

LAWNS^s

THE PREPARATION AND CARE OF IN UPPER INDIA.

WITHIN the past two or three years pamphlets and articles have appeared giving advice regarding the making and care of lawns in India. These contain much valuable advice, but do not, in my opinion, go sufficiently into details, to enable one to grip the subject, and ensure perfect success.

An attempt is made in the following lines to amplify the information already in existence by giving facts which have stood the test of actual practice and are recognised as absolutely reliable. I have confined my remarks to only one part of India, for the simple reason that my experience has been more or less gained in Upper India, though I have no doubt that the general directions will apply to other parts, and only the question of selecting suitable grasses will need consideration.

The lawn is said to be the heart of the British garden. A well-kept lawn is a never-ending source of pleasure to its owner. Its green appearance is particularly soothing to the eye during our hot Indian summers, and gives a sense of coolness to the surroundings which no other feature in the garden except a fountain possesses. It enhances the beauty of any garden by forming a delightful ground-work for setting off shrubberies, flower-beds and specimen trees, gives an impression of space, and imparts breadth and dignity. It represents the dominant feature in the garden and all else is subordinate to it.

Apart from these attributes, lawns have other uses, and in India, as probably nowhere else, is this apparent.

For nine months in the year they are in almost daily use for tennis, badminton, croquet and other games. They are the meeting places for social parties and other gatherings, and besides adding to the amenities of life, are the symbol of peaceful contentment, and a relaxation to the body and mind after the stress of official or other duties.

Lawns may be of two kinds: those which are reserved for games and need special attention, and those which are for ornamental purposes.

Lawns may be of any size, though for games there are minimum limits which are fixed by the rules of the game played. The larger the expanse of grass the better will be the effect produced.

In determining the size of the lawn, it must be understood that the upkeep of grass in perfect condition is an expensive luxury. Its preparation and the annual expenditure on staff, manure, mowing machines and various other items have to be taken into consideration and as often as not decide the area of grass to be laid down. The information given below refers more particularly to lawns about private residences and public buildings. The large expanses of grass in parks, gardens and playing fields, although kept up with a view to having excellent grass with a level surface, do not receive such close attention and are not so costly to maintain.

Preparation of Lawns.

THE site for a lawn is a question on which little can be said, as its position is more or less automatically fixed in relation to the mansion or house, privacy being a first consideration and harmony with other parts of the garden coming next in importance.

The soil cannot, except in rare cases, be selected, and the best has to be made of what exists, though this can be so improved as to render it suitable for the growing of healthy and luxuriant turf.

Land which has been under cultivation for many years is the best medium for a lawn. Sandy soil will suffice, if it is heavily manured and abundance of water available.

Clayey soil will grow excellent grass if made friable and porous by the incorporation of wood-ashes, cinders, lime rubbish, leaves and bazaar-sweepings. Gravelly or rocky soil is the most unsatisfactory to deal with, but even this can be made to grow grass, if a considerable portion of the rough gravel or rock is removed and suitable soil brought in to take its place. Animal manure in quantity will also be necessary, and, as with sandy soil, water in abundance must be at hand.

When making a lawn, one of the most essential points to be remembered is drainage, and should never be overlooked.

The heavy monsoon rains will play havoc with a lawn if water stands for any length of time on the surface. It will cause the soil to become sour, enfeeble the dūbh grass, and encourage the growth of motha (*Cyperus rotundus*), that pestilential weed which revels in a dank, water-logged soil and makes its appearance as soon as the monsoon arrives.

A gentle sloping of the lawn will, in most cases, be sufficient to carry off surplus water; but if this is not possible, the land must be artificially drained, the usual method employed being in the excavation of the soil to a depth of 4 feet and the placing of a layer of broken bricks, tiles, kanjar, or other rough material a foot deep at the bottom.

The close proximity of tall trees to a lawn is most injurious to grass. Apart from the dense shade cast by them during the cold season, when the grass needs all the sun and light possible, their roots take advantage of the loose rich soil of the lawn and rob it to such an extent that the grass suffers and is frequently killed. Any trees or shrubs that may be planted on the edge of the lawns should be of a kind that do not grow more than 15 or 20

feet high when mature, and which are known to be slow-growing and with roots that do not travel long distances.

Trenching the Ground.

In the making of a lawn the operation of trenching or digging the ground is of primary importance. Land which has not been previously cultivated, will need to be upturned to a depth of 3 feet. Light, sandy soil, and that which has been made up by filling, will only need disturbing to a depth of $1\frac{1}{2}$ to 2 feet. The superficial stirring of the surface soil by ploughing is sometimes practised. This is, however, a poor attempt at making a good and lasting lawn, for unless heavily manured and weeded, the grass soon becomes exhausted, and fails to give satisfaction. The object in deep trenching is to encourage the roots of the grass to strike well into the soil where abundance of food is available, and where, during the hottest weather, moisture exists and the earth is fairly cool. The secret of the success of the lawns in Lucknow, where they have the reputation of being at least equal to any in India, is chiefly due to deep trenching of the ground. Trenching should be done as soon as the hot or dry season sets in, which is usually about the month of April. A wide trench should be made the whole length of the plot to be grassed and the soil excavated and removed. This will give the opportunity for turning all the remaining land over and assist in its complete disintegration.

At the time of trenching a layer of about 6 inches of well-rotted cow or horse-manure, sifted night-soil, or bazaarsweepings may be placed at the bottom of the trenches.

Fresh fermentable manure should be avoided, also all materials which do not readily oxidise or decompose. If these latter materials be used it will lead to subsequent sinkings, and cause an unevenness that will be a constant worry, expense, and disappointment.

After trenching, the soil should be left in the rough state for two or three months, or until the rainy season

arrives. This exposure of the soil to hot winds, sun, and air will have a truly wonderful effect by giving it a complete aeration, and set free all the valuable mineral elements contained in it, and make them available as food for the grass when the time comes for it to be planted. It is said that this upturning of the soil, at the proper time, is equivalent to manuring it, and the statement is not without foundation and cannot be disregarded. When the monsoon period arrives the levelling of the ground has to be considered. After several heavy falls of rain the ground should be roughly levelled, care being taken to break up large clods and to fill in depressions. After the soil has had a complete soaking, and it is thought that no further sinkings will take place, the land may be ploughed. At the time of ploughing, the surface soil should be enriched by applying a dressing of 3 inches of finely-sifted night-soil (poudrette), or well-rotted cow-manure, or, failing this, sifted bazaarsweepings which are known to contain plenty of animal matter. Four or five carts of manure will suffice for 1,000 square feet of lawn.

The manure is incorporated with the surface soil at the time of ploughing.

Rough levelling may be done by a harrow, or by what the Indian knows as "sarawan," or "hinga," which is a heavy piece of timber, upon which a man stands and is drawn by bullocks over the surface of the ground.

This operation being completed, the final dressing and levelling must be taken in hand.

To ensure perfect gradients and a level surface, the theodolite or dumpy level may be used; but if these instruments are not available, recourse must be had to the straight-edge and spirit-level.

With these implements, all that is necessary are a quantity of stout pegs and a measuring rod.

With the point fixed for the general level of the lawn, the operation is very simple. To ensure a perfect level over the whole area, the mali should fix the pegs at distances not more than 8 or 10 feet apart. The pegs

are often intersected with string still further to help in the work.

During the process of levelling, it is usual to collect the excess soil into heaps, which is useful for covering the grass at the time of planting.

Planting the Grass.

WITH the ground level, and the soil in a suitably moist condition, the operation of planting or sowing the grass may be commenced.

In the hills, grass seed is used, which may be obtained from any European nurseryman, and the best period for sowing is in the months of March and April, or after the first burst of the rains. About 50 or 60 lb. of grass seed is needed to sow one acre.

In the plains, the grass used is what is known as dūbh or dub (*Cynodon dactylon*). This grass has no superior in any part of the world for the formation of a perfect lawn. It will thrive in the hottest weather, is drought-resisting, stands more wear and tear than any other grass known, and its emerald-green appearance is one of its most pleasing features.

Various methods are adopted for planting the grass, one of these being the chopping of it into small pieces and mixing it with earth and cowdung to form a thick paste. This is spread evenly over the surface and kept in a moist condition by shading with straw or litter until growth begins. The covering is then removed and the usual attention in the matter of watering continued.

Another method is to dibble short lengths of grass into the soil fairly thickly. This is, however, seldom practised except before and after the monsoon season. It is an expensive method, as vigorous watering has to be done to prevent the grass withering before it has time to take root.

The first-mentioned method is seldom or never practised in Lucknow, and the latter is only resorted to where

grass has to be hurriedly laid down or the monsoon rains have ceased. For the grassing of banks and steep gradients it is worth some consideration as the grass is not so liable to be washed away by heavy rains.

The method in general practice, and one which has everything to recommend it, consists in cutting up the stems of mature dâbh grass into lengths of one or two inches and sowing it broadcast over the ground. Over the grass a thin layer of finely-sifted soil is spread, just sufficient to completely cover it. Dull weather, after a copious rainfall, is the best time for sowing, as with the atmosphere well charged with moisture and an absence of bright sun enables the grass to take root immediately. In a week or nine days the grass should have commenced to show signs of green growth and the success of the operation is assured.

Land trenched in May and June, and sown with grass not later than the first week of August, should produce a lawn in a fit condition for games in the month of November.

When the grass has grown to a height of five or six inches it should be cut off level with the ground, by using a scythe or jhabau, the latter being a heavy knife, shaped something like a sickle; but without its pronounced curve.

This cutting of the grass causes it to throw out many lateral horizontal shoots, which take root and go to form a perfect carpet of grass.

Any depressions caused by sinkings after heavy rains should be filled in with fine soil, and when the surface is level and the grass well established, the roller may be brought into action. On no account should a heavy stone or iron roller be used until the soil has become firm. A heavy roller will pack the soil and thereby interfere with the growth of the grass; undulations in the ground will also be formed, which will require much time and manual labour to remove.

For the first three months after the grass is sown a light iron roller will be sufficient, and not till November or December will a heavy roller be necessary.

After the first cutting of the new grass by scythe or jhabau, subsequent cuttings will be made by a mowing machine. A close-cutting machine is not essential until the lawn is needed for playing purposes, and an "Excelsior" or "Philadelphia" will suffice. These are moderately cheap machines and, being simple in structure, any parts worn out or broken are easily replaced. For close cutting, "Ransomes'" or "Green's" machines are undoubtedly the best. They are expensive, but with care they will last some years with an occasional changing of cutting knives. A machine with an 18-inch cutting knife is the most useful size for general purposes. With the mowing machine a grass-collecting box should always be used.

To allow the cut grass to fall on the lawn is to court much trouble, as the small particles ultimately form a mat of dead material, which excludes air, enfeebles the grass, creates a spongy surface and encourages white ants.

An established lawn needs very careful attention in the matter of mowing, rolling, watering, and weeding to keep it in good order.

According to the nature of the soil, the number of waterings must be arranged. In Lucknow it is usual to allow five waterings a month for four months of the hot weather and three waterings a month for five months in the cold season. About 25,000 gallons of water are needed for watering an acre once.

A lawn should never be allowed to become dry, and when watered, it should have a thorough soaking. Frequent sprinkling of water on the surface during hot weather will not suffice, and will do more harm than good. The water should reach the roots of the dūbh, which are one foot or two feet below the surface.

The water is distributed over the lawn by means of zinc piping or canvas hose. The former is used where an ordinary flow is available from wells or tanks, while

the latter needs pressure from a pump. The zinc piping is much the cheapest, and lasts many years if taken care of and kept in repair. Canvas hose is expensive, and, in the hands of the Indian mali, short-lived. Its chief virtue lies in the fact that it enables irrigation to be more quickly performed; and there is less chance of wastage and flooding one portion more than another.

An annual top-dressing of the lawn with manure is essential to keep it in good condition. If the lawn has been in constant use throughout the cold and hot seasons, it will need a period of rest in the rains. When the monsoon rains begin a top-dressing of horse-manure will do much to restore the vigour of the grass.

The grass should not be allowed to grow long, frequent cuttings being necessary; for it must be remembered that to grow a crop of grass means that the soil is impoverished, and unless this wastage of food is replaced, the lawn must suffer to such an extent that permanent injury must follow. At the end of the rains, or about the first week of October, the whole grass surface of the lawn should be shaved off (chilloed) by *kurpa*. This operation ensures a clean, level surface, and the resulting grass, coming up with the advent of the cold season, is able to withstand cold, remains beautifully green, and forms a perfect playing surface. Grass not so treated in this manner becomes brown as long as the cold weather continues, and is never satisfactory. After the grass is shaved off and when new shoots appear, a top-dressing of a quarter of an inch of finely-sifted manure should be spread over the lawn. This should be well rubbed in and, after a few days, receive a copious watering. The grass will grow with great rapidity after this treatment, and the mowing machine and roller will then need to be in constant use. Once a month, during the cold weather, that is, from November till March, artificial manure may be applied. This is necessary to preserve the vigour of the grass, especially when it has been in constant use for games.

The drain on the plant food by constant mowing is very great, and complete exhaustion must be guarded

against. The best artificial manures that are fairly cheap and easily applied are the following :—

Superphosphate and sulphate of ammonia : 3 lb. of the former or $1\frac{1}{4}$ lb. of the latter are sufficient for 40 square yards.

The manure may be spread by hand and watered in by the watering-can.

Weeds.

THE presence of weeds on a lawn tends to injure the grass, interfere with play, and spoil its appearance. Careful attention in watering and manuring will go far to prevent them obtaining a foothold. When lawns have been badly prepared, insufficiently watered and starved, various weeds appear, the worst being the insignificant but aggressive dudhia, a species of Euphorbia. This may be kept down by constant weeding, as also the small prostrate-growing Indigofera, a reddish little plant that makes its appearance in the month of March.

Numerous other weeds will appear when a lawn is neglected, and unless vigorous action is taken, they will in time kill out the dubh grass.

A lawn will, if it receives proper attention, remain in good condition from five to ten years.

Worm Casts.

WORM casts make their appearance after heavy showers of rain, and particularly during the monsoon period. If the lawn is not in use the casts will do no harm ; in fact they will do a certain amount of good, since they constantly renew the surface soil with fine earth, and, by means of their burrows, allow the free penetration of rain and air to greater depths than would otherwise be reached. At times, however, they are an eyesore and a nuisance, but a simple method, for getting rid of the worms is to water the surface with a weak solution of carbonate of ammonia.