

WARM SEASON PRODUCTION

Warm season sod production benefits from a longer growing season, turfgrasses that remain aggressive during the summer, and various uses for the product, i.e. plugs, stolons, and sprigs. It is hampered only slightly in that most production is vegetative, requiring planting methods more complicated than seeding.

Warm season turfgrass sod production required different mechanization from cool season turfgrass sod production. Most of this inventiveness came from the Southeast from men such as Ray Jensen of Southern Turf Nurseries, John Beck of Beck Turf Nurseries, and many others who contributed to the organizational effort, like Jim Ousley of Ousley Sod Co. in Pompano Beach, Florida. In California, Toby Grether of Cal Turf provided the West with the drive and technology to develop.

In some respects, turf nurseries in the South preceded sod farms in the North. While pasture sod was still dominant up North in the 30's and 40's, the turf nursery for production of plugs, sprigs and stolons already existed in southern states. However, sod cutting and harvesting technology really caused both northern and southern sod industries the same delay in transition from older, less efficient methods to those which permitted volume production. Furthermore, modern cutting and harvesting equipment is utilized today in sprig and stolon production.

Extremely high germination temperatures for warm season turfgrasses and their ability to spread rapidly strongly favored vegetative production. The only significant use of seed in tropical and semitropical zones is for winter overseeding with rvegrass and more recently rough bluegrass, *Poa trivialis*. There is some use of centipedegrass, bahiagrass, and kikuyugrass seed. It is



Ray Jensen

Founder of Southern Turf Nurseries, one of the largest warm season turfgrass nurseries.

generally considered that vegetative production maintains genetic purity better than seeding.

Bermudagrass, St. Augustine, and zoysiagrass are the dominant sod grasses. They form dense, tight sod which performs well under low mowing heights. St. Augustine and zoysia are favored for shaded areas and exhibit good insect resistance. St. Augustine does not withstand traffic as well as zoysia, and not nearly as well as bermudagrass. Bermuda requires higher maintenance however.

Whereas sod competes with seeding in the cool season turfgrass zones, sod competes with plugs, stolons and sprigs in warm season turfgrass zones. Again, time is the big factor. Warmer climates allow year round use of athletic fields. Some repair can be made by spot sodding and plugs, but major damage must be

repaired by sodding. To have a field out of play for renovation is considered impractical.

Irrigation is a way of life in the semitropical and tropical zones where fine turf is concerned. If one commits to the expense of permanent irrigation, as many do, the cost of sod is less an issue. Large areas and lower maintenance areas may opt for stolons, sprigs or plugs. Stolons are often applied by hydraulic mulching equipment. Stolons can also be broadcast and crimped into the soil. Sprigs are inserted in slits cut every eight to 18 inches and tamped. Plugs can be planted at the density desired by the customer or planted in one area and used for future plugs after regrowth.

The equipment required for planting plugs and stolons is not generally available. It is provided by the contractor who installs the lawn. The number of manufacturers is very limited.

So, in some respects, sod has a competitive advantage over other methods in the South, advantages which go beyond the instant lawn. A look at the 1974 Agricultural Census indicates turf nurseries in the South average twice the acreage of northern nurseries but average the same as northern growers in sales. Therefore, it takes twice the acreage in the South to receive the same sales as in the North.

Texas followed Florida in sod production of warm season turfgrass, in the late 60's and early 70's. Texturf bermudagrasses are developments of the Texas Agricultural Experiment Station. Growers in Alabama and Georgia appeared to help push southern sod producers into significance. In California, Tobias Grether and John Nunes pushed that state's industry into sod production in the late 60's.

PROFILE

Southern Turf Nurseries

One of the success stories of warm season sod production is Southern Turf Nurseries of Tifton, Georgia.

Started in 1950 by Ray Jensen, a soil scientist with the USDA, Southern Turf Nurseries has an amazing record. Located near the USDA Research Center in Tifton where Glenn Burton bred his "Tif" series of bermudagrass, Southern Turf responded quickly to advances in turfgrass breeding. Jensen was the first to produce seed of centipedegrass and is one of three suppliers of the seed today. He and his staff developed the equipment necessary to plant and harvest sprigs of bermudagrass, centipede, and St. Augustine and plugs of zoysiagrass. In 1960, Southern Turf started production of warm season sod.

Jensen's creative and aggressive business sense was continued by the purchase of the company in 1976 by Charles Nash and E.G. Pope of Atlanta, partners of Tech Industries. In 1978, Southern Turf Nurseries entered into an agreement with Anheuser Busch to utilize brewery effluent to irrigate sod fields adjacent to breweries. The first project in Jacksonville, and another to begin soon near the Williamsburg, VA, brewery solve two problems for the makers Budweiser, Busch, and Michelob; that of effluent treatment and fertilizer needs of the farm. The effluent is rich in nitrogen and is naturally percolated through the sod field soil to the water table. The Jacksonville project produces 300 acres of sod.

Another major step for the company is the recent joint project with Lofts Pedigreed Seed Co., the creation of Sunbelt Seeds. Based in Tucker, Georgia, Sunbelt will market a complete line of overseeding mixtures and warm season turfgrass seed. The company plans to provide considerable technical assistance to southern turf managers.

An existing specialty of Southern Turf is its experience with planting southern athletic fields. In 25 years it has planted more than 2,000 sports fields, including the Orange Bowl in Miami, the Atlanta stadium, and part of Augusta National Golf Course. It has exported and planted fields in 15 foreign countries, including Saudi Arabia, Japan and Israel. It provided much of the stolons for many of Hawaii's famous golf courses.

Today, Southern Turf Nurseries is the largest producer of warm season turfgrasses in the world.

Grether, a tomato and sugar beet farmer in Ventura, CA, planted bermudagrass in part of his acreage in 1958. By 1965, he had 150 acres of sod and 1,100 acres by 1971. Grether is credited with the first net laying devise and the use of fork lifts for sod handling. Today, nearly all of the 1,100 acres is netted. Grether retired in the mid 70's and was followed by Ralph Daily, who improved the net layer and has helped its rise in use today.

According to Daily, the netting permitted planting sod fields that otherwise could not have been planted. Grether's net layer buried the edges of the netting. Daily improved this by a glue applicator for the joining edges of netting.

Warm season sod production faces a greater challenge with offtypes in fields. For example, if bermudagrass gets established in a field of St. Augustine, or visa versa, it must be dug out by hand to remove all viable stolons. Broadleaf weeds are kept under control by herbicides, but grassy weeds require extra effort. Often, mowing crews will spot for offtypes and flag them for control.

Fumigation is very common in warm season sod production and necessary for certified sod. Fields are first fumigated and inspected. Usually, the certified stolons are planted in one foundation block, or field. Other fields are planted by expanding out of that block. The fields are continuously rogued for offtypes. Inspectors make unannounced visits to check the fields prior to harvest.

Irrigation has been essential in the south and west. Large mobile systems are common fed either by wells or lakes. Early proponents and problem solvers in irrigation include Toro's Jim Watson and Weathermatic's Jim Watkins. Fumigation and irrigation are significant in terms of cost to the grower. Without them, however, the job would be nearly impossible.

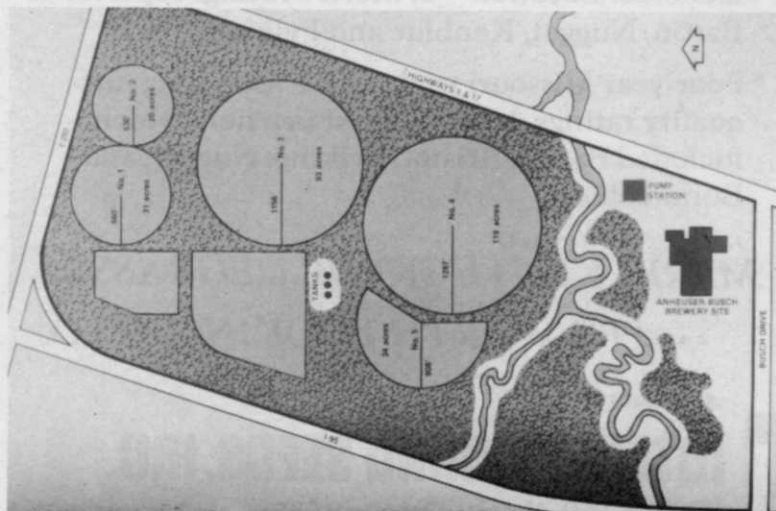


Diagram of effluent project with Anheuser Busch in Jacksonville, Florida.