

NCR-101 Committee on Controlled Environment Technology and Use
2003 Annual Meeting April 26-29 Guelph, Ontario, Canada
Tuskegee University - Station Report
George Washington Carver Agricultural Experiment Station, 100 Campbell Hall,
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New Facilities Planned

- Construction of the new 8,000 sq. ft. Food Processing and Food Safety facility that started on March 28, 2002 is complete. Funding for the facility was provided by USDA/CSREES. Research in this facility will focus on the development of food processing methods, analytical methods for the determination of contaminants, chemical/drug residues both naturally occurring and through biotechnology, including food components and waste management and environmental quality
- Four new reach-in plant growth chambers will be installed starting in June 2003.

Unique Plant Responses

- Sweetpotato plants grown under 5 mm thick transparent sheets exhibited severe edema and leaf shedding, while peanut plants were unaffected. Problem corrected after it was discovered that >90% of total UV was being blocked. Acrylite OP-4 Acrylic UV transmitting sheets are now being used.
- Starting peanut seedlings in Arcillite before transplanting to NFT greatly reduced the incidence of pythium

Cooperative/Interdisciplinary Projects.

- Cooperative work with USDA/CSREES sweetpotato, biotechnology and breeding, as well as food processing and human nutrition programs.
- Student interns working with scientists at JSC and KSC in food systems and product development, optimizing root zone substrates for microgravity and biomass production projects.
- Collaborated with majority native American serving Dine and South Mountain Colleges on the 2002 Spaceflight and Life Science Training Program at KSC.
- Collaborated with our local school district and selected community leaders in their "Streaks of Genius" program to motivate student interests in science and engineering.

Committees and Sub-committees Served

- NASA's Biological and Physical Sciences Research Advisory Committee
- Advisory Committee for the ESCOP/ACOP Leadership Development of the Experiment Station Committee on Organization and Policy (ESCOP) / Academic Committee on Organization and Policy (ACOP).
- National Research Initiative Competitive Research Grants review panels.

Publications

Alvarez, M.N., D. Mortley, C. Bonsi, and J. Hill. 2002. A rapid assessment technique for the screening of sweetpotato for use in bioregenerative life support applications. SAE Technical Paper Series No. 2002-01-2485, Warrendale, Pennsylvania.

Mortley, D.G., Bonsi, C.K., Hill, W.A., and Morris, C.E. Daily light period influences pod yield, harvest index, and flowering of peanut grown in nutrient film technique. SAE Technical Paper Series No. 2002-01-2488, Warrendale, Pennsylvania.

Bromfield, E. and Bovell-Benjamin, AC. 2002. Consumer acceptance and purchase intent of a sweetpotato beverage. SAE Technical Paper # 2002-01-2487, Warrendale, Pennsylvania.

Shireen, K. F., R. D. Pace, M. Egnin, and C. S. Prakash. 2002. Bioavailability of calcium from sweetpotato and soy flour supplemented diets in hamsters. J. Environ. Sci. Health. B37: 637-645

Shireen, K. F., R. D. Pace, M. Egnin, and C. S. Prakash. 2001. Effects of dietary proteins and trypsin inhibitor on growth and lipid metabolism in hamsters. Mal. J/ Nutr. 7 (1&2): 1-14.

Shireen, K. F., and R. D. Pace. 2002. Nutritional assessment of transgenic sweetpotato on body weight, lipid, and protein status in hamsters. J Environ. Sci. Health. B37 (1): 93-101.