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Renovating Bahiagrass Pasture

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"Sod-bound" is a term often used to describe a pasture that has been grazed for many years and one that seems to have declined in productivity. Florida cattlemen have been running disks, choppers, and specialized machinery over pastures in order to open up, aerate, or reduce compaction and increase bahiagrass yield. If these operations are performed in the name of renovation alone, that is the rancher is not preparing a seedbed, such as overseeding *aeschynomene*, then the cost the renovation must be paid through more (or better) grass.

A study was initiated at the Ona Research Center to test three machines: Marden HL-7 tandem chopper, Lawson 8'x16" multi-blade pasture aerator, and an Aerway model AW118 pasture aerator. These machines were compared to no treatment (control). All treatments were applied to bahiagrass pastures in April 1991 and 1992. Soils at Ona were typical, poorly drained flatwoods soils. Machine effectiveness was evaluated by rate of water infiltration and soil compaction (penetrometer) before, immediately after, and three, six and 12 months after treatment. Dry matter yield and tiller density of bahiagrass at 28 day intervals were also measured for one year after treatment.

Infiltration rate of water was affected by machine treatment only when measured immediately after treatment. There were no differences between machines or untreated control areas at three, six, and 12 months after treatment. In both years the Aerway machine had a greater rate of infiltration compared to the Lawson machine with the Marden machine and control intermediate and not different from the Aerway. The Aerway machine has 8" tines that penetrate the sod and punch holes in the ground, leaving the pasture relatively undisturbed and with avenues for water to enter, at least immediately after treatment.

Penetrometer or soil compaction values were affected by machine type immediately after treatment, but not at three, six or 12 months after treatment. In both years machine treatment reduced penetrometer values compared to the control, but machine ranking depended on year. In 1991 there was little difference between machines until about 7.5 inches, but below that the Aerway and Marden machines reduced penetrometer values compared to the Lawson machine and control, which were not different. In 1992 the Marden and Lawson machines reduced penetrometer values below those of the Aerway machine and control.

Yield of bahiagrass was reduced by machine treatment, but the effects depended on machine and year. In 1991, the Marden machine lowered bahiagrass yield compared to the control and Aerway machines (which were not different) with the Lawson machine intermediate and not different from the former treatments. Bahiagrass yield in 1992 was lower in all machine treated areas compared to the control at seven dates during the growing season after April treatment, and total yield was reduced by all machines compared to the control.

The important measure of treatment value is bahiagrass yield, and it was lowered (compared to no treatment) by most machines. We believe that had these been drier years the effects of the machines would have been more negative due to loss of bahiagrass plants (tillers) as a result of machine disturbance. Therefore, we can not recommend treatment of bahiagrass pasture on Florida's sandy flatwoods soils with any machine when the intent is to simply renovate old bahiagrass sods.