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Finding Solutions To Bahiagrass Decline

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Bahiagrass pastures provide the basic feed resource for the cow-calf beef program in Florida. There are approximately 3.5 million acres of improved permanent pastures in Florida, and about 75% consist of bahiagrass. Recently, bahiagrass pastures in several counties of south-central Florida exhibited an abnormal condition referred to as "bahiagrass decline." This disorder is characterized by initial yellowing of grass blades followed by grass die-back in small or large brown patches. In most cases, the roots appeared to be present but the outer skin (cortex) was dead or missing. The outbreak in 1996-97 destroyed about 100,000 acres of pasture in central Florida.

Mole Crickets and Bahiagrass Decline

There are four species of mole crickets in Florida. The Northern mole cricket is native and is not a pest. Southern, Short-winged and Tawny mole crickets were introduced accidentally from South America around 1900. Only the Tawny mole cricket is a serious pest of pastures because it feeds on roots, stems and foliage and has the ability to fly around and reproduce itself. Tawny mole cricket has been identified as the primary cause of bahiagrass decline in Florida.

Finding Solutions

- (1) Mole cricket control- cattlemen have fought Tawny mole crickets with chemicals. The withdrawal of most chemicals by the EPA for environmental reasons has weakened Ranchers' ability to control Tawny mole cricket. A renewed effort will be undertaken this fall to evaluate commercially available biological and chemical agents for pasture mole cricket control in Manatee, Hardee, Pasco and Desoto counties. They include a parasitic nematode (*Steinernema scapterisci*) biopesticide marketed as Proactant, anhydrous ammonia, and Prozop Agriband

(10% Sevin) bait.

- (2) Mole cricket population size- Major mole cricket outbreaks on pastures in Florida have been sporadic and difficult to understand, or to predict. In a new extension initiative, "pitfall" traps are being installed on ranches in Manatee, Desoto, Hardee, Polk and Pasco counties to monitor changes in Tawny and Southern mole cricket populations. A renewed attempt will be made to identify climatic, soil and biological factors that affect mole cricket populations, especially during the fall and winter. Determination of predisposing factors to mole cricket outbreak will assist in the prediction and timely control of the crickets to avert future bahiagrass decline.
- (3) The rainfall factor- The IFAS mole cricket research program of 1978 found no simple relationship between weather and numbers of mole crickets caught in sound traps in Bradenton. However, the flatwood soils of south-central Florida, on which large acreage of bahiagrass pastures are grown, contain an organic hardpan at depths of 6-30 inches. These soils are droughty during March to May and periodically flooded during June through September. Flooding flushes mole cricket nymphs out of the soil and exposes them to natural predators including birds, armadillos and skunks. The IFAS sound-trap mole cricket data from 1980 to 1997 are being examined to see if they bear any relationship with the summer rainfall data. Additionally, data from new pitfall traps, located on ranches in five counties, will be used to validate any relationship between the amount of summer rainfall and the adult mole cricket population the following fall and winter.
- (4) The grass variety factor- Since the mole cricket research project of 1978, IFAS has released several new pasture grasses with good yield, quality and persistence. A new on-farm research/demonstration project involves growing selected limpograss and stargrass cultivars alongside bahiagrass in Hardee, Manatee, Polk and Pasco counties to evaluate their relative tolerance to mole cricket damage.
- (5) The soil fertility factor- It is not clear what effects soil pH and N, P, K, and micronutrients have on pasture in relation to mole cricket damage. As part of the grass variety testing, lime and fertilizer treatments will be applied to grass cultivars to determine their influence on grass tolerance to mole cricket damage.