

## **PROGRESS REPORT: DEVELOPMENT OF GROWER DECISION-MAKING TOOLS TO REDUCE RISK AND ENHANCE SUSTAINABILITY OF SOUTHERN SWEETPOTATO PEST MANAGEMENT SYSTEMS**

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**ABSTRACT:** Funding from the Risk Assessment and Mitigation Program (RAMP) was received during 2004 to begin a four-year project to identify insect, disease and weed variables that affect quality or production of sweet potato in Mississippi. This project is part of a multi-state program in cooperation with research and extension personnel in North Carolina, Louisiana and Alabama. Goals of the project are:

1. To assist with development of a software package for farm use to record information concerning farm operations, field sampling (insects, weeds, etc.), and farm maintenance.
2. To identify factors in packing houses that may reduce potato quality or storage capability.
3. To identify field parameters (drainage, soil type, previous crop, surrounding foliage etc.) that might play a role in sweet potato disease, or weed or insect infestations in sweet potato fields.
4. To develop a risk index that would assist growers in decision-making and cost analysis prior to planting.

Because of problems associated with the very wet spring and early summer, research was initiated on 19 instead of 25 commercial sweet potato fields in Mississippi. Cooperating producers were Danny and Stephen Bailey, Jamie and Ricky Earp, Danny Clark, Tim and Paul Edmondson, Brad Spencer, Wayne Johnson, Craig Williams, Norman Clark, Keith Pettit, and Jamie Smith. Cooperators were asked to grow an 8 to 12-row, insecticide-free strip of sweet potatoes on the edge of each field to facilitate determination of possible insect species in the fields. Weekly sampling for insects by sweep net in insecticide treated and untreated areas of each field was followed by harvesting of sweet potatoes from which insect damage and propensity for disease will be determined. Similarly, data were taken from areas within fields that were either weedy or exhibited poor drainage and compared with data from areas in weed-free or dry areas. Additionally, pheromone traps and/or Vortex light traps were placed at each field to monitor populations of *Phyllophaga* spp. (May or June beetles). Oatmeal-bait traps were placed in several locations in each field at three times during the season to sample wire worm populations. Crop rotation studies were planted in two areas (Delta and Hill) to assist in determining whether any sweet potato insect pests are increased or reduced when sweet potatoes follow other crops or fallow ground. Packing-house procedures were evaluated to determine causes for sweet potato damage or diseases, including the use of a 'Smart Spud' that transmits impact data to a computer. Weed study plots were maintained in five fields to evaluate the effects of low, medium and high weed density on sweet potato yield or sweet potato insect pests or disease problems. Data are currently being tabulated for the 2004 season.