

Mechanical Planting of Fairways

- *Schmiesser's Invention Led to Economy*
- *Good Seedbed Preparation Is Essential*
- *Sparse Planting Rate Invites Weed Invasion*
- *Frequent Irrigation Gives Strong Stand*

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The improved Tifton line of Bermudas are sterile hybrids and, consequently, do not produce viable seed. At first glance this seems to be a disadvantage (from the standpoint of propagation), but actually it is a blessing in disguise. This characteristic eliminates the possibility of contamination of greens and areas in other species through accidental distribution of seed. It also means that once the characteristics of the Tifton strains have been set through breeding, they cannot be changed by cross-pollination with common, or other types of Bermuda. In other words, these hybrid Bermudas will be exactly the same 50 years from now as they are at the present. Improved Bermudas, not producing seed, must be propagated vegetatively by sprigging.

Many methods of planting grass vegetatively have been tried. A number of these have been impractical, and some have actually been fantastic. The original method was simply hand sprigging. For small and delicate jobs, this method is still preferred. Using this method, one needs a minimum of planting material and can obtain almost 100 per cent survival. Obviously this is the slowest procedure. For this reason it is impractical where areas even as small as greens are to be planted, not to mention entire golf courses.

Had to be Improved

In 1956 the City of Fernandina Beach, Fla., contracted with us to plant its new course with hybrid Bermudas. This was a 9-hole course consisting of about 40 acres of fairways and 60,000 square feet of green surface. This huge job (for

then) was undertaken primarily in an effort to perfect more efficient techniques. It was very doubtful that the job could have been completed within a reasonable period of time or with any semblance of economy. Other than the greens, the entire course was planted with a one-row tobacco transplanter and greens were sprigged by hand. It was learned that the one-row planter, hand sprigging, and other means available at that time were inefficient and uneconomical for vegetative plantings of hybrid grasses.

In 1957 one of our fellow members, Hans Schmiesser, designed a straight disc type planter, that with small modifications, was to make vegetative plantings economical. This planter was five feet wide, was tractor drawn, and consisted of a series of straight discs similar to coulters which simply pressed the sprigs into a soft seedbed. We used this machine to plant the Lakeland, Fla., Par 3 which was similar in size to the Fernandina Beach course. This job was completed in one-fourth the time and at about one-half the cost. The rate of coverage and smoothness of the seedbed was much better.

System Is Basic

This planting system has remained essentially basic. The implement has been improved on in a number of ways, and is now known as the Tifton Turf Planter. It consists of two sets of 12-inch straight discs welded four inches apart to 6-foot wide hollow center drums. One set is offset, trailing the other, so that the previously broadcast sprigs are planted about two inches apart. A 12-inch hollow roller, also 6-feet wide, filled with water for weight if needed, follows to

firm the soil around the newly planted sprigs. All is mounted upon a frame and connected by a three-point hitch to the tractor which pulls the implement and raises and lowers it by means of a hydraulic system. The implement is not patented.

An efficient group using the Turf Planter can plant an entire 18-hole course, including practice area, in about one week. One man is required to operate the tractor and eight men can be efficiently used to broadcast shredded sprigs ahead of the implement. Assuming an adequate irrigation system and properly prepared soil, up to 15 acres per day can be planted with only one machine. The object is to introduce a large amount of sprigs into the soil and to leave the planted area smooth and level. If the seedbed is properly prepared, this is accomplished with the straight disc machine. Even greens can be planted satisfactorily if the soil is properly prepared and the tractor operator proficient. If tracks remain, they can be smoothed without difficulty by topdressing or rolling.

Substitute Machine

If tracks become serious on greens due to the nature of the soil, self-propelled planters designed for greens are used. The principle is the same, but the machine does not leave any tracks. As many as 18 greens can be planted in a day with this implement. Mechanical broadcasters that operate in conjunction with the fairway planter have been devised and are proving satisfactory on large areas. Their cost is quite high, however.

The amount of grass used has much to do with the rate of coverage. Under good management and with proper temperatures, a planting rate of 200 bushels of sprigs per acre will develop adequate turf for play in five to eight weeks. Demand for quicker coverage is tending to increase planting rates. Rates as high as 400 bushels per acre are used on occasion and sometimes no more than 100 bushels per acre are used. A sparse rate of planting allows greater weed invasion and requires more water and fertilizer. This delayed coverage often results in a higher cost than using additional planting material.

Proper Management Needed

There is no substitute for proper management after the grass is planted. Sometimes a low planting rate will provide



New officers of the Iowa GCSA are: Front row (l to r) Harold McCullough, president and Dick Bruns, vp. (Second row) John Rahe and Harold Kerr, directors, and Don Westfall, sec.-treas.



Jim Brandt (second left) of the GCSA presented turf scholarship awards to Joe Burris, Jerry Cheesman and Charles Laughlin at the short course held at the University of Iowa in March. Harlan Balma, another young man who received a scholarship, was unable to be present to get his award.

coverage sooner than a higher rate due to better maintenance. The two most important factors to consider if one plans to use hybrid Bermudas are soil preparation and provision for ample irrigation. The few failures that have occurred have invariably been traced to faulty soil preparation or inadequate irrigation.

Irrigate frequently, beginning immediately after planting. This is the most important single factor in getting a good stand, or survival. Even if the soil is moist, a light watering is necessary to seal the soil around the roots. Do not allow freshly planted grass to go more than two hours without water after planting and try to get the water to it as

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Keep These Precautions in Mind

If the responsibility for cars falls to someone who has no experience with engines or engine-driven equipment, the following precautions should always be followed and are especially important:

1. Stop engine before filling fuel tank. Avoid spilling gasoline on a hot engine. Use fresh, clean gasoline or regular grade. Do not mix oil with gasoline. Be sure the vent hole in the fuel tank cap is open.
2. Disconnect spark plug cable before making any adjustment on engine, transmission, or associated parts.
3. Allow engine to warm up before applying load.
4. Do not operate at speeds greater than governor setting or run continuously at wide open throttle.
5. Whenever possible, remove load and let engine idle briefly before stopping.

Keep It Clean

While we're talking dollars and profits, any golfer is more apt to rent a car — and treat it with respect — if it is clean. Whoever services the cars can make them more popular simply by using sponge, water, and elbow grease on his fleet of golf cars once a day. The job takes only a few minutes.

Cars in Storage

If an engine is to be out of service for some time:

1. Drain carburetor by loosening the nut on bottom of carburetor bowl; then retighten it.
2. Drain fuel tank.
3. Drain sediment bowl.
4. Remove spark plug and pour a tablespoon of oil into the engine cylinder. Replace spark plug and crank engine by hand, stopping on the compression stroke.
5. Clean exterior of engine and spread a film of oil over exposed surfaces which are subject to corrosion.
6. Store the engine in a dry place.

Mechanical Planting

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soon as the grass is planted.

Light Watering Best

Three light waterings per day is best. If this is impossible, do not fail to get it watered at least once per day. Temperatures, soil, and wind will determine the daily water requirements. One-eighth of an inch is generally the minimum, one-quarter inch average. If soil is dry

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at planting time, one-half inch or more ought to be applied the first day. The upper three inches of soil should be kept moist. As the grass begins to take root frequency of the watering can be reduced and the amount of water per application increased.

Grass planted with a straight disc type planter needs fertilizer in the upper two inches of the soil. You should mix the fertilizer materials with the soil, but a light drag is best in order to avoid getting the mixture too deep. Frequent light applications of nitrogen fertilizers beginning one week to ten days after planting will hasten development. Quick acting fertilizers will give better results on newly planted grass.

How Plants Respond

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tures well within the favorable range for growth throughout most of the year. In contrast, in the Mojave Desert, where summer day temperatures may be very high, these grasses are much more dependable and satisfactory. Two climatic features of these areas may account for this rather surprising observation. First, diurnal temperature fluctuations are great

in the desert, but of only a few degrees along the coast. The cool nights on the desert perhaps affect the growth responses of bluegrass much more than do the high day temperatures. Second, desert winter temperatures are low. Our studies and those of others indicate that cold temperatures stimulate the subsequent development of new bluegrass shoots, resulting in a denser sod. Thus we may have the maintenance of dense turf year after year on the desert but a gradual thinning of the turf in coastal areas.

Low Disease Potential

The third factor, not directly related to our subject, should be mentioned. Cold winter temperatures keep the disease inoculum potential at a lower level in the desert regions. Hence turf grown on the desert may not be ravaged by disease as quickly as in areas of milder climate. The low humidity of the desert is also, of course, a factor in keeping down disease incidence.

One other effect of cold winter temperatures is of considerable biological importance. This is a reaction called vernalization. Many of the cool season grasses, such as bluegrasses, fescues, bentgrasses and others will not flower and produce seed unless first given sufficient