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I'll Tell You How We Started A Zoysia Nursery

OUR ZOYSIA NURSERY project began in April, 1965, with 15 acres of Meyers Z-52 zoysia. My personal problem then was being a turf nursery manager with little knowledge of grass in general, and none at all about zoysia.

Our company had within its ranks, men who possessed a large volume of knowledge regarding the establishment of cool climate grass nurseries. However all of our farms, with the exception of the Kansas City farm, were located in cool climate grass areas and no one in the organization had personal experience with zoysia.

I contacted a number of people who had established small zoysia nurseries or who had manufactured equipment for establishing vegetatively reproduced plants. But I was unable to find anyone who could, or would, put down in black and white the best procedure to establish zoysia. The most concrete information was to cut the grass into plugs, make a hole in the ground and place the plug in the hole, water frequently for a week or so, and let nature take its course.

A few mathematical calculations made it obvious that the number of plugs required would be quite large. This eliminated cutting plugs by

hand. We had decided to establish our nursery from certified Meyers Z-52 zoysia. Not having a certification program for zoysia in Missouri or surrounding states, we were faced with the problem of either having certified sod shipped in and cut into plugs after arriving, or cut into plugs and shipped to us as such. In discussing this problem with southern growers, we decided the practical way was to ship the grass as sod and cut it into plugs.

Several hurried telephone conferences with the company engineer in New Jersey produced some drawings for a machine that sounded practical to cut the plugs. In about three weeks' time, he manufactured and delivered the machine, which has since been patented. The machine is capable of cutting several thousand plugs per hour from sod pads.

A number of spade-type, foot-operated pluggers were purchased and the next problem became one of manpower and time. Making holes for the plugs by hand was about as impractical as attempting to cut that large a number of plugs by hand.

We decided that we would till a seed bed and try pushing the plugs down into the soft dirt. This procedure was much faster than attempting to make holes. We hired

a number of high school boys and had them place the plugs green side up, about six inches apart on a fresh, deeply rototilled seed bed. The plugs were then rolled with a heavy turf roller which pressed them into the seed bed. They were watered and kept moist for a period of about two weeks.

Mischief Spawns an Idea

One day it was necessary to take the foreman off of the plugging operation and use him in another area. This left the school boys unsupervised for a period of time, and when I checked on them, they had neglected their work and were throwing plugs at each other. While standing there viewing the situation in disgust, I discovered that nearly every plug thrown landed right side up on the ground.

Being familiar with the operation of a manure spreader, we decided to see if it would kick plugs into the air and space them with any degree of accuracy. We ran a manure spreader load of plugs through the machine and went out to the field where we had just completed rototilling a large area seed bed. We soon discovered that by adjusting the speed of the tractor and the speed of the feed on the spreader, we could do a very good job of throwing the plugs into the air and placing them about six inches apart. This left about five per cent of the plugs wrong side up, which we didn't bother to take the time to turn over. We rolled them with a turf roller and kept them wet and they grew very well. Needless to say, this is the plugging procedure that we used from that time on.

Four Ways We Planted Stolons

Hoping to further reduce the cost of establishing the nursery, we decided to try planting stolons. Again having limited information, we experimented. We planted an area as large as we could with limited irrigation facilities. When the irrigation facilities were available from that area, we did another area in a different manner. We kept accurate records on procedures and costs and observed the quality of the results.

The first plan was to lay a solid row of one-foot-wide sod pads across the field. The field had been prepared with an aero blade to a fine seed bed condition. We ran the aero blade four times across the sod, chewing it into stolons of various sizes. These stolons were hand-raked to cover an area ten times as large as the sod used. The

entire area was then worked with a Rogers stolon planter, which tended to press the stolons into the ground and stand them on edge. This was accomplished by a series of blunt discs followed by a roller. The area was then kept moist for a period of about two weeks before receiving normal irrigation.

The next planting, an area of about 33 x 320 feet, was begun by first preparing the soil to a fine seed bed with the aero blade. The stolons were produced by running sod pads through a Fox chopper. They were spread on the seed bed with a manure spreader at the rate of about one square foot of sod to about 20 square feet of soil. The area was then worked with the aero blade, further chopping stolons and mixing them with the soil. We then went over the area twice with the Rogers stolon planter, irrigated and kept it moist for about 10 days.

The third planting, an area of about 60 x 320 feet, was prepared with the aero blade as before. Stolons were prepared and spread as before and at the rate of one square foot to 20 square feet of soil. This time, the aero blade was eliminated and the stolons were worked twice with the Rogers stolon planter and irrigated and kept moist for about 10 days before receiving normal irrigation.

The fourth planting covered an area of about the same size and was prepared with the aero blade with a tiller attachment. This time the sod pads were irrigated prior to lifting and were quite wet when they were cut with the Fox chopper. They were spread as before, at the rate of about one square foot of sod to 20 square feet of soil. The area was then gone over twice with the Rogers stolon planter, to which about 200 pounds of additional weight had been added. The area was irrigated and kept moist for about two weeks.

Six more areas, ten in all, were completed during the month of June, each with some variation from the other. After observing the results of that year's efforts, our conclusion is that the most economical method of rapidly establishing a zoysia nursery is by planting stolons rather than by plugging.

Our Present Technique

Following is the procedure we have followed in completing our zoysia nursery:

1. Aero blade the soil with a tiller attachment to the depth of about three or four inches until a fine seed bed is obtained.

2. Thoroughly wet the zoysia before the pads are run through the chopper to be made into stolons.

3. Complete the entire balance of the procedure as rapidly as possible so the stolons do not dry out.

4. Spread the stolons evenly over the soil with a manure spreader at the rate of about one square foot of zoysia, processed into stolons, to 10 square feet of seed bed area.

5. Process the area with the aero blade with a tiller attachment to a maximum depth of two inches. This depth mixes some of the stolons in with the dirt and re-levels the seed bed. The position of the aero blade rear shield is important. If it is too high, it will allow the machine to kick the dirt and the stolons into the air, resulting in all the stolons being left on top of the soil. If the shield is too low, the mixture of soil and stolons will be left in ridges. Proper adjustment will result in a smooth, evenly mixed discharge from the machine.

6. Go over the stolonized area two times with a Rogers stolon planter. It appears that it is desirable to use the machine with roller at the rear, just as recommended by the manufacturer. If this procedure results in the alignment of stolons

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Industry People On the Move



International Harvester Company has named John J. Dierbeck, Jr., as public relations manager for farm and industrial equipment.

* * *

Frank E. Gardner, retired horticulturist from USDA's field laboratory in Orlando, will head the Florida State Horticultural Society during 1970.

* * *

Chipman Division, the agricultural-chemical arm of Rhodia, Inc., announces that Dr. Elton L. Clark has been appointed assistant general manager. Clark came from W. R. Grace and Co., where he had directed the company's technical-sales effort in certain pesticides. His doctorate is in entomology from Cornell.

* * *

The Davey Tree Expert Company, Kent, Ohio, announces the addition of Charles F. Walton to its technical service department.

Walton is responsible for soils, transplanting, and tree

fertilization improvement studies. He also is an instructor at the Davey Institute of Tree Service.

* * *

DESA Industries, Inc., Park Forrest, Ill., has named Charles E. Brinly vice-president in charge of sales for its power products division.

Brinly formerly was division manager of chain saw products of Remington Arms Company, Inc.'s power tools department.

The power products division was formed as a result of DESA's recent acquisition of Remington's power tools department.

* * *

Toro Manufacturing Corporation, Minneapolis, Minn., has appointed Melvin D. Goetz manager of employee relations, Henry B. Tillotson as facilities planning director for its Canadian and European markets, and Roy W. Simpson as credit manager.

Goetz, formerly was manager of employment and director of labor relations for Continental Air Lines, Inc.

Tillotson had served as assistant director of manufacturing, manager of consumer products in manufacturing and engineering, and director of manufacturing since joining Toro in 1953.

Simpson served as Minnesota area manager for General Electric Credit Corporation prior to joining Toro.

Zoysia Nursery ...

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on the surface parallel to the disc grooves, it may be advisable to use the stolon planter in two directions at right angles to each other.

7. Irrigate as soon as possible and keep the area moist until new leaves appear.

Procedure to Prepare Stolons

The procedure that we used in preparing stolons is as follows:

Our observations indicate it is desirable to wet the sod pads thoroughly before chopping into stolons. We have accomplished this by two methods.

One, where sod pads have been previously cut, we have irrigated—

putting one-half to three-quarters inches of water just prior to lifting the pads. This leaves the pads quite wet, but this is the most desirable. Where the above procedure has been impossible, we have lifted the sod in sod pads and wet them thoroughly by use of a water hose as they were stacked, prior to being chopped into stolons. We have been using a Fox curved-knife chopper for cutting pads into stolons. A straight knife chopper will probably work just as well.

We found that a hammer mill reduces the zoysia into particles too small to use as stolons. The best stolons were produced by the Fox chopper when the bed knife was moved back against the stops. This left about three-quarters of an inch between the rotating knives and the bed knife. This produces stolons with a minimum length of three-quarters of an inch, and most of them are in excess of one inch. Many will be two to three inches long.

There also will be numerous chunks of turf and, occasionally, some large pieces which are the tag ends of the pad that are allowed to go through after they pass the hold-back roll on the feed table. This does not matter, as these can be spread with the stolons. Some will be reduced in size when the aero blade is used after the stolons are spread. These large chunks and pieces will remain on top of the ground, even after being worked

twice with the Rogers stolon planter and will reproduce just as plugs do. The most important fundamental is keeping the stolons from drying out at any time until they have established a new root system in the new nursery soil. Hot, dry soil will sometimes dry out the stolons after they are spread. This can cause severe injury before irrigation water can be applied. If this is the case, it is suggested that the nursery bed be irrigated the day before final preparation for stolonizing so that the soil is moist, but not wet, when the stolons are spread.

We have observed that stolons left lying on top of the ground, with no dirt cover, have an extremely high mortality rate. Very few, if any, survive. Stolons completely covered with dirt have a high mortality rate, also. Keeping the stolons from drying out until such time as they have attached themselves with new roots appears to be vitally important. We found a high mortality rate in areas where the ground was allowed to dry completely for even a very short period of time. Because moisture appeared to be a critical factor, we made every effort to have the process completed with irrigation water running in a maximum of three hours from the time the stolons were chopped. The areas that were planted in June of 1965 developed into completely mature sod and were harvested during the summer of 1967.



"I'll bet you that place even has a creaky lawn."



Robert F. Lederer, right, executive vice-president of the American Association of Nurserymen, receives the Key Award for outstanding leadership, from S. Rayburn, president of the American Society of Association Executives. The award is the highest ASAE can give one of its members. It's presented annually, and was announced this year at the November ASAE annual convention in Las Vegas.

Planting Machines

A number of machines for row planting sprigs have been on the market for some time. Most were designed for establishing bermudagrass in rows at least 12 inches apart. We have found much to be desired when it is necessary to place zoysia plants more than eight inches apart. This is due to the difference in our area between zoysia and bermudagrass in time required to complete ground coverage. The wider spacing of zoysia will cover, but the additional length of time required is not suitable from an economical standpoint.

Various other machines are on the market for planting strips or plugs. Machines that plant zoysia which has living roots imbedded in a strip or plug of soil are very desirable when a longer period of time (more than three or four hours) is necessary between planting and first and subsequent waterings. We are using machines of this nature with a high degree of success where frequent watering is a problem. The machines place the plugs on about eight-inch centers.

We have recently furnished zoysia stolons for fairways and tees at Tan-Tar-A Resort at the Lake of the Ozarks for its new exotic golf course. Here the stolons were planted in September of 1969 with a hydromulch unit where-in the stolons were mixed with cellulose wood fiber in water and spread as a slurry through a high pressure hydraulic system.

Early observations indicate that this procedure might produce maximum turf in a minimum of time, if adequate frequent watering and professional care are available. Complete evaluation of this method of planting zoysia stolons, both from a growth and economic standpoint will have to be made at a later date.

MSU Study Evaluates Protective Turf Covers

The problem of providing protection for intensely maintained turf areas, such as golf course greens, during winter has prompted James Beard, Michigan State University crop scientist, to study various materials that might serve as protective coverings.

He has conducted winter field ex-

periments and laboratory studies with 16 different types of coverings. By using a cold chamber and a wind tunnel he was able to create conditions identical to winter climates.

Three of the coverings that performed best were a viscose-rayon fiber cover, a viscose-rayon-polyester cover, and an excelsior blanket.

Other coverings which gave protection against water vapor loss and provided good spring green-up included a cloth-like material of woven plastic strips, a fluffy mat of fiberglass, and polyethylene sheets. These materials, however, did not give adequate protection against low temperature injury.

Beard also studied a plastic material sprayed directly on the grass. It is used on shrubbery to prevent water loss during transplanting but did not satisfactorily meet any of the desired protection standards.

According to Beard, "The findings of this study will mean a considerable cost saving to people in the turfgrass industry. The coverings will allow them to maintain high quality areas of turfgrass by reducing or eliminating spring rehabilitation practices."

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