



When cleats dig in with the pressure that a 285 lb. player can exert, turf would come up unless anchored by good turf systems. Action like this (at left) puts any kind of turf under



rough treatment. The U.T.C. fans and players expect to see turf like this (middle) all the time. We had the gridiron in excellent condition for the Homecoming game. Bermudagrass

WTT COVER STORY

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THE U.T.C. MOCCASINS expect turf on Chamberlain Field for home games and they were not disappointed in 1973. Homecoming and our first home game was Saturday afternoon, October 6. The grass turf was like a Bermuda carpet, without a weed or bare spot in sight. The markings were clearly visible and new goal posts were being used for the first time. This year's homecoming brought Southern Mississippi to challenge the Moccasins, which they did very successfully with a score of 42-7.

The newly spruced-up stadium was full, the field was painted with new designs, and Joe Morrison, a former New York Giant, made his debut as coach.

The near perfect condition of the grass was the culmination of a three year program to develop the best sports field possible. When I came to U.T.C. in August of 1970, this field was still trying to recover from its 1968 renovation. And, artificial turf had been ruled out because of cost.

A transplanted cotton grower with

degrees in agriculture (B.S.), ornamental horticulture (M.S.), with special emphasis on landscape design and nursery management, I learned to grow grass when I was working in the landscaping business. To be sure that I used current technology, I sought the services of a turf consultant. Jim King, of Regal Chemical Company in Atlanta, has been instrumental in setting up our fertilization and weed control program. He also advised us on cultural practices and equipment purchases.

Common Bermuda is a good grass for the Chattanooga area. Even with our elevation, we get too much heat in July and August for the bluegrasses. Bermuda hybrids do not recover fast enough to take the rough beating of home games over a two month period. And, sometimes local high school games are played at night after the afternoon U.T.C. games.

Since Bermuda turns brown after the first frost, which can be anytime after October 15, we color the grass to keep it looking naturally green for the remainder of the season. Our field is 1¼ acres or 56,000 square feet. Eight gallons of Vitalon will cover the field using one gallon of colorant for every 25 gallons of

water. The coaches, players, and fans have expressed their appreciation of the field.

The photographs with this story were taken on October 6, before the frost discoloration, and the grass is shining in its natural color. The field is decorated with a typical latex-based paint mixed special for our school colors. It is applied on a one-to-one basis when the grass is wet, and to dry grass on the basis of one gallon of paint to two gallons of water. We have never experienced any noticeable damage to the grass from either the dye or the latex paint.

Normally, the latex paint is applied only once at the one-to-one basis and touched up if needed before each game at the two-to-one rate. In 1972, I had to change the center design. Even after blocking out the original one and painting a new design over it, the grass looked good as new the following year. Normally, the field is ayeed at least twice after frost discoloration begins.

That is enough about the show. Now, to the detailed part of my turf management program.

THE ROOT SYSTEM HOLDS THE TURF

There would not be much to look

FORWARD PASS



turf takes punishment, but comes back quickly. Our yardage lines are marked with a machine like this (right). Just prior to a big game we make a final check to see that all likes

are marked. Careful attention to details results in a playing field that beckons for action.

FOR BERMUDAGRASS

at unless proper attention was given to what happens in the soil. Without a deep root system, shoe cleats would lift out too much grass and leave the field a mass of bare spots. Or, the action would damage the surface to the extent that the shallow rooted grass could not recover.

A soil analysis is made every February so that we can determine early our maintenance needs for the year.

Even though 6.0 to 6.2 is considered a good pH range for Bermuda, we find that our grass continues to perform well even though the pH has been around 7.0 for the past two seasons. For this past season our soil analysis indicated an adequate level of phosphorus (P) and potash (K). For that reason, we used only nitrogen as Nitroform 38-0-0 in June, July, August, and September at the rate of 200 pounds per acre or an equivalent of about seven pounds of N per 1,000 square feet. Our peak growing periods for Bermuda are July and August, consequently, by the middle of September the grass is thick and green—ready for the first home football game. Nitroform has been successfully applied without any damage to the turf due to the slow release quality.

Equally important as nitrogen to grass color and health are the micro-nutrients, especially iron. We apply these so called vitamins in liquid form during the latter part of the growing season for a green-up before the football season. Iron is essential to root growth in combination with nitrogen. Multigreen happens to be the one we usually use because of its iron content; and it also contains sulphur, copper, manganese, and zinc.

To relieve soil compaction and to improve water and air movement the Jacobsen Core Aerifier is used monthly June through September. The nitrogen is applied after aeration. The cores are dragged in, using equipment fashioned from chain link fencing. Core aeration not only assures better fertilizer coverage, it moves the nitrogen into the root zones faster. It also gives the effect of sprigging by broadcasting the cores. Since Nitroform is nonleaching, we think this gives us quicker green-ups.

With 50-52 inches of annual rainfall, water is a problem most years only in July and August. We use two-inch aluminum pipe irrigation system and put down 1½ to 2 inches of water when needed. We believe it

is better to water thoroughly once rather than lightly and more often. Deep water penetration encourages a deeper, stronger root system.

SPRING IS THE TIME TO RENOVATE

The Blue and Gold game winds up spring football practice about April 20. At this time, spring renovation begins which is the first step in putting the turf in top condition for the fall season. The practice field is used for the spring football workout except for the intra-squad game.

Since soil tests are made in February we already know pH and nutrient requirements. First we dethatch to get the dead matter away from the soil surface. When mowing, clippings are not collected, consequently, thatch buildup can be quite heavy. Top dressing follows to smooth up the soil surface.

We lose some turf every season, so bare spots are filled in with grass plugs. The practice field, on another part of the campus, supplies the needed sod. We roll lightly so as not to add to compaction.

This is the time of the year we would add balanced fertilizer if the soil test indicates a need for P and K. Also, it is the time we would cor-

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Painted designs are worked out and scaled on the drawing board. Here, I use a tape measure to make an accurate field check. Mistakes show up quickly.

FORWARD PASS (from page 13)

rect the pH if needed. We usually apply a pre-emergence herbicide such as Balan to help control *Poa annua* and other weeds.

Mowing begins as early in the spring as the grass starts to grow. We use a Jacobsen Turf King 3-reel mower with a 76 inch cut. This is as much width as we can use and keep flexibility needed in other campus areas.



Practice on the field by the majorettes and the band is restricted. We want to limit the damage that a foot can do when it continues to step into the same spot. These girls find the Bermudagrass much to their liking, however.

Cutting height in the spring is kept at $\frac{3}{4}$ of an inch to encourage spreading of the turf. By keeping a smooth even surface, we avoid the scalping that can result from low mowing.

During the latter part of July we change the cutting height to $1\frac{1}{2}$ inches for the balance of the season. This is a little high for Bermuda but it encourages the turf to thicken, resulting in a softer more pliable playing surface.

Mowing is scheduled at the rate the grass is growing so as not to remove too much leaf surface. Every time weather delays the mowing, and more than onethird of the leaf surface is removed, we see some brown areas. Even though the brown areas recover rapidly, we try to avoid the problem.

Grass is not as competitive as the weedy plants and that is why we spray at least three times during the growing season to control such pests as crabgrass, crowfoot, knotweed, and chickweed. We usually mix Trimec and MSMA to get the best control of broad-leaved and narrow-leaved weeds in Bermuda. The chemical selected depends on the grass being treated.

We have found that a surfactant such as Di-Aqua is very important in getting better coverage and control. It makes the water wetter by breaking down the particles to spread the chemicals more evenly.

With the Myers 200 gallon sprayer and 20 foot boom we can cover the $1\frac{1}{4}$ acre field in nine passes. We apply all liquid products with this sprayer by just changing the spraying tips. As to application rate, we follow the labels and that is the best recommendation for use of any chemical.

In the last three years we have not used either a fungicide or an insecticide. We watch for disease and insect damage, but none has been



Terry Turner, my assistant, has the fine hand of an artist when it comes to spraying. He's working on a goal design here. Turf in the back is natural color.

serious enough to justify treatment. We realize that the disease and insect problem is different with each growing season, consequently we are always on the alert for any signs of trouble.

GRASS IS STILL OUR CHOICE

September ends all maintenance except mowing and game preparations. October brings the show-period which is the reason for the total effort. The football season is concentrated in October and November. The R.O.T.C. uses the field over a six week period in the fall to practice marching formations. The only other use allowed on the field is band practice one time before each game.

We have proved that live turf can satisfy our needs for beauty and utility and our annual costs are less than the interest would be for an investment in artificial turf. It has been estimated that an expenditure of approximately one half million dollars would be required to put artificial turf on our field. At the current rate of interest, the interest on that amount of money would more than pay the maintenance cost on our live turf. □