground

covers should be allowed to develop to their natural form , with pruning used as a guide. Shrubs should be allowed to "grow into" each other so that they form a mass planting, barrier or screen. If a "hedge" is not desired, then the property owner should chose either a compact growing shrub variety or a compact growing shrub variety or a shrub species with finely textured leaves which will not create the appearance of a hedge at maturity.

Most shrubs will thrive best if they are pruned less than two or three times a year. Shrubs should be pruned after their flowering period has finished, or immediately before their growth period starts.

Ground covers

Ground cover plants are usually the smallest plants installed in the landscape. Creeping ground cover varieties require moist soil to spread, and provide rapid soil cover. They require a moderate amount of care, six months to a year after planting, which consists mostly of weed removal and proper watering. In moist soil, especially during spring, weeds grow very quickly; remove them immediately, or they will quickly take over newly planted areas.

Prune dead or broken stems on plants to improve their appearance. After three months of growth, you can plant sparse areas with a container of the identical ground cover to fill-in sparse areas.

Once ground cover plants have covered an area, they will choke out weeds and dominate the area. Avoid mixing different types of ground covers. After several years, some ground cover plants tend to look overgrown and unattractive; if this occurs, you can cut back or mow down some varieties of ground cover to renew its appearance. Fertilize the area to promote new growth. On slopes, manually remove weeds and out of control growth.

Hard Landscape care

Newly installed masonry, concrete patio floors, planters, and barbecues can take from several days to 6 months to completely cure, or set; during this time, surfaces are susceptible to damage.

Avoid placing iron furniture (or patio accessories which may rust) on top of patio floors. Light scratches will not cause permanent damage, but heavy objects pulled across surfaces will gouge and permanently damage new concrete surfaces. Please consult with a professional before attempting to clean a stained hard surface if you are unsure on how to proceed. Permanent damage to surfaces can occur when using cleaning liquids or acids. Be aware that fertilizers and pesticides will permanently stain and etch concrete surfaces; wash these substances off immediately with plenty of water. White vinegar is effective in removing some staining, but has a limited effect upon highly porous surfaces. Use caution when applying and handling acid washes and sealers since they are caustic substances that can cause quick damage to surfaces. Even if all possible precautions are taken, wire mesh or steel reinforcement hair line cracks in concrete are sometimes unavoidable; such is the perplexing nature of concrete. In newly constructed homes, soil which was improperly compacted can cause separations in concrete patios, as well as cracks and slumping in newly installed concrete surfaces. There is no guaranteed method or precaution that can prevent cracking in concrete paving.

Brick masonry often produces efflorescence (a white powdery substance that leaches to the surface of bricks). These are minerals from the manufacturing process and/or from brick itself; this condition gradually declines and is not permanent. Brick can be cleaned with plain, white vinegar, or can even be acid washed to remove deposits. Often, a brief pass with a stiff wire brush and water will remove dirt and deposits on brick and stone. Sealers should not be used where moisture can get behind or underneath masonry or stone. Trapped moisture below the sealed surface will sometimes ruin the natural appeal of the finished surface. In areas with

hard water high in minerals, irrigation water will sometimes produce spotting deposits on sealed surfaces. Protect tile barbecue counters with a cloth cover over the entire surface, when not in use. Use a grout cleaner and sealer to protect tile grout from weather.

Fences, gates, walls, paths, paving and edging, roads and tracks, fountains, statues, furniture, culverts etc. should be regularly cleaned and maintained using methods that do not damage the fabric of the elements.

Consult a professional if you have any questions regarding the cleaning or sealing of hard surfaces including: concrete floors, natural stone, brick masonry, tile fountains, or tiled counter tops.

Structures and furniture

Original garden structures, walls and edges, furniture, fittings and services should be conserved in their original locations. This includes some garden and landscape structures that may now be rare including Hills hoists, domestic outhouses, farm sheds, windmills and early fences.

Views and vistas

Important views or vistas in a garden or landscape can often become obscured by natural growth of trees and shrubs or by inappropriately placed new ones. Views and vistas may change as the landscape matures and these become important as evidence of the intent of the evolving design. To maintain significant views, prune plantings as necessary but not beyond 20% of the crown.

Landscape features and contours

As well as retaining or replacing original plantings, the form, materials and detailing of the original landscape design should be conserved, e.g. if the contents of an old garden bed have changed, the form of the bed should be

retained. The contours and shaping of the landscape are important. Many gardens and landscapes have terraced areas, plantings often follow the contours, and shaped mounds provide interest and contrast. These features should be conserved as an integral part of the design of the landscape.

Do not replace original straight paths or drives with curvilinear paths or drives (or vice versa), or a gravel surface with modern brick paving. Retain and repair old bitumen paths, rather than replacing them with brick or other materials.

Granite and river rock areas

Granite areas will be raked as needed to keep a well-groomed appearance. All areas will be blown free of debris, cleaned up and removed from premises. Pre-emergent should be applied twice per year and if done, these areas will be sprayed periodically with herbicide to prevent further growth.

Sprinklers

When considering landscape design, gardens and sprinkler systems should not be placed adjacent to masonry walls as this can cause damp problems for the building/s.

Maintain the Design

The setting and significant components of landscape must be preserved. These planted, or from plants that are similar in form and character and were available at the time of the original plantings. The pattern of planting in beds, rows or hedging should also match the original.

General Maintenance Considerations

After the garden is installed it needs regular ongoing maintenance. As any landscape or garden is a living growing entity routine maintenance is inescapable. Maintenance cannot be avoided, but it can be minimized. Even the perfectly designed and installed landscape will fail if maintenance fails. However, many maintenance problems are designed into landscapes.

Complex designs usually require more maintenance. Simplicity can be achieved by avoiding unnecessary detail. Limit the number of plant species and create well-defined planted areas by not scattering plants throughout open areas.

Design the appropriate size of maintained area and arrange plants in groups of like species to create a mass effect. Tree beds can eliminate trimming, reduce lawn mower damage to tree trunks and increase the speed of mowing. Edging of beds creates a sharp clean line and reduces maintenance requirements.

Make sure bed lines encompassing a lawn area meet at angles greater than 90 degrees. Walk, driveway and patio surfaces that are in grassed areas should be above the ground level. Avoid improper plant selection, spacing and installation that can cause maintenance headaches.

Landscaping Tools

After all, if one wishes to save money on the expenses associated with having a well cared for yard, it is best to make sure that he or she has all of the tools necessary to create an attractive landscape.

By understanding some of the most common tools used for basic landscaping needs, you can ensure that you have everything you need to keep your lawn in the best possible shape, bringing delight and distinction to your grounds, be they large or small.

Shovels, rakes, trowels, and hand cultivators

These are the most basic of tools when it comes to landscaping. Every home should be supplied with these basic implements. They make just about every landscaping endeavor possible. Shovels to remove sod and turn soil, as well as dig the holes necessary for fixtures like trees and hardscapes, Rakes are essential to smooth out planting beds and prepare ground for things like sod without packing the dirt.

Trowels and hand cultivators allow you to perform minute work that requires more attention to detail. All of these tools are necessary to the proper functioning and care of a landscape.

Pruners and shear

These tools are used to improve the appearance of woody plants and trees. They keep plants from encroaching in other areas, and they also promote the overall health of the plants. They help maintain a neat appearance, and if you have topiary concerns, they are indispensable in maintaining a set shape. There are hand pruners, tools that help with pruning the smaller branches and are easier to use, loppers for getting thicker branches that are too large for pruners, and even pruning saws that can help you with the toughest of branches.

Hedge shears provide a way for hedges to be trimmed more conscientiously than with electric or gas-run trimmers (although these are widely available and can make maintaining hedges much easier).

Lawnmower

This is perhaps one of the most common and most obvious of landscaping tools. It is meant to keep the grass at a reasonable level, and to keep the lawn neat and healthy. Related to lawnmowers in the trimming department are things like weed wackers, which are very useful in keeping edges that can't be cut by a mower nice and neat. Additionally, the use of some special

machinery, designed to eliminate thick brush is useful to have on hand, even it is only in the form of a machine rented once a year.

Other tools of interest

Of course, there are specialty tools that may be needed depending upon on the features of your landscape. If you have a water fixture, it is important to make sure that you have the proper pumps and filters, and that you have little skimmers that can allow you to remove larger pieces of debris from the water.

Automatic sprinklers can make watering the lawn and your other plants much easier, and you should have a garden hose for special watering needs. Regular household tools such as hammer and nails, levels, and drills can be helpful if you have built landscape features like patios, decks, pergolas, and trellises. They can also be useful in building things like containers and creating raised beds.

Wheelbarrow

A wheelbarrow will always be of infinite use for the avid landscaper and improver. Wheelbarrows are very useful for moving debris as well as bringing needed implements to their proper places. They haul dirt and bring in plants. They make it possible to for one person to carry a load that otherwise she or he would not be able to handle. For the serious landscaper, a wheelbarrow is indeed necessary.

When you have all of the tools necessary to take care of your landscape, then you are well rewarded for your hard work. Acquiring the more common tools can also save you money in the long run, as they can be used over and over again. Additionally, many of the more common landscape tools are fairly small in size and easy to store in a garage or a shed.

As long as they are kept neatly arranged in place, they are easy to get to when needed, and not hard to find. Proper maintenance of your tools is important: keep them from becoming rusty, and make sure your lawnmower and other gas or electric implements are well oiled and always have plenty of gas. Proper care of your tools ensures that you will be able to properly care for your landscape.

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