Installing Sod Nursery for Bent Grasses

By FRANKLIN HAMMOND

The aim at the golf sod nursery is to grow a thin layer of turf, strongly knit together, filled with a maximum of vigorous roots and short branching over ground stems, a minimum of soil and a texture to match the soil in the area to be repaired or replaced. We must be able to cut this sod to exact length, width and thickness. It must be able to stand lifting, transportation, and laying with no change in size or shape, and without breakage. It will stand moving without the least check in growth when properly handled.

The seed bed must have good drainage and a uniform open texture. Sand meets these two conditions. The sod should be cut at about one and a quarter inches thick. For uniform easy cutting the knife of the cutter should operate in the sand base.

Regardless of the depth of rich soil in the seed bed the new turf will not remain in the nursery to take advantage of this depth of soil. Covering the sand with enough loam to hold moisture for seed germination is enough to start turf growth. Seed or stolons will develop roots in a thin layer of soil as well as in a thick one provided the correct amount of moisture and food is supplied at the right time. For this reason a layer of loam one quarter to one-half an inch thick when compacted is all that is needed.

Root growth will develop where water and nutrients are easily available. The moisture and food can be supplied in the sand base below the layer of loam if the soil is of open texture. Velvet bent has a very dense fine root system. With an open soil and enough food and water the root system will develop more rapidly than in a compact soil.

The site must have suitable subdrainage so water will be drained away. A layer of sand which will be at least six inches thick after it is packed is placed on the sub grade. The sand should be rolled wet and packed until the surface is firm. Then scrape the top with a wooden pusher about four feet wide to remove the high spots and fill small depressions. After that wet and roll as many times as necessary to make a solid bed. Careful leveling and compaction will reduce the cost of all future operations.

A layer of good topsoil one-half to one inch thick should be placed on the top of the sand base. When applying this loam it is important not to disturb the sand surface. Workmen should be instructed about walking on this surface and how to use their tools. When seed is to be used the loam must be rolled and leveled with the pusher until a smooth, level, well packed surface is produced. Sometimes a light wetting of the loam will facilitate packing, but the surface must not become so wet that the loam will stick to the roller. The final operation before seeding is to "float" the surface with the pusher to acquire a slight amount of loose loam on top to hold the seed.

Velvet bent seed in "chopped hay" form can be spread in one direction only if the operator is careful. There will be sufficient bulk to show very clearly the amount of surface covered. A 100 pound fertilizer bag containing about 18 pounds of chopped hay will seed 2,000 square feet of nursery. After seeding roll with a light roller to press the seed into the soil but do not scratch or brush the surface.

I have used this method of seeding a number of times and the results have been satisfactory. A good water system is necessary. The nursery must be under constant observation at all times until turf is well established.

Velvet bent after it is once established can stand considerable dry weather and should be maintained on the "dry side." One learns rapidly just when the point is reached to apply water. Frequent light waterings are more desirable than heavy less frequent applications. This is not in line with accepted practice, **but it works.**

The turf in this type of soil grows on a minimum of loam. This type of seed bed is satisfactory for sod, seed and stolon nurseries. There is practically no water table in the soil to supply moisture from below, nor is there a deep soil supply of food to keep the plants growing. Food and water must be supplied when needed and then only in the exact amount required.

Fertilizing the Nursery

About the first of October 100 pounds of a complete fertilizer of 8% nitrogen, 6% phosphoric acid and 2% potash should

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be applied with about a yard of good topsoil per 5,000 feet of nursery. Brush this mixture into the turf with a steel doormat dragged over the grass and water well. Keep the grass cut until frost stops the growth. After the ground is frozen an application of a mercurial fungicide should be applied to give protection from snow mold. The rate should be 3 ounces per thousand feet of turf, using enough damp sand to provide the bulk needed to insure uniform coverage.

The following spring when grass starts to grow apply one and a half pounds of sulphate of ammonia per thousand feet to start vigorous growth. The fertilizer can be applied dry mixed with sand for bulk and need not be watered in. In fact fertilizer should be applied before the danger of freezing water pipes is past. This amount of sulphate will not be strong enough to do damage to the turf at this season. Just as soon as the soil is dry enough roll the sod with a heavy water roller. This is an important operation and should be done as soon as possible after the frost is out of the ground. It is essential that the grass plants be pressed into firm contact with the sandy soil before they have a chance to dry out and die. Roll in two directions. Start the mowing program just as soon as the grass is long enough to cut.

Spring Topdressing

After growth is well started in the spring (latter part of April in Massachusetts) topdress with a yard of loam to which has been added 100 pounds of 8-6-2 fertilizer to each five thousand square feet of surface. Other fertilizers may be well suited to this program. The only reason for mention of 8-6-2 and sulphate of ammonia is that these are the materials which were available for my use. I have used Milorganite in place of 8-6-2 with satisfactory results in a season when the 8-6-2 was not available. I have not had the chance to try Milorganite exclusively over a period of time.

A light liquid feeding of sulphate should be applied about two weeks after the first topdressing. The second topdressing should not be as heavy in loam as the first. Velvet bent requires lighter dressings than other turf because of its fine leaf blades and greater number of plants in a given area. The only suggestion I can give on this is to apply as much loam as the steel door mat will brush into the grass without leaving a visible layer of soil on the surface. The second dressing, including the same quantity of fertilizer, should be applied about mid May. During the hot months

topdress lightly each month but without fertilizer. Some supplemental feeding with sulphate will be required through the summer. The rate and frequency will depend upon local conditions.

Remember that frequent light watering will be necessary all the season. How much and how frequent each greenkeeper must decide for himself.

The height of cut will be governed by the use of the sod. For golf greens not over one quarter of an inch, for lawns three quarters of an inch. Turf for greens should be mowed at least three times a week, and the clippings should be caught and removed. If lawns are cut twice a week the clippings may be left on the grass without damage or disfigurement, but clippings must be removed when mowing is but once a week.

If the turf is not lifted in the fall two feedings (September and October) of 8-6-2 will be considerable help in maintaining a healthy piece of turf over the winter.

After the turf is lifted soil preparation for the next crop is very simple. It is not necessary to disturb the base, simply scratch it lightly with a steel rake, level with the "pusher," roll, and proceed as described for a new nursery.

Seed Production Methods

When the nursery is to be used for seed production mowing should stop after the second time in the spring. Two mowings in the spring will help make the stand of seed bearing stems more uniform in height, reduce their length and help eliminate weeds. This makes less bulk of vegetative material to handle at harvest time and helps to prevent excessive "lodging."

Seed production takes more fertility from the soil than any other form of grass crop, therefore fertilizer for the nursery is necessary both spring and fall. Spring fertilizer requirements should be the same as for other nurseries except that the phosphate and potash content should be a little higher. Probably the sulphate feedings, except the one early in the spring, should be omitted. No topdressing will be required. Watering must be maintained.

The usual harvest time in Massachusetts is the first week in August. Weather conditions will cause some variation in the date. It will vary from the last week in July to the first week in August. The development of the seed heads must be watched at this time to determine just when to cut. (The seed is quite fine and hard to see without the aid of a glass.) The change from green to ripe seed can happen overnight. When the time is right to cut a delay of one day will mean the loss of considerable seed by shattering before the crop is under cover.

Harvesting is a very simple operation

and can be carried out quickly. The seed stalks are dry and fine. They should be cut in the morning after the dew is off and brought in before the dry part of the day has passed, and should not be left out over night. Cut with a hay mower and set the knife to cut as high as possible to reduce the amount of bulk of seed stalks. Leave the hay in the windrow until ready to be taken in. It will be sufficiently dry so there will be no danger of heating when the crop is stored provided it is not piled more than a foot deep. Handle it as little as possible, and spread on a clean tight floor. This will save much seed which will shatter off as the chaff and seed dry.

For home consumption the seed may be run through a hay chopper set to cut the stalks one inch long. The cut hay can be packed in burlap bags. A 100 lb. fertilizer bag will hold about 18 pounds of chopped hay which will contain enough seed to plant from 1,500 to 2,000 square feet of golf green. Store the bags in a dry loft.

It is my opinion that the seed is more easily handled and produces better results when applied in this form than as pure cleaned seed. The seed is well distributed through the chopped hay and will spread evenly over the entire surface. The chaff makes an ideal marker to serve as a guide when spreading. The average grower cannot bring himself to accept seed in this form. He is afraid there might be almost anything in the bag but velvet seed. In a well cared for seed nursery there are but few weeds. Not many weed seeds ripen at the same time as velvet. Try the method some time.

After the seed crop has been harvested the nursery should be cut down to lawn length (¾") and mowed regularly until frost stops growth. A crop of stolons can be taken from the same nursery in September following the seed harvest. But where continued seed production is desired stolon removal is not good practice. After a plant has produced seed it should be permitted to grow leaves to build up its vitality to perpetuate itself. Growing two crops in one year thins out the stand of grass and reduces seed production.

If both seed and stolons are required in the same season it would be more desirable to have a separate nursery for each. After a few years of use they could be reversed in purpose, producing seed on the stolon piece and stolons on the seed piece. This is good practice and would save replanting both nurseries.

Stolon Production Practice

The maintenance routine for the stolon nursery is the same as for sod production until August. From August first until the stolon crop is harvested mowing should

cease. Mowing until August prevents the development of seed stalks. The close cutting causes the plants to branch considerably which, in connection with topdressing operations, increases the number of plants in the soil and results in more stolon production.

Stolon development before the first of September will be slight. Growth increases rapidly as cool weather comes on. By late September a good vigorous crop of short well branched stolons will be available. Cutting and planting should be delayed as long as possible but October 15th is about the latest date for successful planting.

Cutting the crop is an expensive operation. The usual method is by hand with a short carving knife of not too good quality. The blade should be soft enough to permit quick sharpening with a file or scythe stone. Frequent sharpening is necessary. The cutting should be close to the ground. Not so close as to cut off the crown of the plant nor so long that the nursery cannot be cut with the lawn mower after the stolons are removed.

Cutters should work on their knees making short fast strokes with the knife and sweep the cuttings backward into windrows. Keep the cut stolons picked up and piled loosely in the shade. Cover them at night, in the field, if not to be used the day they are cut. Covering keeps the dew off but keeps the cuttings in a moist atmosphere which helps preserve the softness of the stolons. Soft green shoots are what is wanted, not dried hay. Water the stubble each day after cutting. At the end of the harvest season the whole nursery should be cut to lawn length regardless of whether or not all stolons have been removed. If the nursery is cut to lawn length after harvest, supplied with food, water and topdressing it will maintain itself in good health.

CADMIUM

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that these cadmium fungicides do not discolor the grass or check its rate of growth.

The preferred method of use is to apply the fungicide as a preventative treatment before the time when dollar-spot normally makes its appearance and to continue applications at intervals of approximately ten days to two weeks. Even when applications are not made until after the appearance of dollar-spot the cadmium fungicides will stop the spread of the disease and permit early and rapid recovery of the grass.

While observations and tests have not been so numerous or widespread as for