Rapid advancements in crop genetics, genomics, and plant breeding are due to improvements in genome technology, DNA markers, and knowledge of the genes that produce specific traits. Using the latest in high-throughput sequencing technology, AgriLife Research can generate DNA-based information at a remarkable pace. Marker-assisted breeding is not the same as genetic engineering, in which one organism receives genes from another. Instead, it quickly reveals the genetic potential of individual plants to find those that hold the greatest promise for continued research. To meet increasing food demands, we must continue to support our genomics capabilities and make this data available to plant breeders.

**Program Description**
Research funding is needed for the following:

- Marker-assisted breeding programs for economically important crops and turf
- Identification of genes and associated phenotypes for complex traits related to disease resistance, drought stress tolerance, increased yield, improved flavor and nutrient content, and other desirable traits
- Improvement in field-based high-throughput phenotyping across all crops
- Development of genetic and production technologies that will double the potential rate of genetic gain in 20 years

**Requested Amount (biennial):**
$10 million

**Objective**
Increase food and feed production using marker-assisted breeding programs for economically important crops and plants
The crops these marker-assisted breeding programs will focus on contribute more than $6 billion per year to the Texas GDP.

These programs are focused on sorghum, wheat, sugarcane, corn, cotton, rice, peanut, citrus, vegetables, turf, ornamentals, timber, and many other economically important rural and urban crops.

Funds would be used for the following:
- Internal grants to stimulate research and provide seed money to enhance competition for federal, state, and/or corporate funding, and for equipment upgrades and operating funds
- An internal grants program for facilities upgrades statewide and new facilities for advanced-technology equipment
- New faculty, graduate student, and staff support

For more information, contact:

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