

CleanSEED: A Project to Ensure the Sustainability of U.S. Sweetpotato Seed Programs

Situation: Viruses and pest/diseases, limited availability of economical clean foundation seed (CFS), and lack of stakeholder knowledge about the CFS certification process are threatening the sustainability of sweetpotato CFS programs in the United States.

Inputs	Outputs		Outcomes – Impact		
	Activities	Participation	Short	Medium	Long
<p>Multi-disciplinary team of research and Extension scientists experienced with sweetpotato production (MSU, NCSU, LSU, USDA-ARS, UA, HI, CA, National Clean Plant Network)</p> <p>Industry stakeholders:</p> <ul style="list-style-type: none"> • Grower/packer/shippers • State and National Organizations (MS Sweetpotato Council, CA Sweetpotato Council, LA Sweetpotato Commission, NC Sweetpotato Commission, U.S. Sweetpotato Council) • National Stakeholder Advisory Group (representatives of stakeholder groups from each state) <p>Existing research and Extension data and materials to support grant activities</p> <p>Existing products from the National Clean Plant Network-Sweetpotato Education and Outreach team</p>	<p>Establish CleanSEED Advisory Group (CAG)</p> <p>Develop uniform terminology and quality standards for CFS certification program</p> <p>Conduct greenhouse and field trials to determine best practices (BPs) for efficient propagation strategies, methods to reduce virus infection rates, and tactics to manage pest/diseases</p> <p>Develop new innovations to identify virus infected plants</p> <p>Determine grower attitudes and perceptions regarding CFS</p> <p>Compile BPs and SOPs into CFS production manual</p> <p>Conduct economic analysis to show benefits of CFS</p> <p>Implement marketing/outreach campaign to promote CFS programs</p> <p>Launch Extension program and implement on-farm demonstrations to increase knowledge of CFS terminology, quality standards and economic benefits</p> <p>Develop educational materials and YouTube video on CFS terminology and production</p> <p>Disseminate findings and gather stakeholder input through field days, grower meetings, social media, and publications</p>	<p>Multi-disciplinary team of research and Extension scientists from all major states that grow sweetpotato (MS, NC, HI, CA, AR, LA, SC)</p> <p>Social scientists (MS)</p> <p>Agriculture economists (MS, NC, LA)</p> <p>State and National Organizations (MS Sweetpotato Council, LA Sweetpotato Commission, NC Sweetpotato Commission, U.S. Sweetpotato Council, National Clean Plant Network-Sweetpotato, Foundation Plant Services)</p> <p>Sweetpotato industry stakeholders (grower/packer/shippers, processors, clean plant centers, certified seed producers, and regulatory personnel) from all major states that grow sweetpotato</p> <p>National Clean Plant Network-Education and Outreach team, U.S. Sweetpotato Council, Farm Bureau Federation</p>	<p>Enhanced collaboration and engagement across the sweetpotato industry, research and Extension scientists, crop improvement associations and clean plant centers</p> <p>Common CFS terminology and standards for improved acceptance and understanding across the industry</p> <p>Increased awareness of the benefits of using CFS</p> <p>Increased understanding of environmental management and biological factors that influence virus/pest/disease infection in sweetpotato</p> <p>Increased understanding of screening methods for identifying plants infected with viruses and pest/diseases</p> <p>Improved BPs for efficient propagation strategies, controlling virus reinfections, and managing pest/diseases</p> <p>Development of virus infected plant detection methods</p> <p>Improved BPs for CFS production in the greenhouse and field</p> <p>Increased understanding of BPs and economics related to CFS through multiple forms of information dissemination</p>	<p>Increased adoption of CFS by sweetpotato industry stakeholders</p> <p>Increased use of screening for identification and removal of virus-infected plants from CFS production systems</p> <p>Use of unmanned aircraft systems to detect of virus-infected plants in CFS production fields</p> <p>Discover if unknown viruses influence cultivar decline</p> <p>Real-time RT-PCR methods to detect specific viruses</p> <p>Increased use of practices to reduce virus transmission by insect vectors and weed host</p> <p>Increased use of BPs for efficient propagation and production of CFS</p> <p>Availability of Rapid field-based test to monitor virus reinfection for field use</p> <p>Scaled-up CFS production through implementation of various BPs</p>	<p>Sustained collaboration and engagement across the industry, scientists, and organizations to address emerging needs of the sweetpotato industry</p> <p>Widespread acceptance of BPs and SOPs for plant propagation and production of CFS</p> <p>Abundant supply of economical CFS</p> <p>Improved sweetpotato quality and yield by minimizing virus re-infection and pest/diseases issues</p> <p>Improved profitability (positive “return on investment”) for the sweetpotato industry</p> <p>Long-term sustainability of CFS production systems in the U.S.</p>
<p>Assumptions</p> <ul style="list-style-type: none"> • Through research, education, and promotion the CFS program can be improved across the U.S. • Growers will adopt the use of CFS in their farming operations if provided with scientifically supported information on the value of clean plants. 			<p>External Factors</p> <ul style="list-style-type: none"> • Changes in geographic distribution of sweetpotato production may impact implementation due to differences in production practices. • Market changes could affect systematic implementation of utilizing CFS by stakeholders. 		