

# Complete Guide to Lawn Care



Watering your Lawn



Irrigation



Different Lawn Types

## *Contents*

Introduction	03
Lawn: A Basic Idea	04
Soil: A Brief Synopsis	08
Turfing or Seeding	15
Weather Conditions	19
Types of Grass	20
Nourishing your Lawn	36
Yearly Lawn Maintenance Schedule	39
Weed Control	60
Knowing and Controlling the Pests	64
Equipments for Lawn Care	68
FAQ	70
Conclusion	75

## Introduction

**D**o you intend to grow a new lawn? Well, this is where the book comes into play. You need to put in intense efforts for growing a lawn. Interestingly, lawn preparation is a time consuming process. Now most of us may wonder...what's the need or necessity to grow a lawn? Well the simple reason being that a lawn adds to the beauty of the house. Your neighbor's lawn may make you feel jealous...isn't it? And you too must be having a hidden desire to grow your personal lawn! So what can you do to give wings to your dream? Well...don't get worried...this book is here to help you out! Flipping through the pages of this book will give you a clear idea about the ways that helps in growing your dream lawn. Going through the first few sections of the book, will help you to obtain a clear idea about the various soil types and climatic conditions. You'll also obtain a clear idea about the seeding as well as turfing procedure. Most individuals who come to me often ask ... "Will I be able to prepare the lawn in an effective manner? You know actually I don't have in prior experience!" But I have good news for them too...each grass variety needs a particular soil type for its growth as well as development. In addition to this, you need to also have a clear idea on the different grass variety and climatic conditions. The next few sections contain substantial information on different nutrition types that are needed to grow your dream lawn. A thorough look at the book will let you know that adequate amount of water and air is the key factors that help in the growth and the development of the lawn.

Nurturing the lawn in an adequate manner is necessary if you want to grow a perfect lawn. Another thing...be sure to treat the grasses using pesticides and herbicides. Most of us, after preparing our lawn successfully, think that we have done it on our abilities. But friends, this isn't true...lawn maintenance is equally important just as lawn preparation is. Well, this was only a glimpse of all that the book has in store for you...going through this book...you'll come to know about some more such interesting facts.

So friends what is it that is holding you back? Each and every minute detail has been incorporated in this book. The only thing required on your part is PATIENCE. With patience, you'll surely succeed in growing your dream lawn! Planning for a party in your lawn...Go ahead! Good luck...look how your friends appreciate your efforts!

## Lawn: A Basic Idea

**E**ach one of us desires to give our lawn an appealing look! The techniques for taking care of your lawn should be tuned from season to season. Lawn maintenance isn't that easy...instead it involves innumerable steps. Your prime aim lies in preparing a neat and tidy lawn.

It's true that installing as well as maintaining a lawn is a time consuming process...but the end result is quite satisfactory. On the flip side, taking inadequate care of your lawn may give rise to innumerable negative consequences. In addition to giving your lawn a dirty look, it may even turn out to be a reason of property seizure.

Now you may ask... "What's the use of lawn maintenance and why should I work so hard for it?" Well friends...a properly maintained lawn not only helps people in different ways, but is also considered to be environment friendly. In simple words, a well maintained lawn is a boon to the environment!

The benefits of a well maintained lawn is not restricted to one. Conversely, a lawn that is not properly maintained (may be due to overuse of fertilisers and pesticides or negligence) may prove to be a bane to the environment.

Most of us simply neglect our neighborhood's lawn...thinking that "Why should I take care of it...it doesn't belong to me". But have you wondered that if everybody starts adhering to this approach then there would be none left for taking care of it. Don't you think that it's our responsibility to make our lawn environment friendly...decide for yourself whether you want to make it an asset or a liability!

**As mentioned previously, the benefits of a well maintained lawn is not restricted to one. Come let us take a look at them:**

- Healthy lawns are the key behind lowering pollution levels in your neighborhood. They play a major role in removing pollutants from the air, thereby lowering noise pollution.



- Lawns even play a significant role in increasing your property's value. Marvelous looking lawns add to the beauty of your house.
- Your air-conditioners bill must have been low this time...isn't it? Why? Well having a lawn in front of your house must have cooled the surrounding temperature to a considerable extent. As a result, you didn't feel the need to switch on the air conditioner! Now, how is this possible? Well, the moisture evaporating from the grass plays a significant role in maintaining a cool air temperature.
- Your kids will simply love the idea of playing in the lawn!
- Lawns help in improving the quality of water. The thick turf (formed by the grass) helps the water to soak into the soil. This helps in reducing or removing run off that carries soil as well as other impurities found in the waterways.

**There are certain things that need to be considered prior to obtaining a clear idea about the ways for growing a lawn.**

- Ensure being aware of the suitable climatic conditions that helps in the proper development of your lawn.
- Check which soil type is ideal for your lawn
- Last but not the least, find out the grass variety that grows well in your lawn

The first section of this book will help you to obtain a clear idea about the various soil types. Flipping through this section, you'll find the ideal soil type that goes well with every plant in the lawn. It is an observed fact that each plant variety needs a specific climate as well as soil type for its growth and development. Hence, prior to growing a lawn, find out at the earliest the soil type and climatic condition of the area where you live!

## Lawn Preparation: Tips and Tricks

**Mowing:** You need to put in intense efforts for mowing it to a short height. Avoid opting for excessive mowing as it causes harm to the plants growth. In simple words, excessive mowing weakens the structure of the roots.

**Sharp mower blade:** If the mower's blade isn't too sharp, then it may tear the grass instead of cutting it. Over and above, using blunt blades for mowing the lawns will use about 30% more water. Moreover plants may even get affected by pathogens if a blunt blade is used for mowing the lawn. Ensure filing the blades regularly and replace the damaged blades.

**No clippings please!** Mulching mowers are very effective in cutting the clippings and penetrates the grass and goes into the surface of the soil. Clippings do not create thatch or mulch. Mulching mowers are efficient in cutting the clippings finely. However, avoid cutting one third of the plant while mowing as this approach in no way helps the clippings in making the grass smooth.

**Avoid early fertilization:** Avoid fertilizing the plant at the time of early spring...this may cause harm to the plants. Fertilizing the plants during early spring may lead to an inadequate root structure. Avoid applying fertilisers on the saturated as well as frozen soil. This not only wastes the fertiliser, but may also lead to environment pollution.

**Water the plants:** Avoid watering the lawn during the night. Wet grasses may also be a cause of several diseases...hence prefer watering the lawn between 4 a.m. to 8 a.m.



**Sunlight Requirement:** Ensure exposing the grass to at least four hours of sunlight. Prefer using ground covers if the grass fails to get at least four hours of sunlight. Planting fine fescues in shady areas is indeed an ideal approach! Be sure to lower the use of fertilisers!

**Excessive Spray is not done:** Avoid using lawn insecticides unless you have sufficient information about them. It has been observed that about seventy five percent of the insecticides in urban areas are either unnecessary or ineffective.

## Soil: A Brief Synopsis

### Soil Composition

**S**oil is the foundation on which plant grows! In simple words, soil provides support to the roots of the plant. A healthy and balanced soil type helps in the productive growth of the plants. A healthy soil plays a significant role in protecting the plants from pests. The areas that are kept aside for lawn preparation usually have a single soil type or a blend of different soil types such as sandy loam, clay, rock, loam, gravel, silt and sand.

Each soil type comprises of five essential elements namely organic matter, minerals, living organisms, air and water. Often the living organisms aren't considered...but friends, trust me, they are indeed important! Earthworms, fungi, algae, bacteria, insects, as well as other microorganisms are some of the living organisms found in each soil type.

**A healthy soil type should include a balanced composition of the below mentioned minerals.**

- Magnesium: 12 %-22 %;
- Potassium: 4%- 5 %
- Calcium: 65 %-70 %;
- Ensure including other trace minerals.

The soil's pH value should be between 5.5 and 7.5. If the pH value is more or less than the aforementioned range, then the grass may face difficulty in absorbing certain essential nutrients. Hence you need to consider two important things namely:

- Ensure maintaining your lawn regularly
- Be sure to adjust the pH value from time to time.

Treating the soil using fertilisers and synthetic chemicals may affect the pH balance. The pH balance is also affected by the regular removal of the dead organic materials. Moreover, this may even give your lawn a dry look...so be aware!

Innumerable soil tests are being carried out for understanding the soil's texture and type. These tests may also help you to determine the true chemical characteristics of the soil.

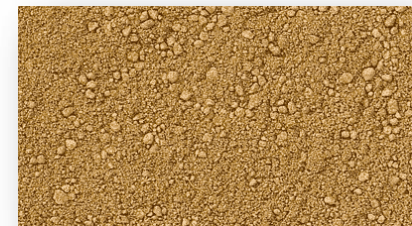
The companies involved in soil testing helps in providing information regarding the soil's chemical composition. They may even provide you suitable information about organic fertilisers. A local nursery or agricultural office usually conducts these tests.

The following information will help you in testing the soil type in an apt way. Dig a handful of soil measuring about 30 cm by 30 cm and having a depth of 17.5 cm. Next, ensure counting the amount of earthworms present in this soil type. If soil type doesn't contain any earthworms, it implies that the soil type requires aeration. Ensure adding organic matter to the soil at this point of time.

## Types of soil

### Sand

This type of grainy soil comprises of little or no humus. This soil type drains off quite well...as a result it can retain sufficient water. It lacks essential minerals and micronutrients that are needed by the plants for proper maintenance. This soil type also helps in the growth and expansion of the plants' roots. Interestingly, the sandy soil type may even lead to Cactus growth. Well, what's more interesting is that peanuts prefer a sandy soil for their growth.



### Clay

The next in the queue is clay...interestingly, the features associated with clayey type of soil is exactly the reverse of the features of the sandy type of soil. Hence, rain water takes time to seep through a clayey soil type. The plant roots usually get drowned because there is no air present in the clay soil. The roots require immense resistance to push through the soil!



## Loam

This soil type comprises of a blend of sand, clay, silt as well as other organic matter. Loamy soil type can retain sufficient water. However, this soil type is extremely loose and has innumerable air spaces. These air spaces help the plant roots to breathe comfortably. Interestingly, this soil type contains rich source of essential nutrients and minerals. These minerals and nutrients help in the growth and development of the plants.



## Humus

This soil type includes rich source of decomposed plant or animal matter. Additionally, it also includes adequate amount of essential minerals and nutrients. These minerals and nutrients play a major role in the growth and development of the plants.

It has been mentioned over and over again that all soil types comprises of a blend of sand, silt and clay. The apt soil composition comprises of two or more of the above mentioned components.

In simple words, soil is nothing but a combination of air, water and soil particles. Ensure that the combination has an adequate balance, if you want to grow the best grass variety.

The texture of the soil is essentially the combination of the three significant soil components. Come let us take a look at these components:

**Silt:** soils having a particle size of 0.005 – 0.00025 cm.

**Sand:** soils having a particle size of 0.025 cm – 0.005 cm.

**Clay:** soils having a particle size of not more than 0.00025 cm

## Loam

This soil type comprises of silt (40%), clay (20%) and sand (40%). Grass variety benefits the most from this soil type.

## Organic Matter

Organic matter is formed by the decomposition of plant and animal matter, microorganisms as well as the plant's living roots. It also contains rich source of humus. A healthy soil (of course for your lawn!) needs to have two percent organic soil. The nutrients, water as well as air are found in perfect balance in this soil type. This perfect balance of the water, air and nutrients plays a leading role in growing healthy grass.

Most of us think that, soil fertility is the key behind growing a healthy lawn...but friends, you may be surprised to know that in reality soil composition is the key factor behind growing a healthy lawn. Soil type having a balanced composition is effective in retaining water. On the flip side, soil type that doesn't have a balanced composition isn't effective in retaining water.

You can improve sandy soils by adding clay loams, organic matter or clays to the soil. Ensure adding sand or sandy loams in addition to organic matter to clayey soils. Organic matter may consist of old saw dust, peat, seed hulls, manure, straw as well as other materials. You can improve the lawn's fertility by adding fertilisers and lime to it.



## Soil tests

Soil tests help in determining the fertiliser type that should be used for growing a healthy lawn. These tests also help in determining the required quantity of fertilisers for growing a healthy lawn. It isn't always that a soil type contains perfect balance of nutrients...at times you'll find that one nutrient is present in high concentration and vice versa. However, with the help of soil test, you can determine the adequate amount of each nutrient that should be added to the soil.

Soil tests are usually conducted at the college laboratories. There isn't any need to test the soil every year. Instead, you can do so after every three or five years. For performing these tests, your first step lies in getting hold of a lawn sample. After providing the sample of the soil, you need to provide substantial information about grass growth.

## Now let us take a look at certain common fertiliser sources...

Organic Bloodmeal: 16 % Nitrogen

Ammonium nitrate: 33 % Nitrogen

Ammonium sulfate: 21 % Nitrogen

Soil amendments help in adjusting the soil's pH value. Additionally, it also provides calcium and magnesium to the soil. Acidic soil types are considered best for most lawns. Soils that have a pH value in between 5.5 to 7.0 don't need soil amendments to adjust the pH value.

## Gypsum and the Soil Structure

Some opine that Gypsum or Calcium sulfate is a soil amendment that helps in enhancing the structure of the soil. However, in reality, gypsum in no way can improve the soil texture. It can only do so when problems arise due to the presence of excessive sodium in the soil. Well...this is indeed a rare situation!



## Checking the salinity of the soil

### Salinity Tests

With the help of salinity tests, you can find out how much of soluble salt is present in the soil. Let us take a look at required amount of soluble salts present in the soil.

### Salt represented in millimhos per centimeter (mmhos/cm)

#### 4 mmhos/cm or more

The growth of “ornamental plants” can be restricted if the amount of salt accumulated in the soil is more than or equal to 4 mmhos /cm. Leaching helps in controlling the salt’s level.

#### 2 -4 mmhos/cm

The growth of “ornamental plants” may not be restricted if the amount of salt accumulated in the soil ranges between 2 to 4 mmhos/cm. However, in order to avoid wilting, you need to irrigate the soil frequently.

#### 2 mmhos/cm or less

This amount indicates that less salt has accumulated in the soil. Ornamental plant growth gets resisted here.

### Leaching

Leaching is a procedure in which excessive water is applied to the soil (more than the retaining capacity of the soil). The excessive salts (the soluble ones!) are also removed in this procedure.

## Soil type meant for each season

### Spring

Ensure cutting the grass at least once in a week. Ensure adding adequate fertilisers. Ensure planting the flowerbeds. In order to control weeds, be sure to go in for shallow cultivation. Irrigate as needed.

### Summer

Irrigate as needed. Mulch the flowerbeds to control and conserve the weeds. Shallow cultivation helps in controlling weeds. Use organic refuse (vegetable trimmings, weeds, grass clippings etc) for preparing a compost consisting pile.

### Autumn

Ensure opting for soil amendments for improving the soil's pH value.

### Winter

Ensure adding fertiliser to the soil.



## Turfing or Seeding

**A**fter becoming aware of the different types of soils, you should now try to understand the process of turfing or seeding. The requirement of each soil differs from one to the other. Therefore, you should try to treat every soil according to its requirement.

For creating a perfect lawn, you should first decide on whether you should seed or turf. But the question that may be arising in your mind is - what is meant by turfing and seeding? In the process of seeding, the soil should be tilled to aerate, mix some amount of fertiliser and spread grass seeds on it.

While you grow a lawn, you should first make up your mind whether you are going to turf or seed. Let's take a look at some of the pros and cons of these two processes. Let's start with the benefits of seeding.

### Pros and Cons of Seeding

#### The pros:

- You get various kinds of grass in seeding.
- It is less expensive than turfing.
- The growth of the primary root system is stronger.

#### The cons:

- The seeding time is limited.
- Initial time to establish the grass is longer.
- Proper amount of moisture is not present for the young seedlings.

## Process of seeding

You can start with seeding at any time in the growing season. However, during winter, growing grasses is much easier.

Before seeding the grass, you should go for a basic soil test to understand which fertiliser should be used. The area to seed must be devoid of perennial weeds. If you want to use a herbicide, then one that doesn't leave some toxic supplement on a soil must be used.

The area to seed must have loose upper soil layer that measures 28.75 cm. You should make grade adjustments for draining out the excessive amount of water. You should also remove debris & rocks.

Place decomposed manure, compost, peat moss along with fertilisers for 3 to 5 cubic meters on the top 15 to 20 cm of your soil.

Next, make the soil bed smooth and firm for carrying out the process of seeding. Evenly spread the seeds in 2 directions for proper plant growth. Gently drag behind the rake to cover these seeds with soil.

To retain the moisture content of the soil, add little water when seed germination is occurring. This process can continue for 2 weeks. How much water should you use will depend on the season and weather conditions. Decrease the number of times that you water the seeds when the roots start growing deep into the soil. This would lead to the growth of healthy plants.



## Process of turfing

High quality of turf that is cut freshly should be purchased while turfing . The turf should be installed promptly. Edges of your lawn should be staggered like laying the bricks. The turf should not be stretched and do not leave a space between parts of sod.

After you install the fresh new sod, water it thoroughly. Water should go into the turf to moisten the underground soil so that the roots develop well. In this stage, mow the lawn regularly.

A turf can be installed at any time of the year unlike seeding. The process of preparing turfing resembles the process of preparing a lawn for seeding. Follow the below mentioned steps while seeding.



- Remove and clean the remaining weeds and turf from the lawn before turfing . While redoing a sodded yard, completely remove the previous sod. You can use a herbicide that does not leave a toxic deposit. You should water the lawn thoroughly before you apply the herbicide.
- The place containing bricks and debris should be cleared. Add organic soil amendments deep into the soil for improving the pH balance of your soil. Remove all the underground obstructions. Use a landscape rake to level all the high and low spots.
- Install a high quality sprinkler to make sure that you grow the lawn successfully. For a big lawn, hand watering would be troublesome and time consuming especially during hot summer. Install sprinkler heads before you complete the final grading and leveling.
- Level and rake the area to grade ultimately & to remove the stones. Distribute and rake a 'starter fertiliser' in the soil surface. Now, remove the 'sprinkler heads'. Adjust the sprinkler head's height based on the thickness of the sod.

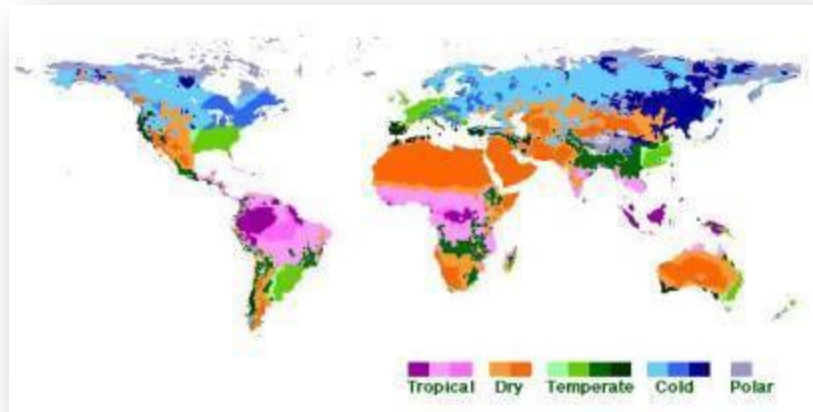
- Water the area before you install the sod. Irrigation aids in soaking the ground well. It also prevents soil runoff. This in turn lets the turf to spread its roots much faster. Sodds stacked on pallets generate heat at a faster rate. To get best results, lay the turf on that particular day when it arrives.
- Lay the turf on the biggest straight line that starts from the back to its front. This straight line should be followed in order to avoid stepping on a new sod. Butt the edges and ends tightly. Turf strips should be laid like bricks to minimize the visible lines when it takes roots. Avoid the curved and spliced angled areas using small pieces and strips. A bigger piece roots better. Use a water roller to make sure that the turf is in good contact with the bed of the grass after installation.
- After you install the sod, you should thoroughly water it. This new turf should be kept wet for some days. The number of times you will water the turf depends upon seasons and weather conditions. After some weeks, check how far the roots have progressed. You do this by tugging each strip softly. You should not trample the turf before the roots have developed properly.
- After the turf establishes itself, the soil should be watered based on the weather conditions and soil. Make the watering routine after you determine the conditions of the weather. The lawn should be observed carefully. Check whether any kind of water coverage is present or not. The sprinklers should be adjusted as per your need. Also use watering for overcoming a 'hot spot' that might happen during hot or windy weather. You need not water the entire lawn to fix some problem spots.
- After mowing, the lawn should be fertilized with seasonal lawn fertiliser. To avoid varying fertilisers from one season to the other, use a premium lawn food which along with conditioning the soil will also offer a complete balanced & lasting 'nutrition' for your grass throughout the entire year. Some other seasonal fertilisers which you can obtain from the locality can also be chosen.

## Weather Conditions

Another important factor for the proper growth of the plants is the right climate. You should try to know the climatic conditions of your neighborhood before you start planning for growing a lawn. If you know the right climate, you will easily be able to determine what sort of grasses can be grown there. Therefore, you should not start growing the grass without determining the climate of a particular place. After you understand the climatic condition, you should not presume that you know it all. There are many other factors left about a proper lawn care. Let's start the discussion about caring for a lawn by looking at each factor from a closer view. Let's first understand the importance of climate for proper plant growth.

The climate of any place varies from one time to the other as well as from one place to another. It should not be expected that all the plants would grow in same climatic conditions. The case is same with grasses as well. Grasses are categorized based on different seasons. It simply means that a grass growing in summer will not grow during winter. For this reason, you should take special precautions in each season.

What type of grass you will choose is also dependent upon the climate of a place. So prior to installing a turf on your lawn, you should first understand if the land has a subtropical, temperate or tropical climate. If you able understand the grass type suited for the place, you can take care of it in a specific manner as per its need. Therefore, the role played by climate in maintaining & installing grass in your lawn is very crucial. You can also understand the pasture to be used for a particular plant if you know the climate of a place. You should not buy and plant a 'warm-season grass' only to observe that it is not able to survive in the warm summer. The process to find the right type of grass is an important step to plant and get a good lawn.



## Types of Grass

**C**an you convert a rugged land into a proper land? Can you put some 'green carpet' on the barren land? You can surely do so! Rugged areas are quite productive & can be transformed into bright green turf. Let's see how this is possible. You can do this only when you plan to grow the lawn as per your requirement. A nice-looking lawn needs to have green colored grass turf & for developing the same, you should choose the suitable grass type.

This section deals with all the important types of grass. It also discusses how to manage them and how they adapt with the environment.

You should remember that grass growth depends upon the lawn's potential & the kind of maintenance that you will offer. For proper grass growth, the turf needs right soil type and suitable grass. Let's now consider some popular grass types.

### WARM SEASON

#### **St. Augustine grass (Buffalo)**

St. Augustine grass has been used in different parts such as the Caribbean, South America, Western Africa, South Africa, Australia, the Hawaiian Islands and South Pacific. This grass originated in tropical sandy sea-beaches, swamps, lagoons.

The origin of this grass is at tropical sandy beaches, lagoons, swamps, limestone shorelines, or fresh or salty water marshes.

Gradually, this grass started moving towards inlands of the stream banks, lakeshores & in moist areas. You can grow this in any soil type other than droughty or waterlogged areas where it experiences difficulty with the development.

In the USA, St. Augustine grass is found in Carolina, gulf coast of Texas, Florida, & in southern and central California. In these parts, there is no harsh winter and the temperatures are mild. For this reason, St. Augustine grass grows best in these regions.



St Augustine is considered to have originated in the Mexican Gulf, West Indies and in western Africa. This grass grows best in the coastal regions of America and Africa which has Atlantic Ocean near it.

200 years ago, this grass was found in Uruguay, West Indies, Nigeria, Brazil, Sierra Leone, South Carolina & in Bermuda. These grasses were also found in New Zealand and Australia during the year 1840.

Early records suggest that this grass has a white colored fertile stigma that was made up of some 18 chromosomes. Various St. Augustine triploids have purple stigmas. This was first observed in the year 1791 at the Cape of Good Hope. By the year 1900, this type of grass was used as a lawn material. Since then the plantation of this grass commenced in different parts of Rhodesia, the Congo, Senegal, Australia and Southern California.

St. Augustine grass can grow in various parts and have different names. In California they are also called “carpet grass” and referred as “gramillion” in the southeast parts of the US. In Argentina, they are called “crabgrass”, “buffalograss” in West Indies. St Augustine is also called Buffalo in Australia.

## Identifying the grass

*Stenotaphrum secundatum* (Walt) Kuntze or St. Augustine grass is considered to be a healthy and perennial type of grass. This is commonly used for the pastures and lawns. Among the other types of grass, they grow best in the warm climatic conditions of subtropic or tropic regions. Bermuda grass also has similar properties and requirements like St. Augustine grass. St. Augustine grass has a rough texture and is a stoloniferous species which has roots on the nodes.

The stems or stolons & covered ‘leaf sheaths’ usually stay compressed. The ‘Leaf blades’ of this grass is folded and has a contracted base. Its tips are smooth and rounded.

The fine development of the ligule or leaf is abridged to some short strips of hairs. It has petiolate collar. The grass sheath is ciliated at the margins and remains compressed.

Blossoms occur at a terminal part of this grass. The blossoms are sometimes racemes (spike like), spikelets or axillary. The blossoms usually remain fixed in main axis. Length of glumes is almost half of spikelet, for oblonged ovate, the glumes do not mature at all.

## Process of adopting

St. Augustine grass can adapt well to mild and moist winter climate of the coastal areas. These grasses can tolerate high temperature & can also retain its color in excessive low temperatures unlike Bermudas.

St. Augustine grasses are able to resist moderate shade that is much better than some other grasses of the warm seasons that need shaded sites. When the seeds have been densely planted, St. Augustine grass has a thin, lean, and long growth.

With a very fertile soil along with a proper drainage, St. Augustine grasses are able to grow on different soils. The pH of this grass ranges between 5 and 8.5. It thus becomes chloritic in very alkaline soils that have a pH more than 7.5.

This grass can't bear waterlogged conditions. However, it grows quite well where soil salinity is high. When level of salt in the water is very high such as 16 mmhos, soil production is satisfactory.

St. Augustine grass is considered to be most suitable form of grass for a lawn, because it cannot tolerate warm species & other traffic. Moreover it also needs minimum level of maintenance & can be compared with other grasses and weeds.

However, some pests are considered to be harmful for St. Augustine grasses. In warm & moist climatic conditions, this grass produces a nice turf that can be maintained with seasonal mowing.

In dry climatic conditions, when rainfall is less than 76.2 cm, supply water through irrigation so that the grass grows properly. With proper maintenance, St. Augustine grass can produce bright green turf that all homeowners prefer and desire.

## Distribution process

While growing St. Augustine grasses, different vegetative methods such as stolons, plugs, or turf are used. In the recent times, one has identified the ability of producing seeds of this grass. But how to develop these seeds is still unknown.

According to many studies, some St. Augustine grass strains are fertile & are often used to produce seeds. These strains are observed in Texas and other areas such as Florida, the grasses are sterile in nature.

St. Augustine grass develops from sod. These grasses develop very fast with the creeping sods. Stolons or turf plugs are planted at a gap of .3-.6 meters between them. In the small lawns, one can plant turf plugs by maintaining same distance between them.

St. Augustine grass grows successfully from turf plugs, anytime in the 'growing season' with adequate water supply. Unlike the Bermuda grass, St. Augustine grass is not able to spread nicely from the stolons as the type of grass is very dry. Moreover, the roots of this grass cannot grow very fast like the roots of the Bermuda grass.

As St. Augustine grasses cannot spread, they can't completely grow by hydromulching or stolons. Though, grass stains are not able to grow by planting seeds at .2 kg per 100 sqm.

The establishment rate of a planted seed will be like turf plugs of 5 cm that is planted on a distance of 30cm from each other. Keep a lawn having grass seeds of St. Augustine moist for some weeks for getting a nice looking lawn. These seeds can resist the aridity when seeds of this grass started spreading. The most suitable time of planting seed is in the early summer and in late spring.

## Grass management

After planting St. Augustine's grass, how the grass will grow is solely dependent on how you will manage the grass. Growing St. Augustine grass in coastal regions will lead to the proper growth of the grass. If they are grown in inland areas, they will not need rainfall. Steady water supply is required for the proper maintenance of the lawn.

Like all other grasses, growth of this grass also depends upon moisture content, temperature & soil nutrient. Absence of any factor can limit its growth. Spring season has a cool temperature during the night and mild temperature during the day which enhances the growth of this grass.

The size and length of grass cannot increase in the spring season. With the increase of temperature during the night and day in early summer and late spring, the grass is unable to increase its height.

For establishing bright green turf, St. Augustine grass needs to be mowed in every 2 weeks during early spring. During the autumn, the height of the mowing should be increased to 2 cm so that the entire leaf area of a turf is increased. This increased leaf area aids the grass in gaining more energy to combat against snow and frost during the winter months. Greater leaf area helps in preventing the weeds from entering during winter.

St. Augustine grass is sensitive towards the nitrogen fertilisers that aid in enhancing the foster growth and color. Due to the lush growth of this grass, diseases and insects easily affect it. A problem of thatch accumulation is also there with this grass with the application of more nitrogen.

This grass is also susceptible to iron deficiency & so produces chlorotic symptoms when the soil is lacking iron or is alkaline in nature. Foliar applications like iron sulphate or iron chelate can be used to treat grasses having an iron deficiency.

The amount of potassium needed by St. Augustine grass is similar to other grasses. Potassium helps in proper growth of the roots, and enhances drought and cold tolerance in St. Augustine grass. It requires low amount of phosphorus which the grass gets from plant. Occasionally a phosphorus fertiliser is required for the growth of the plant. The grass also spreads well with a phosphorus grass.



## Bermuda grass (Green Couch)

Bermuda grass, a turf is mostly used in golf court, parks, sports field and lawns. They are mostly observed in parts of southern Africa, America, India, South America & Australia. Other than these countries, Bermuda grass can also be observed in some other 100 countries in the entire subtropical or tropical areas of the world.

### Identifying the grass

*C. dactylon* is considered to be a most common type of Bermuda grass. This is mainly used in warm parts of America. *C. dactylon* Bermuda grass originated in America in the 'colonial period' of Africa and India. Though early records do not prove their origin but they are surely considered to be an important grass.

*C. dactylon* type of Bermuda grass is widely spread and distinguished from other grasses. It comes under the category of genus *Cynodon*. '*C. dactylon*' is a kind of tetraploid having great genetic variability. Other *Cynodon* grass species are not distributed on such a wide scale & is limited to one specific habitat. *C. dactylon* is extremely fertile in comparison with diploid species such as *C. transvaalensis* that hardly produces some productive seeds.

Bermuda grass is also called Green Couch in Australia, in South Africa it is called Kweekgras, in India is known as devil's grass. *C. dactylon* can be used as some weeds for a lot of crops and as a result they have so many names so that they people all over the world can recognize it easily. Among the 3 most harmful weeds, *C. dactylon* is considered to be one of them that hinders the growth of vineyards, cotton, corn, & sugarcane. This is a difficult weed that can be removed due to its rhizomes & its abilities to produce seeds.

## Bermuda grass (Green Couch)

The sub-tropical and tropical climates, characterized by moderate rainfall, mild winters and long summers are suitable for growing Bermuda grass. Temperature is one such environmental factor to which the Bermuda grass cannot adapt. Such as, very low temperatures in the northern United States restrict the growth of this type of grass. Cold conditions result in the death of their stems and leaves.



Research has shown that Bermuda grass may grow in temperatures below freezing point provided that the temperature remains 21 degree centigrade during the day. The grass may stop growing and lose its color in case the average temperature falls by ten degree centigrade. The protein and carbohydrate reserves in the grass change with a fall in temperature in winter.

The rhizomes and roots of the grass keep on growing for some weeks even after the leaves and stems have stopped growing when the extreme frost condition is over. An average temperature of 24 degree centigrade is suitable for growing the grass. These species require an optimum temperature of 35 and 38 degree centigrade during the day.

Bermuda grass thrives on the soil that has a temperature of more than 18 degree centigrade. This temperature is required by the rhizomes, roots and stolons to grow. A temperature of about 27 degree centigrade is required for the growth of roots. High intensity and a long duration of continuous sunlight encourage the rhizomes, leaves and stolons to grow well.

Bermuda grass growing under sunlight that is less intense tends to develop extended internodes, weak rhizomes, thin stems and elongated leaves. If these are grown under moderate sunlight they develop sparsely. This grass species can be grown in arid conditions with the help of irrigation. Irrigation is required for growing Bermuda grass in such areas that receive an annual rainfall of less than 50 cm.

The grass becomes partly dormant in extremely dry conditions and then recovers when soil moisture becomes available to it. *C. dactylon*, a common type of Bermuda grass can survive in long drought conditions since its rhizome enters into one of its deepest roots. These grasses produce seedheads to sustain drought conditions. *C.dactylon* is able to produce a number of small seeds.

Fertile soils ranging from clay to deep sand are favorable for the growth of Bermuda grass. But it can also be grown in saline, acidic and alkaline soils. Although this type of grass can tolerate flood conditions but well-drained areas are preferable. Bermuda grass serves as pastures and hay for livestock animals.

The irrigational requirement of Bermuda grass also depends on the depth of its roots. The roots usually penetrate 2 meters deep down into the soil. When the roots reach close to the water table underground even infrequent irrigation cannot hinder the growth of the grass.

The areas that are hard and compact are covered with sand for allowing the water to penetrate.

The common and medium textured Bermuda grass need to be mowed up to a height of 1-2 cm. Low mowing of the grass is preferred in the case of golf turfs. Lawns require a relatively high mowing of the grasses. Bermuda grasses with fine texture, such as tifway, need to be mowed up to 50 cm.

## **Bahia grass**

This grass species is not only easy to maintain but it also gets less affected by diseases. This is a warm-season grass that is perennial in nature. It was imported from the southern part of America. Bahia grass serves as pastures for cattle.

Bahia grass is usually dense and its height ranges from 0.33-1.00 meters. The grass comprises of a cluster of leaves at its base, which are flat and have hairy margins. The leaves are 1 cm wide and 30 cm long.

2-3 terminal seeds produced by the stem of the grass, are propagated by several methods of vegetation. The seeds even in dry sandy soils produce sod. It can be grown in clayey and sandy soils. Argentine and Pensacola are popular among the other species of Bahia grass.

The grass requires moderate rainfall and low maintenance throughout the year. These grasses need to be mowed for 5-7 days in a week. In its growing season the grass has to be mowed within regular intervals.

Bahia grass can resist drought but their seedlings need to be watered regularly so that they germinate well. The amount of water required by Bahia grass depends on its type. These grasses remain dormant in drought conditions and get recovered when adequate soil moisture is available.

These grasses are not much prone to diseases. Proper fertilization helps them in overcoming the diseases, if any. These are less likely to be affected by pests.



## Zoysia grass

Zoysia grass is a native grass of Southeast Asia. Some reports suggest Manila as the origin of zoysia grass and therefore it is called manila grass. Another kind of zoysia is the “Korean velvet type” of grass, which has a fine texture.

These species of grasses possess rhizomes and stolons, produce sods and are perennial in nature. At the end of the first dry season the grasses become brown in color.

Grasses with a coarse texture have a high content of silica, thereby stiffening its leaf blades. In the fine textured grasses the leaf blades have smooth margins. The terminal seeds produced by the grasses propagate.

These species can be used for several purposes such as, athletic fields, golf courses and parks. These grasses thrive on a variety of soils ranging from clayey to sandy soils. These soils may be alkaline or acidic in nature. During the winter season the grass is grown only in shaded areas. Shaded regions are favourable for their growth the rest of the year. During drought conditions the leaves of the grass remain rolled inside the bud. The moisture retentive capacity of this grass is greater than that of the other species. Before you plant the grass, you need to pulverize the seedbed and make it smooth. The turf plugs have to be cut in a size of 5 cm for being planted. When planting the sods, make sure that their nodes are present on the surface of the soil. The seeds have to be kept moist for some weeks after it has been planted.

You are required to apply 500 gm of nitrogen to the grasses just after they have been planted, in order to control the growth of weed. It is advisable that you apply nitrogen during spring and summer.

The soil in which zoysia grass is grown must have adequate amount of phosphorus and potassium. In order to improve the soil, you are required to apply 0.5 kg of potassium oxide for every 100 square meters.



## Queensland Blue Couch

The scientific name of Queensland Blue Couch is *Digitaria dicactyla*. This grass variety is considered apt for home lawns, particularly in south-east Queensland. This grass variety suffers less from thatching as compared to the other green couch varieties.

### Characteristics of Queensland Blue Couch

- Regular maintenance and adequate sunlight helps in the growth and development of the Queensland Blue Couch.

### Queensland Blue Couch: Appearance

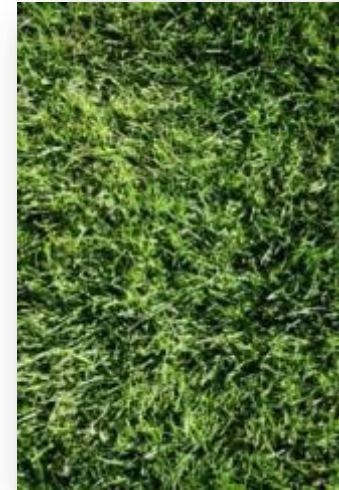
- Comfortable and soft
- Has a dark blue-green color
- Fine textured with a fine / medium leaf

### Queensland Blue Couch is best for:

- Sunny yards and Home lawns
- Commercial and Domestic use
- Gardens and Parks, roadside verges and nature strips

### In recent times it is used for:

- Residential, Industrial and Commercial areas throughout Queensland
- Gardens and Council parks, roadside verges and nature strips throughout Queensland
- Sporting areas throughout Queensland



## Queensland Blue Couch: Maintenance

- Needs routine maintenance for proper growth and development
- Needs minimal fertilizer for growth and development

## Mowing

- Summer/ spring: Mow 18 to 25 mm (in growing season) after every 7 to 14 days.
- Winter/ autumn: Mow 30 to 35 mm after every 21 to 28 days.

## Watering

- In summer, ensure watering the grass after every 3 to 5 days. However, in rainy season, do not water too frequently.
- Ensure watering the plants early in the morning. Don't water the plants at night.
- Infrequent as well as deep watering helps in maintaining the lawn properly.

## Seashore paspalum

### Properties

Seashore paspalum can grow in saline soil outcroppings along ditch banks and roughs. This species of grass can tolerate salt to a great extent.

This grass produces finest turf with a mowing height of less than 25 mm.

Relevant studies have shown that the density of shoots developed is quite high when it is mowed at a lower height. These grasses acquire a fine texture if they are mowed frequently up to a height of 3 mm.

Seashore paspalum requires less fertiliser than Bermuda grass. The density of seashore paspalum can be maintained through relatively less annual application of nitrogen in comparison with Bermuda grass.

Research shows that the growth of the seashore paspalum tends to increase. Seashore paspalum acquires a dark green color when nitrogen fertilizer is applied to it, at an annual rate of 8 pounds/1000 square feet.

An annual application of nitrogen exceeding 4 pounds results in the scalping of seashore paspalum. This is a problem that is caused by the application nitrogen fertilizers in summer. You are suggested to apply the nitrogen in autumn and during spring. Emphasis should be laid on fertilization when applying nitrogen in autumn.

Seashore paspalum growing on lawns require 1 pound, half pound and again 1 pound of nitrogen in March, July and May, and October, respectively.

Information regarding the species' tolerance level of drought, cold and shade is limited. But it has been observed that the species is unable to tolerate long and bitterly cold winters.

Seashore paspalum grows well in moist areas. Its level of tolerating wet conditions is comparatively greater than that of Bermuda grass. The capacity of tolerating drought is almost the same in centipede grass and seashore paspalum. Although it can sustain long dry periods, but not up to that extent to which Bermuda grass can survive.

## COOL SEASON

### Fescue Grasses

#### Description

Fescue grasses are found in four different kinds: Creeping, Tall, Hard and Chewing. They are usually dark green and medium fine in texture. This grass variety is found commonly in Australia, U.S. as well as in the northern parts of Canada.



## Advantages:

- Generally retains the greenly look throughout the year.
- Considered ideal for play areas.
- Low maintenance.
- Has a deep and strong root structure.
- Resistant towards minimum heat, shade and drought.

## Disadvantages:

- With inadequate maintenance, this grass variety becomes dormant (particularly during extreme temperatures).
- Aren't as attractive as other grasses.

## Watering

Moderate watering is necessary during droughts and high heat.

## Ryegrass

Ryegrass is considered to be one of the most cold-resistant grass varieties. They possess innumerable agronomic qualities. Favourable environment conditions, regular mowing as well as adequate nutrients supply help in keeping your lawn healthy. This grass variety is grown best on well drained and fertile soils. They even grow well on moist soils. Ryegrass requires adequate supply of water for their proper growth and development. This grass variety is more commonly found in North African, Asian as well as European countries.



## Ryegrasses: Types

Italian ryegrass (scientific name *Lolium multiflorum* Lam) and perennial ryegrass (*Lolium perenne* L) are the two well known species of ryegrass. The Italian ryegrass is unable to survive more than one growing season, particularly in the northern climates. However, recent research shows that the Swiss ryegrass possess the ability of surviving for three years.

The perennial ryegrass survives for more than one growing season. This grass variety produces the seed heads during the late spring months. However, recent research shows that this grass variety produces seeds from mid-summer seasons. This grass variety doesn't require too much of grazing, moreover they can resist severe conditions! This grass type is less persistent during cold climate as compared to other grasses such as timothy, orchard grass and fescue.

The Italian as well as perennial ryegrass species are further divided into two groups namely diploids and tetraploids. The natural hybridization between the perennial as well as the Italian species takes place quite frequently.

## Growing the grass

The ryegrass needs standard winter temperature for the proper growth and development of the seedlings. The seedlings particularly grow well either in late summer or in winter. You may even opt for a mixture of legumes in order to grow a healthy lawn. Legumes like alfalfa or white clover provides nitrogen to the ryegrass that improves the forage quality. The seedlings of the ryegrass grow well in tilled seedbeds as well as in existing grass sods. Ensure grazing or mowing the grass for a short span of time. Insert the seeds to a depth of about 0.6 to 1.2 cm.

## Maintenance

For proper maintenance of this grass variety, you need to take into consideration the below mentioned things namely:

- Time
- Seeding procedure
- Soil fertility
- Growing conditions

The good news is that you don't have to put in intense efforts for maintaining this grass variety...moreover this grass variety is also able to withstand cold climatic conditions.

## Kentucky bluegrass

### Description

Kentucky bluegrass is also known as *Poa pratensis*. It can be easily distinguished from the other grass types with the help of its boat shaped leaf tip. It has an average height of 45 to 1440 cm. The new leaves takes 22 days (during summer and autumn) and 10 days (during spring) to appear. The leaf blades retain their green color for about 10 to 12 days.



The leaf blades of the Kentucky bluegrass have an average height of 7.5 to 10 cm during late spring and summer. On the other hand, the leaf blades appearing during late summer and autumn are much shorter. The leaves appearing in spring and early summer are erect, whereas those appearing in late summer and autumn are too decumbent.

Certain shoots of the Kentucky bluegrass turn down, thereby forming rhizomes underneath the soil. The rhizomes of the Kentucky bluegrass generally develop during early summer. In simple words, during early summer, the leaf's growth begins to decline. In addition to this, the growth of rhizomes is slowed down due to high nitrogen fertilization and close mowing.

The factors that help in the growth of rhizomes are as follows-

- Long days
- High light intensities
- High temperatures

The factor that slows down the growth of rhizomes is the high nitrogen fertilization.

## Varieties

Kentucky bluegrass is found in innumerable types. Grass varieties such as midnight, Warrens A-34, baron, Victa, Ram I, Fylking, Glade and Adelphi are able to withstand southern climates. On the flip side, varieties such as Adelphi, Bristol, Ram I and Touchdown are effective in withstanding closer mowing. Grass varieties such as Bristol, Glade, Nugget and Touchdown are able to withstand moderate shade.

## Seeding

Kentucky bluegrass can be seeded throughout the year. However, for best results be sure to seed them during spring and autumn. New seeding requires adequate sunlight as well as frequent watering for proper growth as well as development.

## Maintenance

Be sure to mow the grass after it reaches a height of 5 cm or more. You may opt for either rotary mowers or reel type mowers. However, check whether the reels are adjusted well and the blades are sharp enough. This will restrict the young seedlings from pulling up. Be sure to mow the grass at a height of 5cm...however prefer doing this only once in a week. Grass varieties such as Ram I, Touchdown as well as Fylking can be mowed to 1 2.5 cm or more. Kentucky bluegrass can survive for a long time without rainfall or irrigation.

## Pest & Weed control

Dandelions, Annual bluegrass, crab grass and clover are quite a few problems that we find in this grass variety. Pre-emerge herbicides help in preventing this problem. Insects like sod webworms, billbugs as well as white grubs cause harm to the Kentucky bluegrass. Be sure to apply insecticides for preventing this problem. The common diseases that may cause harm to the Kentucky bluegrass include Fusarium, rust, Powdery mildew and Helminthosporium leaf spot diseases.

## Nourishing your Lawn

### Fertiliser

The grasses should be provided with the essential nutrients since these cannot be provided by the soil in all seasons of the year. Therefore, you are required to apply proper fertilisers as per its requirements in different seasons. This is one of the ways of maintaining the health of your lawn.

The importance of using fertiliser:

- Fertiliser promotes the growth of new leaves and roots.
- It controls the growth of weeds.
- Fertilisers help the lawn turf to quickly recover from foot traffic and pest damage.

It replenishes the nutrients that have been removed from the soil through grass clipping and leaching.

Fertilisers are usually available in two different forms - liquid and granular. You are required to choose fertilisers as per the requirement of your lawn.

Granular fertilisers are spread on to the grass and can be easily controlled. These fertilisers are available in the formulations of slow and quick release. Applying the fertilisers in a liquid form helps the plants to absorb it quickly.

The grasses are generally provided with nitrogen fertilisers that are soluble in water. These fertilisers belong to the category of “quick release fertilisers” and usually last for about 3-4 weeks.



The fertilisers that are based on slow release formulations can be classified as:

**Polymer coated-** These fertilisers last for 3 months.

**Sulfur coated-** These last for 2 months approximately.

How long a fertiliser will last or how frequently it is applied depends on rainfall. Fertilisers need not be applied towards the end of the growing season in order to avoid unwanted growth.

The percentage of elements upon which, the nutrients of a fertiliser is based, is denoted by a NPK number mentioned on the package of the fertiliser. The three main elements in a fertiliser are namely, potassium, phosphorus and nitrogen.

Nitrogen is responsible for the growth of the leaves (of the grass) and their green color. Potassium protects the grasses against diseases and enhances the development of their roots. Phosphorus is essential for the growth of the roots.



Magnesium, sulfur, calcium are some of the secondary elements present in the fertilisers. Magnesium helps in the formation of sugar whereas sulfur is responsible for the green color. Calcium encourages the growth of roots.

Manganese, copper, boron, molybdenum, zinc and iron are also present in the fertilisers.

The grass type has to be taken into account for choosing the right kind of fertiliser. Make sure to go through the instructions regarding the use of fertiliser before purchasing it.

Certain fertilisers are used for killing broadleaf weeds, such as dandelions.

Pre-emergent weed killers are the ones that are applied before the weeds can start germinating. These are usually used to prevent the growth of crabgrass. These are mixed with fertilisers in order to be applied on to the lawn.

Post-emergent weed killers are used for killing the actively growing weeds. These work effectively only when applied at the right time. You are required to go through the details mentioned on the package of the fertiliser that you will be using.

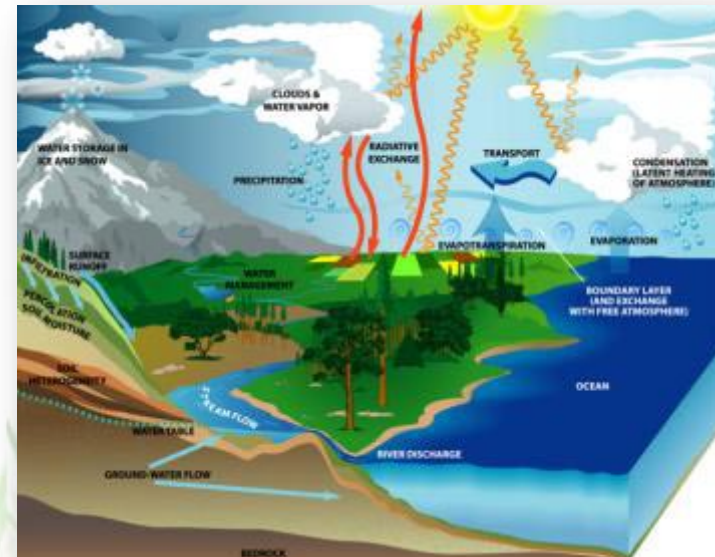
## Yearly Lawn Maintenance Schedule

### January

Before getting into a detailed explanation about the different growing process of lawn, let's see a few important things about hydrological cycle. This is important because without having a brief idea about the hydrological cycle, you cannot plan your methods of growing a lawn properly.

#### Water movement in the environment

- Water from all the water bodies evaporates into the atmosphere on account of solar energy. The water comes back in form of rain or precipitation and then again goes back to the atmosphere and in this way the cycle continues.
- Rain or snow fall are mostly intercepted by different forms of vegetation and never reaches the ground. The water reaches the atmosphere by evaporation from the different forms of vegetations.
- Water that seeps into the ground is absorbed by the roots of the soil and gets released via transpiration process.
- The remaining water which is not being absorbed by the roots is transported through different layers of the soil and reaches the water table to form groundwater.
- When the soil becomes saturated with water it extends to the land, ponds, lakes or streams.



## **Importance of water quality**

When water is properly managed and is free from all kinds of pollutants, it becomes appropriate for fishing, swimming, supports all forms of aquatic habitats and suitable for drinking purposes.

## **Watershed**

Watershed is the area of land where water drains into a particular water body. So the entire land on which we live in is watershed.

## **Pollutants enter water supply**

Urban development projects has lead to exploitation of vegetation, where lands are being covered with buildings, roads, streets, driveways etc and is preventing water from infiltrating the soil. This is allowing the discharged water carrying pollutants like fertilisers, pesticides, animal discharges etc to get released into the water bodies. The runoffs from drains are sometimes discharged directly into lakes and streams.

## **What's good about January**

- You learn about the watershed you live in
- Review the garden and lawn practices
- Check out the community efforts about preserving and protecting water quality

## February

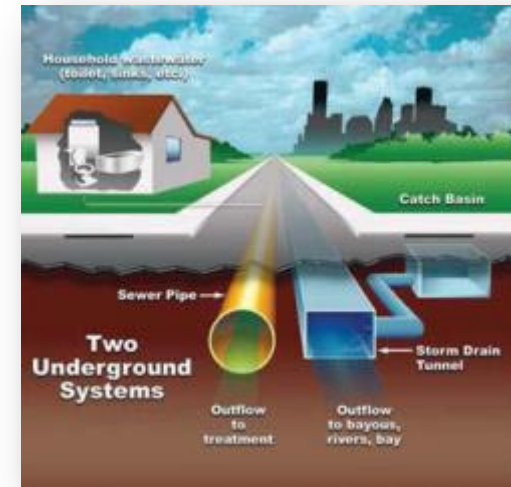
### Learning the techniques of preserving water quality by lawns

#### Importance of dense and healthy lawn to protect water quality

When water enters the soil through groundwater routes, the lawn filters and purifies the water. Many studies have revealed that lawns are much more competent in reducing the surface runoff of water as compared to bare soils and paved surfaces.

#### The pollutants

Water pollutants can be anything like sediments, fertilisers, pesticides, grass clippings, tree leaves, automobile fluids, household cleansers or groundwater can be threatening to the quality of water. Here is a list from where you can understand the pollutants and its sources.



#### Pollutants

Hydrocarbons  
Silt, sand, and clay particles  
Pesticides  
Nutrients

#### sources

exhaust from vehicles, garbage, automobile fluids  
bare and loose soils, debris from rooftops/vehicles  
applied just before rain and is discharged on paved surfaces  
discharged fertilisers on paved surfaces, pet wastes

#### Things to do in February

- Identify the inventories and pollutants around home
- Determining about the pollutants entering the water bodies
- Setting target dates for action
- Minimizing the paved surfaces and the bare soil areas

## March

### Assessment of water quality of landscape

Firstly when you preparing to grow a lawn, it is necessary to see ways of maintaining your lawn:

- Check the condition of the landscape
- The time you will invest on its preparation and maintenance
- The amount of money you are going to invest
- Consider the limitations of the equipments like height adjustable mowing machine.
- The fertiliser to be used
- Watering the lawn
- Expect minimum wearing of land with running, walking or working over the yard

**There are some special areas in the lawn which you need to take care.  
The areas like:**

- Streams, rivers, creeks, ponds, or lakes
- Areas of direct sunlight (southwestern exposure)
- Compacted areas
- Shady areas
- Locations of weeds
- Bare surface areas
- Exposed tree roots
- Storm drains
- Steep slopes



- Areas of standing water or poor drainage
- Areas of wear
- Impervious surfaces

## **Understand the condition of your land and choose the correct type of grass which protects the water quality**

- select the type of grass which is suitable for your landscape which will ensure a rapid development, prevents excessive runoffs and erosion of loose soils
- When appropriate grass types are used, it forms dense cluster of standing grasses which prevents disease and weed effects.
- A vigorous lawn requires lesser amount of pesticides prevents excessive runoffs (with pollutants) and doesn't allow leaching of ground water and accidental spills.

## **Things to do in March**

- March is the autumn time, when the winter wastes and rake leaves are removed from the paved surfaces and sewers.
- Sampling of soil is conducted every three years to identify the nutrients of the plants. Collect half cup of soil from several locations of the lawn and then mix it together. Then send the sample to the local Landscape Supply yards and after obtaining their report use it to choose the fertilisers for your lawn.
- While choosing the seeds, it is better to check the information about the cultivators.

## April

### Preparing for the action

- Identify a weed which is a plant growing in wrong place.
- Weeds often grow in those places of bare grass or loose turfs. Unwanted growth of weeds can be prevented with continuous and dense grass turfs.
- Decide on the type of weeds you would allow growing and that which you would prevent.
- Before deciding on the weeds, it's important to determine the number of weeds you want to grow and then start the control measures.
- If the growth of weeds increases, then you need to choose the appropriate weeds to maintain a unique lifecycle and biology.
- Annually the weeds die and leave the soil bare which allows more runoffs.
- Weeds which are perennial in nature help in maintaining the density of the lawn minimizes runoffs.

It is always better to promote a dense turf because it eliminates weeds and protects the water quality by minimizing runoffs. Dense turfs also act as a filter for harmful substances entering the soil.

### How to perform a good mowing

When you are growing a lawn, it is necessary to learn the proper techniques of mowing. Weeds problems can be reduced with proper mowing. Let's learn ways of performing a good mowing:

- Always use a sharp blade and for ensuring a uniform trim, sharpen the blade after every 4 hours of use.
- The thumb rule is to maintain 1/3 of the grass height with each mowing.



- Clippings should be left on the lawn.

## How to control weeds

You can try the technique of 'culture' when you have more weeds on your lawn. The technique involves the following process:

- ✓ Mowing should be performed at a proper height. Mowing helps to maintain a desirable turf height by eliminating the weeds.
- ✓ The compaction of soil is reduced around the areas of heavy wear.
- ✓ Reduces the soil compaction near the paved areas
- ✓ When the density of lawn is thin, use fertilisers to improve density.

Chemical processes are always helpful for lawn growing and maintenance, so let's check these processes:

- ✓ Preemergence herbicides are the common crabgrass and goosegrass which are applied to the soil before the growth of weeds. These grasses have low solubility and are organic in nature. If they are not watered properly, they can cause runoffs.
- ✓ Postemergence herbicides, are the most common broadleaf weeds which can be applied after the weeds appear. These weeds have high solubility and high leaching abilities. Don't apply these before irrigation or rainfall.
- ✓ Using Non-selective herbicides can kill and injure plants which come in contact with it.

## Choosing pesticides smartly

- Use right product at the right time and follow the directions accurately on the table.
- Choose the product that doesn't leach into the groundwater. The materials in the water which have high solubility are more susceptible to mix with groundwater.
- When you using materials close to wells be very careful because they might enter the sewers through runoffs.



- Pesticides get released into the air through drifts and volatilization, so don't spray pesticides when the weather is windy or when temperatures are high.
- Don't apply pesticides when there is rain to prevent runoffs or when the ground is frozen
- All the empty containers must be rinsed and disposed of.

## Things to do in April

- Trim the grass to 1/3 of the overall grass height with each mowing.
- If the lawn appears good after the winter months, don't apply fertilisers. Excessive fertilisers when applied in the months of early spring promote top growth of the roots of soil, which is not desirable. Instead deeper roots are more resistant to droughts and pests.
- Plant the seeds when the lawn has loose soils and bare spots. Generally the grass seeds germinate when it is planted 5 cm deep into the soil and when the soil temperature is 07-13°C.
- For irrigation purposes, spring rain water is sufficient
- For monitoring soil temperature, insert the thermometer into the soil for 5 cm and wait for 5 minutes.
- Look out for grubs but don't apply insecticides on them as it won't be effective.

## May

### Learning about the disease and its balance

Disease is caused when the normal growth of the lawn turf is disrupted because of its interactions with pathogens like fungus. The pathogen comes from the environment and hinders the growth of turf grass.

Diseases generally occur where the environment is flooded with pathogens. Moreover, the plants which are more stressed are prone to disease as compared to unstressed plants.

### How can disease be prevented

- Adequate drainage is necessary
- Species or cultivars which are resistant to plant disease are important
- Don't allow over-fertilizations
- Don't allow the leaves to wet
- Maintaining adequate air movement
- No watering in the evening

### Effect of disease on water quality

Disease can be fatal for plants and leaves bare soil which becomes prone to erosions and runoffs. If the chemicals are misapplied, it can pollute the runoffs and can seep into the groundwater.

### Preventing disease

If the turf grasses can cope up with the stress, it can be healthy, dense and tall standing and will be able to resist disease. Sometime the disease may spread and it becomes out of any control. However, the disease resistant cultivars can be implemented to avoid future problems.

## The common diseases

If any symptoms of disease come to your notice, you can always contact the Landscape Supply yards or their website. Some of the common diseases of home lawns are:

- Dollar spot
- Brown spots
- Leaf spots
- Fairy rings
- Red thread
- Snow mold
- Rust
- Pythium

## Things to do in may

- Continue with the mowing process to maintain the top growth but don't remove the 1/3 growth. Multiple mowing is necessary during periods of rapid growth.
- Do not use means of irrigation unless the conditions are dry.
- For controlling over-growth of crabgrass do not apply materials when soil temperatures are around 13-15° C. If the materials are applied earlier, it can lead to polluted runoffs. Don't waste your investment on crabgrass because to germinate it requires soil temperature of 16-18° C which is not possible during this month.



## June

**Getting the lawn prepared for summer stress.**

### **Growing grass plants**

- Grass plants of cool seasons generally grow during springs and autumn. The roots and leaf growth occurs during spring.
- When fertilisers are applied in early spring, it accelerates the growth of shoots instead of roots. This improper nature of growth makes the plant prone to disease and insects and requires frequent mowing.
- When seedlings are planted and fertilisers are applied during early springs it can benefit the lawns which have low density turfs and are affected by winter injuries.
- In late summers and during the autumn, the roots grow well because at these conditions, the temperatures remain low and the plant can store carbohydrates from photosynthesis. This ensures good food supply to the plants by which it can recover during spring.
- Fertilization takes place at two weeks generally after the last mowing. To enhance the process fertilisers can be used.

### **To protect water quality**

- Water quality can be protected by using proper irrigation and fertilization processes
- Using correct amount of nutrients and amount of water helps to produce dense mat which filters pollutants thus avoiding erosion, runoffs and the pollutants to enter the groundwater.

### **Irrigation practices**

- Soil infiltration rate: insert a coke can (ends are cut off) into the soil and pour 2.5 cm of water. Now notice how much time the water takes to infiltrate the surface.
- Irrigation rate: check the irrigation rate by placing a can on an irrigated area and notice the amount of water in the can after few minutes. This will show the amount of water you are using.
- Precipitation: place a can in your yard to check the amount of weekly precipitation. Precipitation or irrigation, none should exceed soil infiltration.

- Water need of the lawn: active and healthy turf grass need 2.5 cm of water every week.
- Time to water: watering in early morning reduces evaporation so that plants may dry up within mid-morning. Prolong wetness of leaf may lead to certain diseases.

## Things to do in June

- Apply fertiliser at 3 kg per 100 sqm.
- Irrigate those areas that you desire should remain green during summers when weekly rainfall is less than 25 mm.
- Scouting means walking in early morning which helps to detect problems in turfs. This will help to notice the problems in early stages where you can apply effective control methods.

## July

### Pests damaging your lawn

Moles, crows and skunk are the major pests in your lawn, since they feed on insects present in the soil, such as earthworms and grubs.

### Insects damaging the soil surface

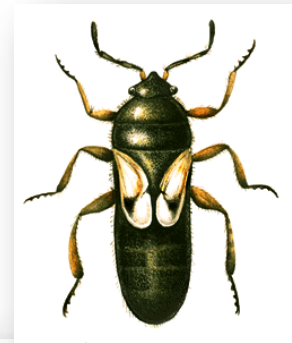
Stems and grass blades are snipped by the insects. They also draw the plant juices.

**Cutworms**- These are caterpillars in a mix of gray, black and brown.

**Chinch Bug**- They have white wings with a black triangle motif and their bodies are black in color. They grow to a size of 0.3cm.

**Turf Webworms**- Young caterpillars with black heads. They grow upto a size of 1.8 cm and appear brown or green with dark spots.

**Bluegrass Billbug**- These are usually found in the lawn in spring and the adult ones bear snouts.



### Insects damaging the subsoil

These insects eat the root system leading to the formation of wilted turf. Grubs of all kinds, ranging from cream to white body, feed on the roots.

Grubs of this kind are namely, Oriental beetle, European chaffer and Japanese beetle.

The quality of water may be protected by regular sampling and scouting. Immense damage to the soil resulting in bare areas and dead turf can lead to high surface run-off, leaching of the surface soil by erosion. The input of chemicals can be reduced if you are aware of the pest population through sampling.

## Ways of protecting the lawn from pests

The first step is scouting.

Plant endophyte-enhanced grasses since they have immunity against surface-feeding insects.

Check out whether the insects are active and smaller in size or else your insecticides won't work on them.

While using pesticides on the subsurface-feeding insects make sure that it waters it well or else it will dry on the leaves of the plant. But when applying it on foliar-feeding insects, allow it to dry on the leaves.

You should never apply materials in saturated or frozen ground or else it will lead to surface water runoff. Do not apply materials at times of high atmospheric temperature and windy weather in order to avoid volatilization and drift of pesticide particles.

The month of July is suitable for fertilizing, irrigating and mowing.

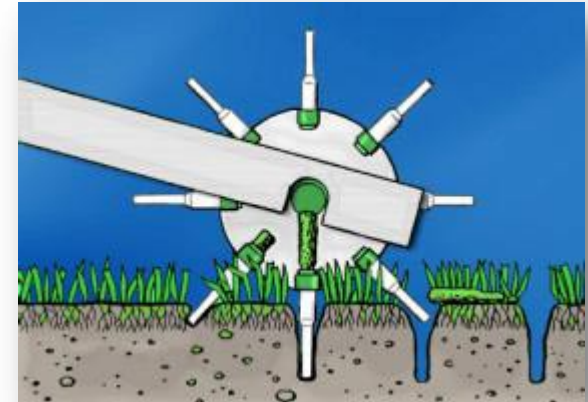


## August

### Recovering the soil

#### The effect of thatch on water quality

The dead and decaying layer of plant tissue above the surface of the soil is known as thatch. This protects the foliage of the plants and reduces the compaction of soil. Heavy thatch is formed when the rate of decomposition of plant tissues exceed that of their production. Nutrients are fertilisers that do not affect the soil when water and minerals cannot enter through the thatch. Dry spots indicate that the thatch has become water-repellant thus leading to increased runoff.



#### Effect of compaction on water quality

Compaction may be referred to as the crushing of soil particles and a reduction in the oxygen level of the soil. It generally occurs near impermeable surfaces. Poor drainage of the soil tends to reduce the growth of the shoot and root of the plants. Fewer amounts of nutrients and water are drawn by them. The turf starts becoming thin until the area becomes bare thus leading to increased surface runoff.

#### Core aeration

Core aeration refers to the pulling out of cores by punching holes in the ground of the lawn. Late August is the ideal time for it since the weather remains cool and sufficient moisture is available. The holes allow more nutrients, water and air to percolate in the soil. The cores are allowed to dry on the surface and are then broken up with a rake and evenly distributed on the lawn. Make sure that the soil particles are not left off site since they contain phosphorus which might pose a threat to the quality of water. August is the best time for mowing, scouting, fertilizing and controlling the growth of weeds with broad leaves.

## September

### Shaping up your Turf

Water quality may be affected by bare soil through high surface run-off, erosion and leaching. The stress that your lawn has gone through during summer must be compensated by a laborious application of fertilisers. If the soil has degraded to a great extent then it needs to be revamped through turfing or seeding. Cool weather, adequate moisture and less competitive weeds during the first part of September makes it ideal for renovating the lawn.

### Establishing or revamping the lawn

In order to renovate your lawn either apply nonselective herbicide for killing the vegetation or removing it by digging up.

The dead turf grass and thatch can be removed with the help of turf cutter or by raking it up. Areas must be regraded for correcting the wet spots.

Add lime, compost or fertiliser to the soil according to its test results.

The area is required to be smoothed through raking.

It is suggested that you apply a thin layer of preplant fertiliser on the soil surface.



## Recommended tips for seeding:

You are required to seed the area according to the recommended rates of seeding, and then rake it lightly.

You are advised to roll the seeds lightly so that they come in close contact with the soil. For better results you may mulch the soil lightly using pelletized mulch, hay or straw.

Keep watering the soil lightly and on a regular basis so that it is never left dry. Frequent watering for a minimum of three weeks is necessary after planting. Fertilize the soil after three weeks have passed since emergence.

## Steps of turfing :

Stagger turf after you have rolled it lightly.

Make sure that it has moist (not saturated) soil underlying it.

This month is ideal for fertilizing, mowing, scouting and controlling the growth of weeds.



## October

This is the month when generally the pests have an effect on the plants. During this season energy production in the grass is reduced. It makes them weak and vulnerable to insects. Consequently, bare spots or turfgrass develops which can lead to the excess of water (runoff) into the plants.

### Prevention

- You need to raise up a canopy so that the air can move.
- . Make a selective trim to the entire grasses. Try to remember that your lawn grasses need 4 hours of direct sunlight to grow healthily.

### Management of Turfgrass shade

- The species of grass which is much more tolerant to the shade is beneficial for your lawn. Fine fescues can be a good example.
- Your plants grow slowly in the low light condition. So, fertilize your plants less often to have a healthy lawn.
- Don't irrigate too often else it might harm the grass.
- Try to follow the prescribed height for mowing of the species.
- To get a lovely ground you need to mulch around at the bottom of the trees. Take a wood chip and do it.
- At the ground you can nurture several plants like, periwinkle, English ivy, pachysandra or creeping mahonia.



## Be aware of phosphorus

Autumn is the beginning of winter and the trees starts shedding their leaves. In this time a large amount of phosphorous can affect your plants. So, you need to be extra conscious about that. The leaves of the plants need to be managed properly. While phosphorus consumption takes place, 'eutrophication' (low level of dissolved oxygen present in the water) comes along with the process.

## Controlling

- You can use mulching power to slice the fallen leaves as it can be decomposed.
- Gather grass clippings for composting. Then change the compost pile periodically to hasten rotting and to eliminate the bad odors.

However, October is the best season for mowing, fertilizing and raking as well as core aerating.

**Mowing:** continue the process as long as the grass grows to the natural height.

**Fertilizing:** apply '1 pound' of nitrogen/1,000ft after every two weeks.

**Raking:** collect the fallen leaves from the field to avert grass suffocation.

**Core aerating:** this process will reduce compaction and will improve drainage system.

## November

### Grassy lawn for green Environment

Urbanization takes away our greenery as well as the purity in nature. But you can incorporate the same in your garden by making it more lovely and lush. The chemical hazards sometimes spoil our own surrounding. The soil remains overloaded with gas, salts and fertiliser. That hampers the growth of the trees and increases the problem of surface runoff.

### Some tips to help you

- Soil testing is very important in case of cultivating any type of plant.
- Try to let your lawn grow as much as possible. If you have pools or lakes in your area then try to input a natural buffer zone in the area.
- Autumn is the ideal time to renovate the thin spots for preventing erosion.
- To prepare your darling lawn you need to take a superior approach while seedbed preparation.
- Choose grass species according to the recommendations and maintain them regularly.
- Know as much as possible about irrigation process and infiltration rate needed for your lawn.
- You can postpone your aeration and dethatching process to prevent plant stress.
- Be attentive that no chemical amount could mix up within '100 feet' of the well. Clean the sidewalks or the paths side by your lawn, frequently and do not let the fallen leaves gathered there.
- Follow the instruction carefully as written on the label of any material. You do not need to apply more if a little of it works better for you. Excess of fertiliser or pesticide may spoil the fertility of the soil.
- Leave some clippings on your lawn that may recycle the nutrients and diminishes the rate of phosphorus loading in the water body.
- Gather and mulch the fallen leaves to protect your lawn and water content.
- Take steps before injecting any pesticide into your ground. Identify the problems as early as possible and try to prevent it.

## December

**Good equipment is helpful for keeping the water quality in right order:**

- Always use 'rain gauge' to decide on irrigation benefits.
- Adjust your sprinkler heads to get rid of runoff problem.
- Rake the leaves and then mulch it.
- Use the drop spreaders.
- Remove only the 1/3<sup>rd</sup> of the grass and try to avoid fuel and oil in your lawn.
- Alter your 'spark plugs', if necessary.
- Sharpen your reel and rotary blades.
- Check while putting the tires.
- Be careful that your equipment is clean enough to use.
- Take care of your **journal and camera** as they are the most valuable articles in case of your gardening. You need to mention the problem, controlling measure and also the outcome in your journal note. You can take snaps of your plants if they are in problem. It will help you to consider the steps in next year.
- You can use **magnify glasses** and **tweezer** to identify any problem.
- '**Sturdy metalk rake**' can be used while patching and over seeding.
- **Drop spreader**, if being applied input with much specific application.
- **Weed trimmer** prevent the risk of damaging the trees.
- **pH kit** helps for better infiltration.
- You need a **Tape Measure** to measure the fertiliser while using.



## Weed Control

**W**eeds can be attractive in the natural setting of your lawn, but excessive weeds can appear unattractive and may cause damages up to certain extent. So it is necessary to control the growth of weeds and you can ascertain that by several ways.

### Different characteristics

Lawn weeds can be categorized on the basis of how they emerge from the seeds. The monocot weeds that emerge from the turfgrass are commonly known as weedy grasses, which includes plants like tall fescue, annual bluegrass, crabgrass etc, whereas, broadleaf weeds includes plants like dandelion, ground ivy, clover and plantain. The weeds are generally recognized on the basis of life span of the weeds. The perennial weeds survive for two years and produces seeds every year.

It is very important to identify the weeds because unless you will know them in detail you cannot take proper controlling measures against their growth and attack.

The biennial weeds generally have a life span of two years. They collect their nutrients and foods from the roots and the leaves during the first year, and then in the next year they produce seeds. In case of annual weeds, they complete their life cycle within one year. The summer annual weeds germinate during the spring season and attain the maturity during the autumn. The winter annual weeds germinate during the late winter season and mature at the end of spring.

### Methods to control

Weeds may indicate problems, which are related to grass and so killing of the weeds without going into the core of the problem may give unsatisfactory results. The growth of turf weeds can be checked with the help of several cultural practices, which favors the grass growth and not the weeds.



Here are some guidelines about cultural control of weeds:

- Weeds can be controlled by lowering or raising the mowing heights
- If the mowing frequency can be altered, you can ascertain the weeds control
- Changing the frequency of irrigation
- Aeration of lawn soils
- Reduce or increase the amount of fertiliser applied

## Treating with Herbicides

Herbicides are essential and it should be carefully used or else it may hamper the condition and the health of your lawn soil. You can use herbicides after 2-3 weeks before the germination of seeds. In case you have applied the pre-emergence herbicides, it can work well with annual weeds.

The post-emergence herbicides can kill the weeds, which tend to grow actively. These herbicides when absorbed by the leaves can become more effective.

Alternatively, you can also use liquid sprays, which are more effective than the granular materials. The herbicides are specially used to control the growth of biennial, perennial, and annual weeds. But sometimes, these herbicides can damage the trees, plants and the shrubs, so they must be used very carefully. It is suitable to apply, the post-emergence herbicides during the daytime when the temperatures ranges within 27°C, and the ideal time of the year would be spring or autumn.



There are many weeds, which remain resistant to herbicides, and so in order to make the herbicides effective it is necessary to apply them on the weeds after every 20-30 days. The post emergence herbicides are “real killers” since they have the ability to destroy all the plants without any discrimination. They are

effective for treating the perennial weeds. The pre-emergence pesticides can also be applied with a fertiliser spreader, as they are dry and granular in nature.

Sprayers fitted to the garden hose or compressed air sprayers can be used for applying the liquid pesticides, especially the pre emergence pesticides. The sprinkler cans may also be used for spraying herbicides especially for small areas. But once the cans are used for spraying the pesticides, it is advisable not to use them further for watering the plants

Product	Active	Rate/ha	Rate/15l Knapsacks	Target	Turf Crop	Pre	Post	Water In	Fert
Kamba M	MCPA Dicamba	6.5-L/ha	200ml	Broadleaf Weeds	Couch Pasp		X		
Round Up	Glyphosate	9-L/ha	300ml	Non Selective	All		X		
Sencor Mix Daconate	Metribuzin	800- ml/ha	30mm	Grassy weeds	Couch		X		
Bromocide MA	Bromoxynil MCPA	6-L/ha	180 ml	Broadleaf Weeds	Buffalo Couch		X		
Sempra	Halosulfuron- Methyl	130-g/ha	4g	Nutgrass M/bimby	Buffalo Pasp,Couch		X		
Talstar	Bifenthrin	1-lt/ha	70ml	Grubs	All	X	X	X	
Chlorphyrophos 500	Chlorphyrophos	1-lt/ha	70ml	Grubs	All		X	X	
Daconate Mix Sencor	MSMA	7-lt/ha	120ml	Grassy weeds	Couch		X		
Nitro Iron	Nitrogen Iron	20-lt/ha	700ml	Colour	All			X	X
Dual Gold	Metolachlor	2-lt/ha	100ml	Grassy Broadleaf	All	X		X	
Fusilade	Flauzifop	3-lt/ha	100ml	Couch Nonselective	All		X		
Mancozeb	Mancozeb	2.5-kg/ha	40 g	Diseases	All		X		
Hoe Grass	Dichlofop-methyl	1.5-lt/ha	70ml	Crowsfoot	Couch Buff-cation		X		
Starane	Fluroxypyr	1-lt/ha	70ml	oxalis	All		X		

Brush off Mix starane	Metsulfuron- Methyl	80g/ha	5g	oxalis	All		X		
Ronstar	Oxidiazon	200kg	2kg/100sq	Grassy/broad	All	X		X	
Sportsground	Mecoprop MCPA Dicamb	4.5-lt/ha	200 ml	Broadleaf weeds	Couch Pasp		X		
Monument	Trifoxysulfuron	30-g/ha	1g	Nutgrass	Couch		X		
Heritage	Azoxystrobin	6-lt/ha	20g	Diseases	All		X		
Lorsban	Chlopyrophos	1-lt/ha	70ml	Grubs	All		X	X	
Bistar	Bifenthrin	1-lt/ha	70ml	Grubs	All	X	X	X	
DSMA	DSMA	12-lt/ha	300ml	Grassy weeds	Couch		X		
Dimension	Dithiopyr	3-6lt/h	200ml	Grassy/broad	All	X		X	
Primo maxx	Trinexapac-ethyl	600ml/ha	30ml	Growth Regulator	All				
Asulox	Asulum	4.5-lt/ha	150ml	Grassy weeds	Buffalo		X		
Attrazine Pre and Post	Attrazine	4.5lt/ha	150ml	Grassy, Broadleafs	Buffalo	X	X	X	
Drive	Quinlorac	1.1-kg/ha	50g	Kikyu, clover Summergrass	Couch, Buff Paspalums	X	X		

Please read and follow the label of the product as 5 minutes of reading and correct application can save you months of heartache.

## Knowing and Controlling the Pests

**W**hile preparing of a lawn you may find that some insects that are present are beneficial for the lawns while some are harmful to the garden. To maintain the lawn you have to identify those insects and have to know the procedure of removing them.

The insects that are injurious to the lawn are known as pests. The general way to get rid of those pests is by applying pesticides. But most of the pesticides are toxic in nature, as a result they may cause harm to your garden. Application of pesticides comprises of two methods such as physical control and applying chemicals.

### Controlling method

#### Physical control

The pests can be removed through the process of physical control. The procedure does not have any adverse impact on the plants. You can put up a barrier around the plants or can use traps to catch the pests, which are comparatively bigger in size.

Apart from using a barrier the diseased portion of the plants can be washed or vacuumed off. The infested part of the plants thus can be cured. Pulling off the weeds is another method of controlling pests.

The simplest method to eradicate the large pests follows picking up the pests by hands. Cabbage loopers, tomato hornworms are some of the pests, which can be wiped out by following this method.

You can even prune out the extra brunches. The infested leaves ought to be picked up so that the infested portion can't be spread.



You can even remove the aphids by spraying water. The process has to be repeated time and again as the water cannot kill the germs easily.

## Trapping the pests

- Slugs, moths are some of the pests that can be trapped easily. If you can catch those pests through traps then it will be easier to you for monitoring the activities of those pests.
- The stem of some trees can be wrapped up using burlap. Consequently, the caterpillar or the moths may think that this is a safe place to spin cocoons and you can remove the wrapper periodically.
- The slugs may be drowned in the mixture of water or in beer.

## Barriers

Putting up barriers is another method of physical control. Place a cupboard encircling the plants so that the worms can't harm the plants is one method of controlling pests. Another method is termed as 'Floating row covers'. This method is useful to ward off rust files from carrots, cauliflower or spinach.

'Mesh netting' process removes the birds from the trees. Sometimes the aphids get attracted buy the sticky materials cling to the stem. By applying the 'Mesh netting' procedure you can keep away the harmful insects from the plants.

## Using Repellants

Some home and commercial products are available to keep away the pests from the plants. The repellants usually have bad smells, which force the pests to make a distance from the plants.



You may use water mixed with raw eggs, which produces a bad odor. A mixture of garlic and hot pepper can also be used. Spray the mixture onto the infested leaves so that the bad odor of the mixture drives the harmful pests away. You will have to use the mixture for a couple of weeks to get the desired result. These mixtures do not affect the plants adversely.

## Beneficial insects

Pesticides harm the plants of your garden to a great extent. So, you need to input some beneficial insects that can save the plants.

**Ground beetles-** it consumes the soils where the harmful pests dwells.

**Lacewings and larvae-**caterpillar, aphids are eaten by lacewings.

**Beetle larvae-** they eat scale insects and their eggs, aphids. As a result your lawn remains healthy and green.

**Hornets-** these very insects are not only harmful to the pests but also detrimental to the human being.

Instead of using physical control method you can apply least-toxic pesticides. Given below are some of the products, which can be useful for keeping away the pests. These pesticides usually break down when exposed to the sunlight. Apart from the fact they also enrich the plants with proper nourishment.

## Horticulture oil

It kills the eggs, aphids and other pests without harming the beneficial insects.

## **Horticulture soaps**

It dries out earwigs, white flies, aphides etc. To eradicate the pests totally you need to spray the soaps repeatedly.

## **Sulfur**

The solution puts off fungal diseases such as rust, powdery mildew etc. The mixture of sulfur and lime can be used to keep away the pests.



## **Baking soda**

Baking soda is being mingled up with dishwashing liquid and water to keep away fungal disease.

## **Iron phosphate slug bait**

This element mixes up quickly into the soil. The material is less toxic in nature.

## **Controlling the pests through biochemical**

Bacillus thuringiensis is a bacterium that requires for damaging the worms. The chemical is able to kill the tent caterpillar, cabbage loopers etc. Some other chemicals that destroys pests are Predatory nematodes and Beauveria bassiana. If you apply the chemicals maintaining proper method your work will be easier.

## Equipments for Lawn Care

**T**o possess a beautiful lawn you need to be armed with efficient equipments that would make your work easier. The devices are required for the maintenance of the lawn and to carry on some necessary steps.

Some chief methods are depicted below to help you.

### Mowing

It is an essential process for maintaining the lawn. Being a good lawn owner is not too simple. You need to take care of the grasses properly that will make the lawn beautiful to look at.

Turfgrass is of several types and each of the kind necessitates different caring techniques. The grasses should not be grown too high or too low. Try to maintain the length moderately; otherwise, the grasses may lose the greenery.

In the springtime cut down the grasses after 5 days or so. It will make it grow healthier as well as better.

Unlike the other plants Bermuda and fescue grasses do not spread across the ground. These grasses are best for the golf court. The smoothness depends on the growth of the grasses.

Bermuda grass covers up the field quickly. But the disadvantage of planting this type of grass is that it becomes colorless and has a tendency of falling during winter.



## Recycling the grasses

Recycling is the substitute of dumping. This process also nurtures the soil of the lawn. It inputs 20% nitrogen into the soil, which accelerates the decomposition in return.

The mowers chiefly do the grass cycling process. You need to cut down the length up to 1/3 of the usual length of grasses. Carry on the procedure while the grasses remain dry. Remember to sharpen the blade while mowing.

## Tips to keep the equipment well

Alter the direction every time while you are mowing the grasses. The more you will change the direction the greater you will be benefited.

While carrying out the process, safety must be your prime concern. So, check the equipments carefully whether they are in good condition or not. Go through all the commands and the information related to the equipments you are using.

While mowing the lawn, put on study shoes, ling pants and loose jewelry. It will make you feel comfortable. Before you start the process do not forget to clean the area and turn off the machine after finishing the work. Always avoid extra passengers as they can divert your attention.

Follow all the safety concerns regarding your equipments. Be conscious on the point that your hand as well as legs would be far away from the engines.

## FAQ

**Y**our dream lawn will look splendid if you follow proper maintenance procedures. While renovating the lawn use the best fertilisers. When you opt for the pesticides and weeds, go through all the guidelines carefully and consciously. In case, the pesticides do not suit the soil and the moisture it may affect the grasses at a great extent.

To beautify the lawn more use appropriate fertilisers. The watering process also must be taken care of. Sometimes the fertiliser and the pesticides affect the grasses of the lawn adversely. So, have a research work while applying those materials. A regular maintenance is very important for your lawn. You may consult with the experts to take care of it.

Raking up the lawn is nevertheless a significant issue. Summer is the ideal time for renovating your lawn else you can continue it in the winter season too. Temperature ought to be moderate during renovation.

Each lawn owner may face special type of problem and you have to solve it following certain methods. Here are the suggestions regarding the usual problems the people face while maintaining the lawn.

### **Is the testing of soil necessary for the lawn?**

Before the plantation process takes place, examine the soil properly. The selection of the grasses would be based on the result. You may test the soil in the laboratory. It will make you aware of the fact on how much organic matter or fertiliser you have to input.

### **How to nurture the vegetation?**

Use 'non-selective' herbicides that contain glyphosate. These herbicides help you to kill all the pest-infected plants. But the advantage is it does not harm the seeds. Spray the herbicides on the foliage and then wait for sometimes unless it turns into yellow. After applying the herbicides you can grow the plants.

## **How will you take care of the drainage system?**

Proper drainage system helps you to obtain a perfect lawn. The mowing process would be easier if you grade the steep slope easily. The compacted subsoil would make the water flowing down easily.

## **How will treat the 'top soil'?**

The layers between the sub soil and topsoil have to be gradual. In case, the clay material remains at an enhanced quantity then add manure into the soil. The compost will act as the soil conditioner and will incorporate phosphorous as well as nitrogen.

## **How will you choose the appropriate grass?**

The type of the grass will depend on the characteristic of the climate as well as on the features of the soil. While selecting the grass the insect resistant quality should also be checked thoroughly.

## **How will you carry on turfing?**

When the turf tends to cover the area apply the process of turfing. Utilize a 'phosphate fertiliser'. Always keep the turf in a cover that it doesn't get dried out.

You have to use drop spreader or a rotary spin while seeding on the ground. Try to apply the seeds into various directions so that soil and the seed amalgamate properly.

The seeds will only get mingled up with the soil when only you roll the grasses properly.

## **Knowing about mulching**

Mulching is a significant process that should be taken care of. The 'weed-free' straw prevents erosion and helps in moisture conservation.

### **What would be the proper amount of water?**

It will be the best if you water the plants twice in a day. It will make the roots go deeper in the ground.

The seeds may get dried out if they are not provided with adequate amounts of water. Keep the seedbed moist until it grows up properly. Excessive water actually harms the plants. If the grass covers around 60% of the ground, then leave the surface dry. Proper amount of water for establishment of new turf is 25 mm each day for first 2 weeks then 25 mm every 7-10 days once established.

### **How frequently will you use the fertiliser?**

Apply the fertiliser every 12 to 16 weeks. It increases the density of the grasses in return and also puts of the grasses from being diseased.

### **What is the ideal time of mowing?**

Generally, a regular mowing program of once a week in growing season, and once per fortnight/ month in the cooler months is suggested. Always mow when your lawn is dry. While the length of the grasses reaches up to the recommended height then start the process of mowing. To carry on the process ensure the mower blade is sharpened enough. A dull blade prevents the growth.

### **How to fight with the diseases?**

Every disease of the plants needs definite maintenance. You have to understand which climactic condition suits your plants better and which harms them. According to the characteristics of the plants the caring technique and level will defer. Various processes like mowing, fertilizing and watering affect the plants greatly. A well-maintained lawn attracts the pests even more. On the contrary, a weakly maintained lawn is also not desired and is injurious to its health.

A healthy lawn also recovers quickly than the insect affected garden. Pathogen which is a micro organism that causes disease actually monitors the health of lawn. The environment also plays a vital role in developing infection as well as pathogen. In case, the pathogen remains at the ground for a long time it can damage the plants severely. Watering at the afternoon promotes the infection of the disease. Light watering system will endorse a 'thin root system' of the plants.

Apply the fertiliser as per the rules. The local climate and the type of the grass will monitor the mowing process. Take all the necessary steps so that the pests do not affect the plants.

The experts will provide you with the valuable information about the maintenance of the lawn. Thatching is an important procedure to follow while growing up a lawn. If it is not taken care of properly it may enhanced the insect infestation. Raking, slicing and core aeration are responsible for preventing the harmful effect of thatching.

Sometimes the one side of a lawn becomes greener than the other side. The less greenery part needs proper nourishment. If you can't handle the problems, consult with the experts before it turns worse.

The application of proper chemical should be the prime concern of yours. It can build the lawn beautifully or can damage it totally. The lawn must be cared for regularly and adequately and ensure using standardized equipment for the purpose.

## **What if my lawn appears patchy?**

Fungus infection or equipment damage can make your lawn appear patchy. In addition to this, disease problem, insect infestation, sod's quality also gives your lawn a patchy look.

Improving the grass variety of your lawn helps in preventing this problem. Ensure using a hollow time aerator or fork for aerating the land. Make sure you remove weeds, thatch or fertilisers. Ensure raking the topsoil for loosening it. However, don't disturb the remaining grass in the process.

Ensure spreading a layer of seeds on the topsoil; now rake it completely, followed by watering it. If the grass begins to sprout, avoid mowing the rest of the lawn further. Ensure repeating this process for improved results.

## What if the leaves shed?

Shedding of leaves depends on the grass variety to which it belongs. Usually, shrubs have a tendency to shed more. Insect infestation and inadequate maintenance are the other factors behind shedding of leaves. Excessive watering may also lead to falling off of leaves. Hence be careful while watering the plants.

Not only this, even thatch plays a significant role in restricting the growth of grasses. Ensure removing the thatch at the earliest. Thatch even makes your lawn excessive bouncy and springy, thereby restricting you from walking comfortably. The sacrificing procedure helps in removing the thatch. Using a mechanical device for sweeping the thatch (you can also do it manually) is referred to as the sacrificing procedure. This approach helps in providing the grass the required amount of fertilisers and water. This also helps in the rapid growth of the plants.

Ensure opting for a besom, broom or spring tine rake for carrying out this procedure. The lawns have a tattered appearance while this process is being carried out. If you find difficulty in carrying out this procedure manually, ensure opting for a mechanical device. An electric power machine will help you in carrying out this procedure effectively.

## Conclusion

I hope this book may have helped you in making your dream come true...your dream of growing a perfect lawn! At this point of time...you may be ready to choose the right grass variety that goes well with the soil type!

The section based on climatic conditions may have helped you in obtaining a fair idea about which climate goes well with which grass variety. I hope that you have adhered to the instructions included in this book...if so, you may have found out the climatic condition of your area prior to purchasing a grass type. Did you go through the sections that contain information about the various soil tests! Well, if not, then do so at the earliest to know the soil type that is best for your lawn.

Your half work is already done...if you have collected information about the climatic condition as well as soil type of your area. However, I would suggest you not to limit your knowledge only to the aforementioned sections. Instead do go through the sections where we have discussed about watering and nutrition. Trust me; these sections will definitely help you in nurturing the lawn in a proper manner.

The others sections where we have discussed about weed control, the techniques using which you can care for your lawn and much more may have helped you to a considerable extent. I hope you have read the section on pest control. If so then you may have come to know that pests control plays a significant role in lawn maintenance. Next, comes in the queue...grass seed...Yes friends, you need to determine the right grass variety prior to choosing the place where you'll be growing the lawn. This book has emphasized time and again on the necessity to grow an environment friendly lawn. Hence, ensure keeping this in mind prior to taking up any decision of growing a lawn. Last but not the least I would like to tell that PATIENCE BEARS FRUIT! You may face some trouble initially, but the end result will be worth the effort put in!

## Glossary of terms

### A

**Acid soil:** Soil, which contains the pH, value less than 7.0. The pH value can be raised by adding lime.

**Aerate:** A process which loosen the compacted soil for allowing oxygen, nutrients, and water inside the soil surface. The process of aeration can be done by boring holes into the lawn or by removing the soil plugs from the lawn.

**Amendments:** It is an organic substance, which when added with soils improves the moisture retaining capacity, the nutritive content and maintains the oxygen level.

**Alkaline soil:** The soils which have a pH value of more than 7 are considered as alkaline soils. To lower down the soil pH you can add sulphur.

**Annual:** It is the time within which a plant completes a life cycle in a year.

**Aphids:** It is an insect, which is yellow, black or green in color. Aphids suck the juices of the new growths of plants.

**Apical bud:** It is also referred to as terminal bud. The buds are present at the top of the plant stem.

## **B**

**Balled and Burlapped (B&B):** This is a method of plant preparation where the full root system is present in the soil, and covered in the burlap for protection.

**Bareroot:** The bareroot are a type of dormant plant, whose roots are loose and are contained in a container or a soil ball.

**Bed:** The area of the lawn where plants are planted together to create a unique design.

**Biennial:** The plant which have a life span of two years. In the first year, the plant produces foliage and stem. In the second year, the plant produce flower after the dormant season.

**Bolt:** The bolt is prompt by warm weather, and the leaf crops like cabbage and spinach don't produce leaves and stimulate the growth of seed stalks.

**Bonsai:** The dwarfed trees and the plants which grows in special shallow containers. They generally grow in wild, but in a small scale.

**Broadcast:** Dispersing of the seeds and the other materials across the lawn area.

**Bulb:** A modified stem which grows underground covered with a paper like exterior. They are a food source for many flowering plants.

## C

**Companion Planting:** Growing of beneficial plants near the main plants for improving growth and repelling pests.

**Compost:** Mix of decayed organic matter, primarily used for conditioning soil and fertilizing it.

**Conifer:** Woody shrub or tree, which produces cones and are always evergreen.

**Corm:** Similar to bulb which serves as underground food for the flowering plant.

**Crown:** The topmost part of the tree where the new growth takes place or the part of the plant where the stem and roots converge.

**Cultivate:** The methods to assist plants for the growing process.

**Cuttings:** To enhance the growth of the plants, portions of branch, stem or leaf is cut.

## D

**Deadhead:** The process of removing the flower heads from the plants in prolong flowering season and after the blooming season is over.

**Deciduous:** The plants, which sheds leaves in winter or in autumn.

**Determinate:** The artificial process, by which the plants produce its fruits and flowers at the same time.

**Dormancy:** The period when the plant doesn't produce any flower or fruit. The

dormant time is generally during the winter months.

**Double-digging:** In this process, the topsoil of an area is moved to another area for strengthening the soil.

**Drip line:** The area around the plant where the water drips out from the leaves or outermost branches.

### **E**

**Evergreen:** The plant which has the ability to retain the green foliage all around the year and grows for more than just one season. The coniferous evergreen trees have needle like leaves and within their cones the seeds are produced. The broadleaf evergreens contain leaf shaped foliage, which retain the leaves throughout the year.

### **F**

**Fertiliser:** The supplements necessary for plants growth and development are known as fertilisers. It is available in the form of granular, organic, liquid or inorganic.

**Foliar:** This is a part of the plant foliage or leaves. The foliar pesticides or fertilisers are applied directly to the plants.

### **G**

**Germinate:** The development process of the sprout from seed. The requirement for germination is light, water and warmth and sometimes depends on specific requirements of the plants.

**Graft:** A type of propagation method where two plants are joined together by connecting each tissue.

**Groundcovers:** The low growing species of plants which are primarily used for ornamental purpose in lawns and work as substitute of grass.

## H

**Half-hardy:** They are a type of plants, which can survive even in damp or cold weather, but frost may damage the plants.

**Hardscape:** The various structures of landscape like the fence walls, decks or driveways.

**Herbaceous:** The non-woody perennial plants often die during winter months but reappear in the spring.

**Herbicide:** Pesticides for killing unwanted plants and for controlling plants growth.

**Humus:** Organic soils, which are dark and rich, obtained from decaying materials of plants and animals.

**Hybrid:** Offspring of two parent plant with a different variety.

**I**

**Insecticide:** A pesticide that is formulated for destroying or controlling insects.

**L**

**Lateral bud:** Buds formed on the sides of a stem. The buds that develop on the stem sides are known as lateral bud.

**Layering:** A procedure of plant propagation in which a stem of a plant is jagged as well as buried. During this process, the leafy tip of the plant is exposed.

**Leaching:** Leaching takes place when water flushes nutrients as well as mineral substances out from the soil.

**Leggy:** The plants that have an unusual length of stem as compared to their foliage and flower.

**Lime:** Soil amendment that is used for lowering acidity. Calcium carbonate or lime is applied in pelletized or powdered form.

**Loam:** Garden soil that has a perfect moisture balance of clay, silt and sand.

**M**

**Microclimates:** Small regions in your home landscape having distinctive characteristics in relation to shade, sun, moisture or wind.

**Mulch:** An organic material that is applied over the soil's top for lowering water loss as well as inhibiting weeds growth.

## N

**Naturalize:** A procedure that involves unsystematic distribution of garden plant.

## O

**Offshoots:** New plants that grow from the main stem of the plant.

**Organic:** A gardening procedure without using man-made or synthetic products.

**Ornamental:** A plant grown for aesthetic purposes.

## P

**Pavers:** Concrete, stone or brick materials used for constructing walkways and patios.

**Pesticide:** A pesticide is referred to as a substance or a combination of substances used for preventing, repelling, destroying as well as mitigating pests.

**Perennial:** Perennial can be subdivided into two types. Herbaceous non-woody (fleshy and soft) plants die each year. Additionally they evengrow and bloom after each successive year. Woody perennials (like trees and shrubs) have a dormancy period...however they maintain their form throughout the year.

**Perlite:** Mineral utilized in potting mix for retaining moisture as well as providing aeration.

**pH:** Measurement of alkalinity and acidity. pH symbolizes hydrogen ions found in the soil. It also represents the ability of a plant to extract nutrients from the soil.

**Pinch back:** A procedure of initiating the growth of bushy plant by taking off the growing tip.

**Plugs:** Spherical sod pieces planted in a crisscross formation for growing a new lawn.

**Propagate:** Growing new plants from the old ones by opting for some new methods.

## R

**Rhizome:** A fleshy underground and horizontal runner or stem. Referred to as creeping grasses that are spread by stolons or rhizomes.

**Rootbound:** Referred to as container grown plants that doesn't have sufficient space for growth of the roots.

## S

**Scarify:** Preparing a seed in order to plant. The outer layer is cut or nicked for this purpose.

**Shrub:** A plant that has woody stems. It also has an average height of not more than 15ft.

**Soil test:** An adequate measurement of pH levels and essential nutrients ( nitrogen, potassium and phosphorous) in the soil.

**Sucker:** A shoot growing from the root of a plant or from underneath the ground surface.

## T

**Taproot:** The primary root that grows from a sprouting seed. Usually grows straight down. Taproots provide support to the soil.

**Tender:** Plants that are not able to withstand frost as well as freezing temperatures.

**Terminal bud:** The topmost bud on any stem.

**Thinning:** Cutting stems or branches back to the main branch for allowing sunlight to the center of the plant. It also enables air circulation as well as encourages the rest of the stems to grow in their usual direction.

**Thatch:** A coating of plant debris that builds up in between the grass blades and soil. It restricts the flow of air, nutrients as well as moisture to the grass roots.

**Top dressing:** To add sand or organic matter to the lawn for levelling and thatch control of lawn, also helps grow in of new turf.

**Topsoil:** The topmost soil layer where the root of a plant grows. It contains rich sources of organic matter.

**Turfgrass:** Residential lawn grasses and varieties used in sports sites.

**V**

**Variety:** A cultivated type or naturally grown plant species.

**W**

**Weeds:** Unwanted plants growing wildly via other plantings, competing for light food and water.

**Woody:** Plants that have hard stems and are able to withstand cold climatic temperatures.

## Metric Conversion Chart

Simply follow the chart and it's simple to convert from one measurement to the other.

When you know:	Multiply by:	To find:
inches	25	millimeters
feet	30	centimeters
yards	0.9	meters
miles	1.6	kilometers
centimeters	0.393	inches
meters	1.1	yards
kilometers	0.6	miles
ounces	28	grams
pounds	0.45	kilograms
short tons	0.9	metric tons
grams	0.035	ounces
kilograms	2.2	pounds
metric tons	1.1	short tons
fluid ounces	30	milliliters
pints, US	0.47	liters
pints, Imp.	.568	liters
quarts, US	0.95	liters
quarts, Imp.	1.137	liters
gallons, US	3.8	liters
gallons, Imp.	4.546	liters
milliliters	0.034	fluid ounce
liters	2.1	pints, US
liters	1.76	pints, Imp.
liters	1.06	quarts, US
liters	0.88	quarts, Imp.
liters	0.26	gallons, US
liters	0.22	gallons, Imp.