

Development of Crosses Made from Runner Introgression Populations for High Oleic Oil Content and Resistance to Early and Late Leaf Spot in Peanut

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The peanut (*Arachis hypogaea* L.) is a worldwide important legume crop that is cultivated in semiarid, tropical, and sub-tropical regions. This leguminous crop provides a major source of protein and oil worldwide. There are several foliar diseases that severely limit peanut yield, and the two that impact production the most are early leaf spot (caused by *Cercospora arachidicola* S. Hori) and late leaf spot [caused by *Cercosporidium personatum* (Berk. and Curtis) Deighton]. These fungal diseases cause significant yield losses in most of the areas where peanuts are grown, which decreases the profitability to growers. Oftentimes, both diseases occur in the same field with at times one being more prevalent than the other. Pod losses can exceed 50% in fields where the diseases are not managed properly and when environmental conditions favor fungal pathogens. Additionally, both diseases can cause complete defoliation (Knauff, Gorbert, & Nordern, 1988).

The purpose of this study is to evaluate crosses made from runner introgression populations for high oleic oil content and resistance to early and late leaf spot in the field and lab and validate DNA markers associated with disease resistance. This study is in its early stages and crosses are currently being developed. Crosses were made between resistance BC3 introgression lines from the TxAG-6 x Florunner population, and early-maturing runner breeding lines. Hybridity was confirmed by NIR analysis of the high oleic trait. The BC3 generation has been harvested, and F4 breeding lines will be planted for evaluation of response to leaf spots.