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Relative Tolerance of Warm Season Pasture Grasses to Mole Crickets

By M.B. Adjei, Extension Forage Specialist
University of Florida, IFAS, Range Cattle REC

For questions or comments regarding this publication contact



[Martin Adjei](#)

In 1997, we established 6 strips of Pensacola bahiagrass and three strips each of Florona stargrass and Floralta limpgrass in the same pasture at two locations on the Range Cattle Research and Education Center (Pasture 71A and 87) and at one location each in Pasco and Manatee counties. Pastures used had been bahiagrass that were destroyed by the 1996 mole cricket outbreak. Based on soil test results for pH, Florona and Floralta grass strips were limed with dolomite in February 1998 to maintain a pH of 5.5. Three strips of bahiagrass in each pasture were also limed to pH 5.5 and the other three strips were not limed but kept at the original pH of 4.2 to 4.5, depending on site.

In March 1998, each grass strip was subdivided into four 50' x 50' plots and fertilized as follows: 1) 60 lb N/A; 2) 60-25-60 lb N-P₂O₅-K₂O/A; 3) 60-25-60 lb N-P₂O₅-K₂O/A plus 20 lb/A of micro-nutrients mix; and 4) no fertilizer. Fertilizer treatments were repeated on the same plots in March 1999. Pastures were grazed normally at each site according to the schedule of the rancher, creating differential stubble height among sites. The primary objective of the study was to compare the interaction between grasses and fertilizer treatments in terms of tolerance to mole cricket damage.

In April 1999 and 2000, we estimated the percentage of each fertilized grass sub division that was green, yellow or dead with a divided meter square frame. We also recorded grass stubble height of each section. Florona stargrass showed the lowest amount of yellowed and dead spots (Less than 3% of stand), regardless of fertilizer treatment. Damage to Florona showed up as dried uprooted stolons on ground surface. Damage to Floralta limpgrass ranged between 5 and 10% and was associated with common bermudagrass encroachment into the strip but not affected by fertilizer treatment.

The greatest damage (up to 63% of stand) occurred on bahiagrass strips and the extent of damage depended on the combination of lime and fertilizer treatments as well as the intensity of grazing. Damage was most severe (63%) when bahia was not limed, but fertilized (any of the treatments with N) and grazed short (2" or less). When bahia was not limed but fertilized and grazed above 3", damage was moderate (10 to 25%). Minimal damage to bahiagrass (2 to 5% of stand) was observed for limed strips whether or not they received fertilizer, or for non-limed strips that were not fertilized.

Although bahiagrass is the most susceptible of our pasture grasses to mole crickets, management practices are available that can be helpful. The combination of acid soil and N fertilizer seems to weaken bahiagrass root-stolon system and facilitate mole cricket damage. This situation is made worse by overgrazing. In acid soil situations, money is better invested first in lime (to raise the pH to 5.0 or higher) then in N fertilization. In dry years, like this year and in 1999, damage to bahiagrass can be reduced by maintaining a good stubble (4"), which is very difficult when bahiagrass forage is limited in the dry spring months.