Sugarcane okay in standing water, helps protect Everglades

March 24 2010

A study by Agricultural Research Service (ARS) scientists shows that sugarcane can tolerate flooded conditions for up to two weeks. That's good news for growers who are using best management practices for controlling phosphorous runoff into the Everglades.

Phosphorous stays attached to the soil for a long time even with the moderate rates of phosphorous fertilizer applied to sugarcane in Florida. If growers immediately drain their flooded fields after heavy rains have stirred up the soil, then soil particles--with phosphorus attached--flow from surrounding ditches and canals into the Everglades. Studies have reported that reducing phosphorus will help restore the large expanses of native sawgrass in the Everglades that were replaced with cattails.

Presently, Florida sugarcane growers are under strict regulations to reduce the amount of phosphorous runoff into the Everglades, so they often delay drainage for several days and reduce drainage rates from their fields to prevent large amounts of soil and phosphorous from getting caught in the runoff. However, growers are concerned about how standing water affects yield and sugar content of their crop.

Results from a lysimeter study conducted by agronomist Barry Glaz and soil scientist Dolen Morris (now deceased) at the ARS Sugarcane Field Station in Canal Point, Fla., show that sugarcane may be just the crop to help contribute positively to Everglades restoration. The researchers found that flooding for up to two weeks had no adverse effects on yield and sugar content. If lysimeter results translate to commercial fields,

then growers can wait to drain standing water. This will allow the soil stirred up by the heavy rains to settle, resulting in less phosphorous entering the Everglades.

However, the problem is far from solved because results from this study, published in Agronomy Journal, also showed that that while sugarcane yielded well with periodic flooding, its yields were substantially reduced by shallow water table depths. In other words, the water table is consistently close to the soil surface, so that a substantial portion of the plant's roots are always in water.

Further research by Glaz will focus on the effects of floods and shallow water tables on sugarcane roots as he seeks strategies aimed at sustaining sugarcane yields while keeping phosphorus discharge at acceptable levels.

Provided by United States Department of Agriculture