Summary of Eight Years of Field Evaluation of the Transgenic Blight Blocker Peanut with Sclerotinia Blight Resistance.

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Transgenic peanut lines with a barley oxalate oxidase gene were evaluated in field trials from 2004 to 2011. Three superior lines (N70, P39 and W73) have been selected to move forward through deregulation under the name “Blight Blocker.” These lines contain strong resistance to Sclerotinia blight due to the expression of oxalate oxidase gene and each line has the same seed, quality and grade characteristics of their parents. Tight clustering into homogenous subgroups in a multivariate, canonical discriminate analysis (CDA) has shown the similarity between the transformed lines to their parents. The superior Blight Blocker lines were evaluated in split-plot trials with and without Omega fungicide from 2007 to 2011. The three transgenic lines had a five year average of 91.3 to 97.0% less Sclerotinia blight under no application of Omega and 92.5 to 97.0% less disease when Omega was applied to their non-transformed parent (NC 7, Perry and Wilson). Blight Blocker transgenic lines N70, P39 and W73 have a five-year average of 15.1 to 22.1 % greater yields (889-1253 kg/ha) than their parents with no fungicide application and 0.05 to 8.5% increase in yield (3-500 kg/ha) with the application of Omega for Sclerotinia blight control. “Blight Blocker” lines show great promise in providing resistance to Sclerotinia blight while retaining the yield and quality traits of their non-transformed parents.