

**NEW**



## 4. NEW BROUWER HITCH-HIKER

Fits both short and



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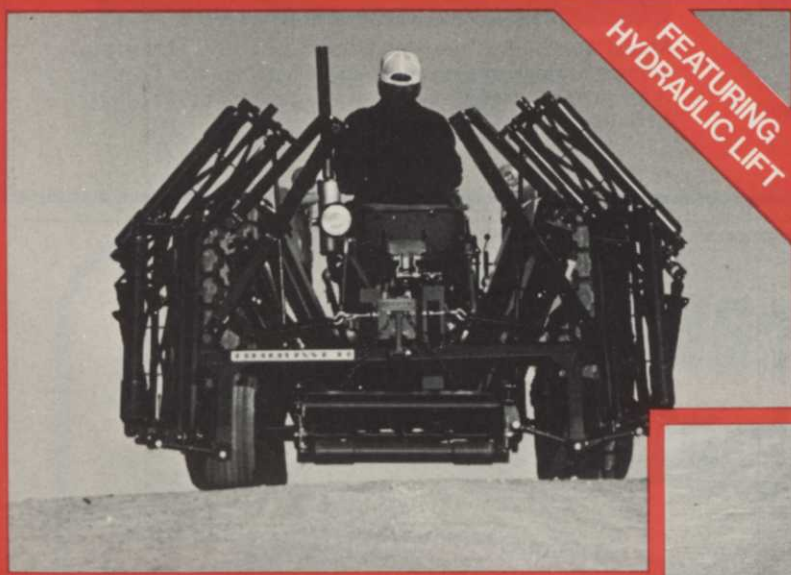


Another Brouwer innovation in sod handling

- Simple, safe operation
- Very lightweight design
- Excellent performance on all terrain
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- 8" side shift for tight loading

- High transport clearance
- 19 HP Diesel Engine
- Mechanical Drive System

**FEATURING HYDRAULIC LIFT**



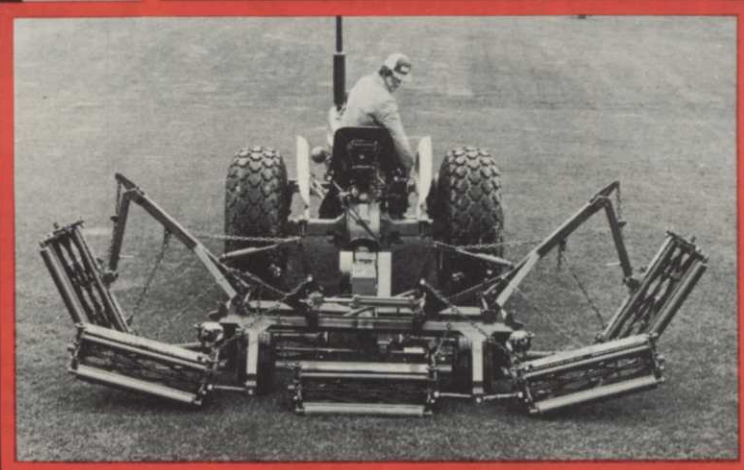
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Brouwer PTO Mowers for economy, reliability and cutting the toughest grass.

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- Track remover available
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# BROUWER

## The Turf Equipment People

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# EQUIPMENT

## Brouwer Turf Equipment Ltd.

The largest manufacturer of sod harvesters is the Canadian company Brouwer Turf Equipment Limited. A sod producer himself since the mid-60's, Gerry Brouwer began production of the Model A harvester in 1972. Brouwer still farms 1,500 acres of sod in addition to his rapidly expanding equipment business. The unit is designed to either roll, slab or fold and operates off the uncut turf which prevents tracks and turf damage. Brouwer recently announced production of a new line of harvesters, the Model 2000. This unit offers innovative features such as automatic steering, automatic empty pallet loading and four-wall stacking area. It can harvest 2,000 sq. yds. per hour with minimal waste.

Brouwer also makes the light weight Hitch-Hiker fork lift, a side-unloading grass collector, a turf roller, and PTO gang mowers. The company recently established a sales office in Europe to meet sales and service demands of overseas sod producers.



**Model 2000** is the newest Brouwer harvester featuring automatic steering and empty pallet loading (top). Model A harvester is used by more sod producers than any other harvester.

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# TOUCHDOWN

## Kentucky bluegrass

PLANT VARIETY  
PROTECTION CERTIFICATE  
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### POA ANNUA... FINALLY MEETS ITS MASTER

... University of Illinois at Urbana-Champaign

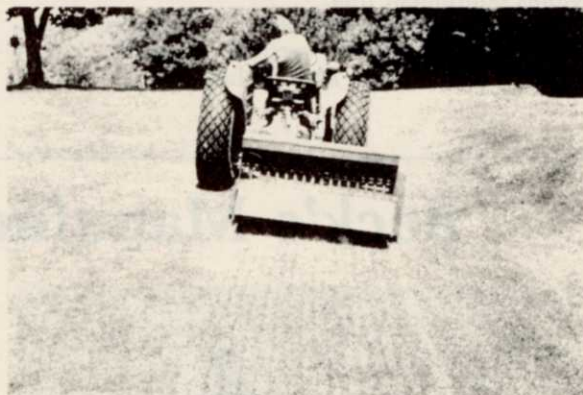
Dr. A. J. Turgeon and co-workers J. E. Haley and J. R. Street conducted intensive Kentucky bluegrass cultivar management studies.

Twenty-one cultivars were planted in September 74. Varying management regimes were imposed to measure their competitiveness against the infestation of *Poa annua*.

They concluded: *"The most impressive differences among cultivars were observed under close mowing (0.75") and high fertilization (8 lb./N per 1000 sq. ft.). Several of the cultivars were virtually overrun by Annual bluegrass while others remained nearly weed free. Those cultivars which are apparently best adapted to this cultural intensity include A34, Brunswick and Touchdown"*.

Touchdown fights *Poa annua* two ways: First — its superior disease resistance means it won't thin out from Crown rot (Leaf spot) Leaf rust, Stripe smut or today's *Fusarium* so *Poa* can't get a foothold . . . and secondly it's so aggressive and dense in growth habit it just keeps on fighting *Poa*.

Touchdown is ideal for overseeding . . . it germinates fast and quickly develops a healthy, mature turf.



Let's look again at what Touchdown has for you:

- early spring greenup
- rapid establishment
- drought and heat tolerant
- dwarf growth habit
- superior disease resistance
- bright green color

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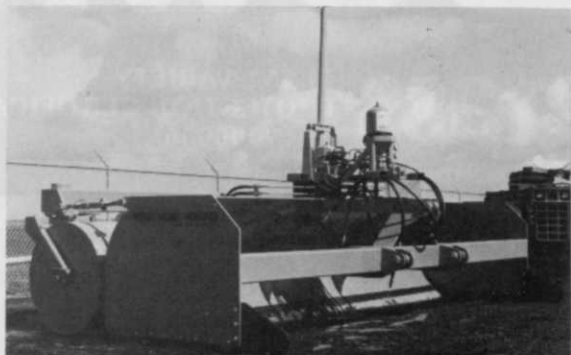
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# EQUIPMENT

## Nunes



Laser scraper

The two largest forces in sod in California are Nunes and Cal Turf, now part of American Garden Products, recently acquired by Amfac. The two people behind the firms are Tobey Grether of Cal Turf and John Nunes of Nunes Turfgrass Nurseries. Grether sold his interest in the 70's. But John Nunes and his son Greg manage 1,500 acres of sod, orchards, and diversified row crops, as well as Nunes equipment line.

Nunes manufactures a line of sod equipment including a harvester, vacuum sweeper, rotary mower, sod netter and a laser land leveler.



Rotary mower

Although distribution of its Kentucky bluegrass and bermudagrass sod is regional, its distribution of equipment is international. The company is headquartered in Patterson, 90 miles east of San Francisco.

Nunes also has "Instant Grass Centers" in nine California cities to market its sod and other landscape materials. This marketing effort certainly gets the idea of sod across to potential customers. It may be one of the reasons sod is so well accepted in California.

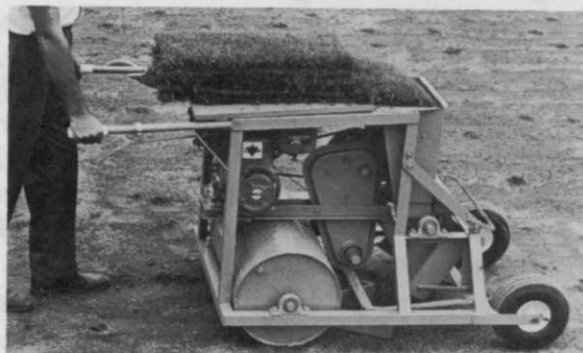
## Beck's Manufacturing Company



Big Roll Harvester

A unique answer to the sod harvesting and handling situation is Beck's Big Roll. This system harvests three 16-inch rolls of sod simultaneously and can lay them the same way. The sod is rolled onto cores which are handled by a carpet pole like device. This core permits handling by cranes and adapted forklifts. It also permits laying with a tractor three rolls at a time.

Beck Manufacturing Company is a division of Beck's Turf Nursery, one of the earliest producers



Sprig Planter

of zoysiagrass in the country. Another product of Beck's is Lawn-O-Matic sprigger which sprigs or plugs three 8-inch rows at once.

The Big Roll system is available on a franchise basis only. This guarantees a territory for the franchisee. The Beck Manufacturing Company and Turf Nursery is located in Auburn, Alabama.

series of Tifton, Georgia, by Atlanta-based Tech Industries.

As of July, no drastic fall-off had occurred in the demand for sod this fall, despite gloomy building start figures. Sod will again show its relative remoteness to economic conditions. Commercial lawn care has heightened the interest in lawns by homeowners. As homeowners are forced to restrict travel plans, their homes and their lawns become their prize possessions. Unfortunately, sod producers, irritated by an Illinois law which essentially permits a lawn care firm to apply just water during a job, have formed a poor attitude about all lawn applicators. When sod producers could be working with lawn care firms to resod old lawns, they instead are reluctant to recommend a lawn care service to their customers. The care provided by the lawn applicator or the landscape contractor is the best insurance against failure of the sod after installation. Furthermore, these firms could recommend sodding for lawns they see as beyond hope or not up to current turfgrass standards. If a person pays \$2,000 to sod his property, he will be willing to pay the

\$200 per year to take care of it.

Lawn renovation becomes an important factor when building declines. The sod industry should deal with this marketing alternative.

#### Market Size

Value of sod produced in the U.S. approximates \$200 million annually. Seventy percent of this total is cool season sod production. Sod producers harvest between a third to a half of their acreage each year. Total acreage in sod production is estimated at more than 100,000 acres.

By far the most common time for seeding is late August. Some growers may harvest the sod the following summer if they have used netting or pushed the sod through fertilization. This is done only in special cases and usually less than ten percent of the acreage is devoted to accelerated production. If a grower chooses, he will plant a portion of his acreage in the spring, again usually for specific orders. The normal growing cycle remains 12 to 18 months, fall to fall or fall to spring a year later. Whereas monostands of Merion or other Kentucky bluegrass were common in the

early 60's, a blend of improved Kentucky bluegrasses is common today. In some cases, creeping red fescues are added for shade and less fertile sites. Research by Dr. Richard Hurley under Dr. Richard Skogley at Rhode Island found ten percent as the optimum percentage of red fescue in a sod mixture.

Although netting could conceivably allow production of perennial ryegrass sods, growers have avoided such production so far. They are sold on the superior sod strength of bluegrass sod and question the winter hardiness of improved perennial ryegrasses for sod. NK-200 has proven cold tolerant in Minnesota, but more research is needed.

In the transition zone, tall fescue is included in many sod mixtures. New fine-bladed tall fescues show promise for this area and perhaps northern areas once winter hardiness is established.

Zoysiagrass and bermudagrass are available as plugs or sod in the transition zone. Some Virginia sod nurseries produce bermuda and zoysia sod. Much of the original work with zoysia took place at the USDA Research Center in Beltsville, MD.



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## 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.

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At a wide variety of locations, in comprehensive trials, Merit Kentucky Bluegrass has proven itself one of the better new varieties on numerous counts.

Merit consistently rated high in disease-resistance, turf quality and color. Merit produces a dense, dark green, high quality turf, and has also shown good resistance to leaf and dollar spot.

Merit was also lauded for its excellent spring color in tests at several locations.

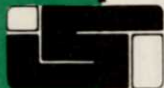
### *Here's How Merit Has Performed*

- NE-57 TESTS IN 1972 — Overall, Merit's rating was superior to that of Pennstar, Fylking, Geronimo, Nugget, Park and Glade.
- Five-year New Jersey trial — Merit out-ranked Baron, Nugget, Kenblue, Park, Delft, Windsor and Geronimo.
- New York trial — Merit ranked above Baron, Kenblue and Park.
- Three-year Ohio trial (two locations) — Location # 1, Merit rated above Nugget, Fylking and Kenblue. Location # 2, Merit's ratings superior to Baron, Nugget, Kenblue and Fylking.
- Four-year Missouri trial — in season-long turf-quality ratings, Merit highest in a field which included Baron, Bristol, Fylking, Nugget, and Bonnieblue.

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# 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 device 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.

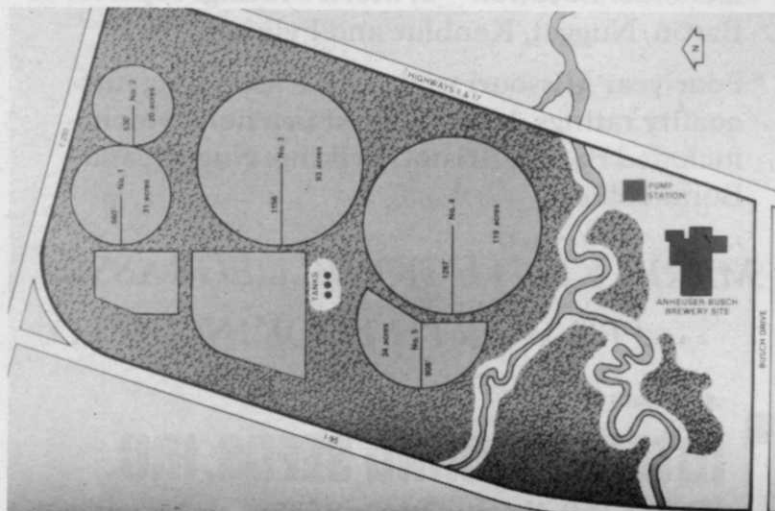


Diagram of effluent project with Anheuser Busch in Jacksonville, Florida.



# Fylking is a 10.

Fylking and the girl are both 10s when you compare their many attributes. Sod growers and landscape architects know a 10 when they see it—that's why they've been faithful users of Fylking.

Fylking was discovered in Sweden where a lot of 10s come from. Low-growing, fine-textured, brilliant green, it performs well when cut as low as one-half inch.

It has improved disease resistance to leaf spot, stripe smut, stem rust and leaf rust.

Like any genuine 10, Fylking has the excellent body you'll want to include in all lawn seed mixes and it's priced lower than most elite bluegrasses. Put a 10 (Fylking) in your next lawn seed mix order.

## FYLKING KENTUCKY BLUEGRASS

U.S. Plant Patent 2887

*Another fine, quality-controlled product of Jacklin Seed Company.*



## RESEARCH AND THE FUTURE

The inventiveness of the sod producer and support entities, i.e. university extension personnel and suppliers, has not diminished. Although the market has matured, demand continues to increase. Lack of appropriate hand labor strongly encourages further mechanization. The cost of water is rising rapidly in some regions encouraging the use of effluent water, efficient irrigation,

drainage recovery, water conditioners, more water efficient turfgrasses, and perhaps antitranspirants. Closely associated to water use is disease resistance. The American Sod Producers and the Golf Course Superintendents Association of America support turfgrass pathologists and breeders work toward more disease resistant cultivars. Rising petroleum prices

encourage the development of turfgrasses with lower maintenance requirements. This includes lower nitrogen needs, improved disease resistance, and improved insect resistance.

To accomplish all this, support must come from the sod producer made possible by less destructive competitive pricing, cooperation



**Examples of inventiveness.** Power splitter for sods invented by Bill Lyons of Canal Fulton, Ohio (left). Two-man spiker circa 1939 (top right). Sprig planter from John Deere circa 1950 (bottom right). Photos by F. V. Grau.