

## Celebrating Fifty Years of the USDA Forest Service Resistance Screening Center

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Fifty years ago, in 1973, the Resistance Screening Center (RSC) was established with cooperation from industry, universities, and the USDA Forest Service to manage a fusiform rust epidemic on southern pines. With few options for chemical or cultural controls and evidence of genetic resistance within pine populations, breeding and selection for host resistance became a plausible method for integrated pest management. Efforts to evaluate rust resistance in field-grown pines were expedited through greenhouse-based seedling inoculations using standardized disease loads and rating assessments. Performance of artificially inoculated seedlings was highly correlated to phenotypes observed under field conditions and results could be obtained in less than one year. Interdisciplinary cooperation championed the establishment of the RSC as a centralized high-throughput seedling screening facility serving any organization needing disease resistance information for application in the field. Administration of the RSC was tasked to the Forest Service as a public institution that could unite all interests and receive the legislative support necessary to maintain operations over the long-term. Information derived from the RSC has been used to structure seed orchards, select breeding parents, aid in planting decisions, evaluate fungicides for nursery stock protection, quantify heritability of resistance, characterize mechanisms of resistance, and genetically map resistance at the molecular level. With increasing impacts from invasive pests, there is renewed interest in tree resistance breeding programs in the Southeast and nationwide, as a long-term strategy to enhance forest health and resilience. Furthermore, genetic improvement remains among the most socially, environmentally, and financially sound strategy to ensure that forests remain healthy against invasive pests in an ever-changing climate. The mission of the RSC has never been more relevant, nor more vital, than it is today. This creates opportunities to galvanize the user communities to implement a compelling business model to ensure the long-term success of the RSC.