

Webb Plowing Controls Palmetto

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With today's high interest rates and production costs, cattlemen are searching for ways to produce more beef on the same acreage at reasonable cost. Rangeland pastures provide an extensive cost-effective forage resource on many Florida ranches.

Excessive growth of saw palmetto, gallberry, fetterbush, and wax myrtle reduces grass production and creates additional management problems for South Florida ranchers. This invasion of woody shrubs was brought about by continuous grazing, high stocking rates, and too frequent burning over a long period of time. Many ranges are now in poor condition, with excessive shrub coverage.

How can this low cost resource be made more productive? Management is the key. Proper stocking, periodic pasture rest, and proper use of controlled burning and brush control are ways to increase forage production.

Lykes Brothers Ranch, located in Highlands and Glades counties, has found webb-plowing of palmetto flatwoods to be an effective way to decrease brush and increase forage production. Preliminary research results and observation indicate canopy cover reduction on palmetto of 60 to 90 percent within the first year after treatment. Lykes Ranch has webb-plowed about 5,000 acres in the last 2 years.

Use of the webb-plow to reduce brush was quite common 20 years ago. Now, with some modern modifications, it is being rediscovered. The plow is a V-shaped blade that is moved horizontally below the soil surface to cut the roots and stems of woody plants. Lykes Brothers Ranch uses two types of webb-plowing setups. The oldest and most common type is a standard motor grader in front of which the webb-plow is attached. The Ranch has also built a webb-plow that is pulled behind a tractor.

Each machine can treat up to 20 acres per day, barring breakdowns. Lykes has found that the tractor is more efficient than the grader in webb-plowing large palmettos, because the tractor is better suited to rough conditions, is more fuel efficient, and breaks down less often. However, as pointed out by Glenn Sapp, manager of Lykes North Island Unit, "It is easier to make operator errors with the tractor plow because you cannot see the plow working like you can with the grader."

The grader-type plow may be more efficient in controlling smaller palmetto, since the operator has somewhat better control of the depth and angle. Through trial and error, Lykes has found that a plow depth of 4 inches at an angle of 15° is most effective.

"We get about an 80–90% control on palmetto," says Charlie Lykes, Jr., manager of Lykes Brothers Ranch Division. "Smaller palmettos are more easily killed than the larger plants and we seem to get better control when soil conditions are dry." The most effective control has been on palmetto,



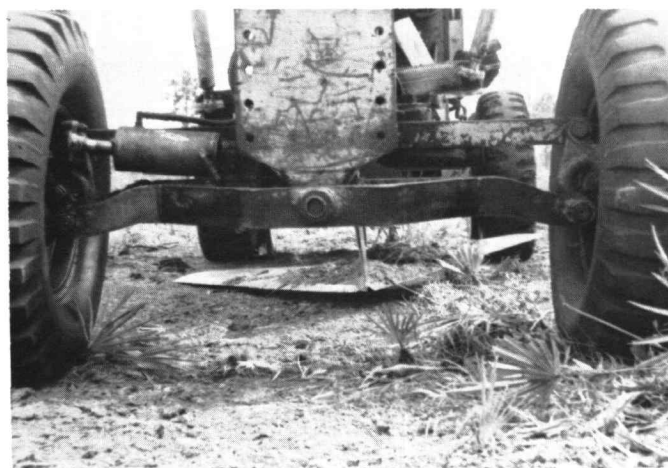
Close up of a webb plow.

but gallberry is also damaged when the soil is very dry. Palmettos begin to wilt two days after webb-plowing. Although surface disturbance is minimal—only a cut from the vertical part of the blade—palmettos begin to wilt, turn brown, and die.

Besides controlling palmetto, webb-plowing has the added advantage of stimulating grass production. Creeping bluestem, chalky bluestem, lopsided indiagrass, and other desirable grasses are stimulated by mechanical soil disturbance as well as by the reduction of competing shrubs. This is particularly true for creeping bluestem, which spreads by underground stems. "We have been very pleased with the response of native grasses to webb-plowing," says Charlie.

What does it cost to webb-plow?

"The cost has risen from about \$8/acre in 1980 to \$12/acre in 1981, to the present cost of \$15/acre," says Charlie Lykes.



Webb plow mounted on a grader.



This is an untreated area adjacent to a webb-plowed area. It is a good example of palmetto coverage prior to treatment.

Rising fuel and maintenance costs are the primary reasons for the increase.

As for building and maintaining the plows, says Charlie, "It costs us \$1,500 in materials and takes about 20 hours to build a webb-plow. The blade is made of 1-inch steel with the underside of the leading edge coated with hard steel (tungston carbide). Because the topside of the blade wears faster than the bottomside, it tends to sharpen itself with use. It has been our experience that the leading edge of the blade needs replacement after about 1,000 acres, and patching is sometimes necessary before this. We have had to totally replace webb-plows after 2,000 acres of work."

Lykes Brothers Ranch has been running its webb-plowing machines year-round except during wet summer months. "When the soil is wet we get poor brush kills, and the wear and tear on our machines is greater," explains Charlie.

Lykes Brothers Ranch has found that although dry soil favors brush kill, it often slows grass recovery. "We tend to favor conditions that give the most effective brush control since we are not overstocked and can afford to wait for the grass to fully recover," explains Charlie. "You just have to give the grass a little more time when conditions are dry." Lykes has found that grass recovers 2 to 4 months slower when soil moisture is low.

Cattle management after treatment is very important in achieving optimum results from brush control. A rotational grazing program that allows periodic rest for rangeland pastures has been a key to increasing productivity for Lykes Ranch. Rangeland pastures are grazed from about October through April, and cow/calf pairs are then moved to tame grass pastures. Dry cows use a number of rangeland pastures from May through September, while other pastures receive complete summer rest. Grass production, particularly of key species, is monitored in each pasture and cattle are rotated periodically to allow regrowth. Webb-plowing and grassland management are coordinated to provide treated pastures with the necessary deferment.

Lykes Brothers cattle are removed from a pasture for 2 to 4 months during and after webb-plowing. Pastures treated during the fall/winter period are burned following treatment



Glenn Sapp, manager of Lykes Brothers North Island Unit, stands in an area webb plowed in the fall of 1981. The seed heads of creeping bluestem and other bluestems can be seen in the foreground.

and then rested for about 2 months. "We get good clean-up burns because of the kindling and grass buildup," says Charlie. Pastures treated in April or May are burned the following fall or winter.

Most of the webb-plowing on the ranch is done from September through February, with burns no later than March. Treated pastures are again rested during the summer months to allow establishment and production of the better native grasses. This summer rest is important, since cattle tend to concentrate on webbed areas and will continuously select young plants of the best forage species. Continuous grazing pressure reduces plant vigor and prevents desirable plants from re-establishing. To obtain the most range improvement for investments in brush control, the Soil Conservation Service recommends a 6-month growing season rest following webb-plowing.

Webb-plowing can be so effective in controlling palmetto that consideration must be given to maintaining adequate cover for deer, turkey, quail, and nongame species. Scattered clumps and strips of palmetto should be left untreated. Lykes Brothers maintains large palmetto clumps adjacent to hammocks, sloughs, and marshes, which are often interspersed throughout flatwoods pastures. Also, untreated strips 300 to 400 feet wide can be marked in the pasture at intervals of 1,000 to 1,200 feet. Strips can be straight or angled in a variety of patterns. Maintaining some palmetto is also desirable since the berries are an important food source for deer and turkey.

The Lykes Brothers Ranch program has been very successful for a number of reasons, including its innovative approaches to brush control. Webb-plowing, combined with a well-established, successful grassland management program, is helping this Florida ranch make the most of its rangeland resources. ●