P-03

Taproot decline: An emerging disease of soybean in the southern United States

*Paul Price**, LSU AgCenter, Louisiana State University, Louisiana, USA
Tom Allen, Department of Plant Pathology, Mississippi State University, Mississippi, USA
Terry Spurlock, Division of Agriculture, University of Arkansas, Arkansas, USA
Kassie Conner, Department of Entomology and Plant Pathology, Auburn University, Alabama, USA

Over the past decade, a soybean disease that causes conspicuous interveinal chlorosis and necrosis of foliage has been predominantly observed throughout the Mississippi River Valley. The disease was recently named taproot decline, the causal agent confirmed as a fungus belonging to the genus *Xylaria,* and evidence suggests the closest relative to be *X. striata*. Taproot decline may result in plant death at any soybean growth stage. Plants that are killed or display symptoms during seedling and early vegetative stages often go unnoticed, as neighboring plants rapidly outgrow them along with lower canopy diseases and herbicide damage masking the symptoms associated with taproot decline. When pulled, affected plants easily break at the soil line. Roots, when excavated, exhibit a dry-rot and appear blackened with tap and lateral root necrosis. Stems split longitudinally near the crown often contain white mycelial growth within the pith along with mild vascular staining. Reproductive structures, or stroma that produce conidia, defined as “dead man’s fingers” are produced by the pathogen and are often observed emerging from crop debris near infected plants. The foliar symptoms are presumably the result of root dysfunction and may be observed between the cotyledon (VC) and beginning maturity (R7) soybean growth stages. These symptoms are often confused with many other important root, crown and stem diseases as well as nutrient deficiencies. To date, taproot decline has been confirmed in Alabama, Arkansas, Louisiana, Mississippi, and southern Missouri. Although taproot decline may be observed every year, incidence and severity varies on an annual basis. Severe cases have been noted in fields with soybean monoculture and reduced tillage regimes. Preliminary data and anecdotal observations indicate that yield losses of up to 30% are possible. Additionally, limited data indicates that resistant varieties may exist and could be a viable management option for producers.