Sweetpotato Foundation Programs Provide Sweetpotato Growers with High-quality Pathogen-free Seedstock

James M. Dangler

Several states have sweetpotato foundation programs or support similar efforts that provide services to sweetpotato growers. The objectives of these programs are to maintain seedstock quality by assuring that sweetpotatoes are free of serious pathogens and other serious pests and that they exhibit the characteristics of the variety. The quick distribution of new varieties is another way sweetpotato foundation programs benefit growers. These programs are necessary because most sweetpotato growers do not have the capital, technical expertise, and time needed to produce and maintain high-quality seedstock. Most sweetpotato growers take advantage of the seedstock available through foundation programs to maintain or upgrade the quality of their sweetpotatoes. Improved seedstock has been available to North Carolina sweetpotato growers since 1929 (Middleton and McGlaughlin, 1978). North Carolina also has the oldest foundation and certification program in the country, serving the industry since 1945.

Sweetpotato foundation and certification programs in North Carolina and other states maintain the characteristics of the variety by eliminating off-type plants and roots on the basis of appearance

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Alabama Agr. Expt. Station journal series no. 11-944750. The cost of publishing this paper was defrayed in part by the payment of page charges. Under postal regulations, this paper therefore must be hereby marked advertisement solely to indicate this fact.

and inspection for the presence of insects and diseases. Plants exhibiting off-types in form or color in the field or the transplant production bed are rogued. Roots that are poorly shaped, have growth cracks or veins, or exhibit external or internal color mutations are also culled. The procedures for maintaining the desired varietal characteristics of sweetpotatoes are discussed in contributions from Alabama and Virginia. In Virginia, the quality of the 'Hayman' sweetpotato, a local gourmet item, has helped create an additional market for sweetpotato growers.

Several sweetpotato programs have aspects that are unique. In Mississippi, the appearance of small, light-colored spots (chimeras) in the flesh of 'Beauregard' has been examined through generations. The presence of chimeras is not permitted in sweetpotatoes for the fresh or canning markets. In California, where the "clean" seed program uses tissue-culture techniques, it may take 6 years for pathogen-free planting material to be distributed to sweetpotato growers. California is the only program that uses tissue culture and micropropagation to produce foundation sweetpotatoes. The North Carolina program, which presently does not use tissue culture, has provided data showing that the use of virus-free transplants obtained through tissue culture and micropropagation produce similar and sometimes higher yields of roots with greater color uniformity than plants from traditional sources. Reduced russet cracking of 'Beauregard' is another benefit of the use of these techniques. Efforts are being made to use tissue culture, virus indexing, and micropropagation in the North Carolina foundation sweetpotato program. Increased yields, however, have not been obtained through the use of meristem-tip culture in Louisiana (W.A. Mulkey, personal communication).

Several sweetpotato foundation programs or seedstock improvement systems are described in the following papers. Seedstock from these programs are not produced exclusively for growers in the respective state. Sweetpotatoes may be transported in tagged crates across state lines after inspection by a state agricultural authority.

Literature Cited

Middleton, G.K. and F.W. McGlaughlin. 1978. Seeds of time, a history of the North Carolina Crop Improvement Association 1929-77. N.C. Crop Improv. Assn., N.C. Agr. Expt. Sta., and N.C. State Univ., Raleigh, N.C.

Alabama's Foundation Sweetpotato Program Maintains Root Quality

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Additional index words. *Ipomoea batatas* (L.) Lam., mutations, vegetables

Summary. Many sweetpotato growers produce their own transplants to control quality, assure timely availability, and reduce production costs. The Alabama Crop Improvement Association, Inc., maintains Foundation, Registered, and Certified stocks to provide sweetpotato producers with high-quality sweetpotatoes. These sweetpotato roots are available to growers in any state to improve the quality of their rootstock. Sweetpotatoes produced in the crop improvement program are examined in the bed and the field. They are inspected by the Alabama Dept. of Agriculture and Industries, stored in approved facilities, graded, and shipped in clean crates that are tagged prior to transport and delivery to producers. As a result of the program, sweetpotatoes are produced free of serious diseases and pests, and exhibit the characteristics of the variety.

Commercial sweetpotato transplants are produced from bedded storage roots. Growers frequently produce their own transplants to reduce costs compared to purchasing transplants. Having the desired variety available at planting time and minimizing disease and insect pests are also important. Although transplants

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Alabama Agr. Expt. Sta. journal series no. 1-933574. The cost of publishing this paper was defrayed in part by the payment of page charges. Under postal regulations, this paper therefore must be hereby marked advertisement solely to indicate this fact.