

HOW TO PLANT CREEPING BENT STOLONS and PRODUCE PUTTING GREENS

by R. R. Bond

Old Orchard Turf Nurseries, Madison, Wis.

Before planting stolons, check on the greens to see whether they are ready to be planted—a green correctly built will save many headaches in years to come.

FIRST: Is the foundation of the green made up of porous material so as to have a quick natural drainage, not only downward but sideways? If not and you have considerable clay in the sub-soil, it will be best to tile the green. Good sub-drainage is very important.

Second: Is the green so shaped that there are at least two or three different slopes for quick drainage in case of over-watering or heavy rains? Good surface drainage is very important.

Third: Do you have seven to ten inches of good top soil, composed of about 20% rich corn land soil, 60% coarse sand and 20% cultivated peat, all mixed together with a disc or roto-tiller? Good internal drainage is very important.

Fourth: Has the green been worked over and over from all angles with roller and rakes so as to smooth out all sharp undulations and hillocks? This does not mean that the green must lie perfectly flat and smooth. You may have undulations, but they must be so graduated that a putting green mower can run over them from any angle without scalping and so that no pockets remain.

Fifth: Is the green well settled?

If you have neglected to perform any of these operations your greens are not ready to plant, and your omissions should be corrected before planting.

Assuming that all these operations are taken care of, we are now ready to plant the green. The objective towards which we are striving is to establish perfect bent greens as fast as we can to help nature grow the grass and follow a program in which playable greens can be established in eight weeks or less, and good playable greens in nine to ten weeks. To obtain this goal we must have rapid and continuous growth of grass.

PLANTING PREPARATION

A week before planting, spread dry ammonium sulphate over the green at the rate of eight pounds per thousand square feet. If there is no rain during the week, gently rake the sulphate in and wet down the night before planting. If the green is well packed, and about five per cent of them are, the men can work on them by wearing rubbers or heavy socks over their shoes, but if the green is soft and apt to show heel prints, it is best to work on wide boards. Run a line of boards the full length of the green from the apron to the back and through the middle of the green. Then lay two rows of boards about a foot apart at right angles to the first row of boards: these should start two feet from the edge of the green. In this way we start planting at the back of the green and work towards the apron where all our materials should be placed.

The materials needed are: a supply of shredded or chopped stolons, a wheelbarrow, four bushel baskets, four tin pails, two rakes, one fairly heavy roller, a hose with an extra-fine nozzle, about ten wide boards ten feet long and a cubic yard of ready-mixed, screened, top dressing. This top dressing has about two hundred pounds of Milorganite or similar organic fertilizer, and a few shovels-full of potash. The correct mixture is composed of 60% coarse, sharp sand, 20% fine cultivated peat and 20% good topsoil. Any good humus fertilizer, such as well rooted, screened

barnyard manure, at least four or five years old, can take the place of some of the peat. This additional fertilizer disintegrates slowly and is a continuous feed for the young roots growing down. You will note that our first top dressing is very friable. The object is to have it so porous that a newly sprouted node can come through the soil wherever it sprouts instead of crawling along under a crust until it finds a crack in the soil for an opening.

PLANTING THE GREEN

First rake the part of the area between the first row of boards and the end of the green to a depth of about a fourth of an inch. Spread the chopped stolons thru your fingers at the required rate. Roll these stolons down, and top dress to no more than an eighth of an inch and roll again. The object is to have the stolons packed between two layers of soil in the same way a gardener would pack down the soil after planting seeds. About a fourth to a third of these stolons will show above ground.

This is as it should be as the nodes above ground will sprout into leaves and new stolons, while the nodes under ground will sprout into roots as well as new stolons. The top dressing must not be thrown on with a shovel but must be laid on so as not to disturb the stolons. A top dressing spreader would be very satisfactory here but if none is available drop the top dressing as evenly as possible by working the material thru the fingers. Now, move the first row of boards behind the second row of boards about one foot. This will give you a planting area about two feet wide, which is all the average man can reach while doing his planting; then proceed as before. First, rake; second, plant; third, roll; fourth, top dress; fifth, roll again; and sixth, move your boards back again. It is all very simple once you get the rotation.

WATERING

If the day is warm, windy, or sunshiny, better start spraying even before the green is half planted. This spray is an extremely fine mist, one through which rainbows can be seen. It is not the amount of water put on the green that counts, but the frequency of moisture, because after all, one need not water over a quarter of an inch, and at no time must the top layer of this soil become dry, not even for an hour, and it must be kept moist for a period of at least four days. On the other hand, do not over-water as the top dressing will then be washed off the stolons and rivulets will form in the green. This is so important that the best man on your force should be given the task of spraying. The first four days are the most important. If this top layer of soil becomes dry and tiny roots dry up you lose your green. After the first four days of almost constant and continuous spraying from sunrise to after sunset, slow up the spraying to about every hour or so, depending on the winds and the hot sun. If the weather is cool or the sky overcast it is natural that the ground will not dry out so quickly and will not have to be sprayed so often.

On the fourth day new shoots will show up all over the green. Then there is nothing to do for the next two or three weeks except of course, spray. Watch the green carefully, and whenever the new stolons become an inch or two long, the green is ready for another application of ammonium sulphate at the rate of five pounds per thousand square feet, the sulphate generally dry or mixed with damp sand. And, be sure to wash it off the blades.

FORMING SOD

Whenever the stolons grow to a length of three or four inches they are ready for the first mowing. This may be three or four weeks after planting, de-

pending upon warm growing days and nights. Before mowing, roll the green so as to force as many of the stolons into the soil as possible, and then mow, first with an ordinary five-blade mower, following this up with a putting green mower set to a height of one-fourth inch. Let the clippings fall where they may, scattering some of them where they are too thick over the places that are too thin. Then roll the clippings down and top dress with the same mixture of top dressing as before, and not over an eighth of an inch thick. Do this once a week for four weeks. This is what is called "Building Sod." After this remove the clippings with a catcher on the mower, and your green is ready to play upon. The last two top dressings are dragged in so as to level and smooth the green. The program outlined is an eight-week schedule, but it may be slowed up a week or two or advanced a week or two depending on growing weather.

SUBSEQUENT CARE

From here on in, lower your mower to 3/16 of an inch and keep it there, and change the top dressing mixture to less sand and more dirt. A good average top dressing is composed of about 30% good soil, 50% coarse, sharp sand, and 20% peat. But you must do your own experimenting and when you get the correct mixture of your soil, stay with that mixture to avoid layering. Stolons may be planted any time during the growing season, presumably from April 1st to November 15th, depending on your locality.

1951 NATIONAL FIELD DAYS

The USGA Green Section announced the 1951 National Field Days for October 7, 8 and 9.

Sunday evening will be devoted to progress reports by Turf research workers and graduate students and a discussion of plans for further research to meet current needs.

Monday will be the big day, during which our visitors will see the experimental plots at Beltsville as well as practical demonstrations of new grasses and new practices at a local golf course. Monday evening again will be devoted to a dinner and talks by leading turf authorities. Details of the arrangements will be published in the USGA Journal, in the Golf Course Reporter, in Golfdom, and in the various News Letters published by local associations.

Tuesday, October 9, will be a "free" day for anyone's choice. Some visitors will wish to review the turf plots; others may wish to visit golf courses in the area; still others may wish to go home. We hope the latter will be in the minority.

Reservations for rooms should be made directly. The tourist cabins near the Plant Industry Station include:

Del-Haven White House Cottages, Berwyn, Md.
Canary Cottages, Beltsville, Md.
Stewart Cottages, Beltsville, Md.

Downtown hotels, of course, are always available and are anyone's choice.

COMING EVENTS

Sept. 10-11, Golf Course Superintendents of America Tournament and Midwest Regional Turf Foundation Field Day at Purdue University.

Sept. 17, Joint meeting of Midwest Association of Golf Course Superintendents and Wisconsin Greenkeepers Association at Fox Lake, Ill.

Oct. 1, Pro-Superintendent Tournament at St. Andrews Country Club.

Oct. 7, 8 and 9, 1951 National Field Days at Beltsville, Maryland.

Oct. 15, Midwest Annual Fall Tournament at Chicago Golf Club, at Wheaton, Illinois

IS ORGANIC NITROGEN NECESSARY?

by A. H. Bowers, Agronomist

Swift and Company, Plant Food Division, Chicago

Until very recent years, the answer was an unqualified "Yes" from such specialized users of plant food as Florida orange growers, North Carolina tobacco producers and those interested in turf management. It was the long-entrenched belief that such sources of nitrogen as cottonseed meal, tankage, dried blood, and other natural organic materials released their nitrogen slowly in the soil, since they were not water soluble. But some of these materials were found to be useful as animal protein feed supplements and brought a much higher price as such than they did before these values were found. Agronomists began to wonder if the organics were really necessary. It did not take them very long to find out that they were not, though custom prescribed their use in large quantities.

Much less costly substitutes were right under the noses of growers and agronomists alike. In fact, they were nothing more than the usual synthetic sources of nitrogen in the form of various ammonium compounds which provide nearly all of the nitrogen in today's plant foods.

In Florida it was found that if adequate amounts of minor elements were supplied, ammonium sulfate and sodium nitrate produced citrus fruits in quantity and quality equal to or better than that produced where organic nitrogen only or mixtures of organic and inorganic were used. Says Dr. J. W. Sites of the Citrus Experiment Station: "While two decades ago it was wrong to use inorganic mixtures of nitrogen, phosphorus and potassium it does not necessarily follow that they may not be used to advantage today so long as they are supplemented with adequate amounts of the other required nutrients."

Meanwhile in North Carolina, Drs. W. E. Colwell and S. L. Tisdale were investigating the rate at which the nitrogen in mixed fertilizers containing organic materials nitrified, that is, changed into the nitrate form used by plants, in comparison with the rate at which sulfate of ammonia broke down into the nitrate form. They found that with controlled incubation in the laboratory, by the end of three weeks practically all of the nitrogen that was going to become available in usable quantities had done so, whether the nitrogenous material was tankage, cottonseed meal, castor pomace or ammonium sulfate.

A further testimonial to the value of ammonia nitrogen was forthcoming from the Indiana Experiment Station in their bulletin No. 482. The bulletin states that as long as nitrogen is in the ammonium form, it cannot leach out of the soil in periods of excessive rainfall or move to the surface, out of reach of the roots in dry periods. High organic matter helps keep the nitrogen in the ammonium form because it supplies energy for bacteria that use up free oxygen in the soil, thus preventing ammonium nitrogen from too rapidly oxidizing it to nitrate nitrogen.

On turf experiments at State College, Pennsylvania in 1947 and 1948 the rate of availability of the nitrogen as reflected in amounts of clippings did not significantly differ between sewage sludge and sulfate of ammonia. However, the new synthetic "plastic", urea formaldehyde, was most promising as a slowly-available, evenfeeding nitrogen material. Unfortunately the raw materials constituting it are on the national defense critical list and there is no commercial production.