

Profitability of Growing Peanut Cultivars with Resistance to Leaf Spot Under Different Production Systems

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Late leaf spot (LLS) caused by *Northopassalora personata*, is a foliar disease that plagues peanut production worldwide. Chemical control is expensive, sometimes inaccessible and can be difficult to apply. One effective solution to control this disease would be the development of resistant cultivars. Three well-defined segments of wild *Arachis cardenasii* chromosomes confer excellent resistance to late leaf spot. We have been using MAS in an accelerated backcross breeding scheme to develop leaf spot resistant cultivars. We began replicated yield trials with selections from the first backcross in 2019. We added selections from the second backcross in 2020. We continued testing these selections along with common check cultivars in 2021. All genotypes are tested under three production systems. We used a full fungicide regime (six sprays) in one system and no fungicide in another. For the third system we used one application of Convoy at 60 days after planting to provide a moderate level of control for white mold. Leaf spot severity in 2020 and 2021 confirmed that the backcross selections have excellent resistance to late leaf spot. Several leaf spot resistant selections exhibited excellent yield and grade when grown under reduced sprayed conditions. The highest net revenue per acre was obtained by growing leaf spot resistance genotypes under reduced or non-sprayed conditions. All of these genotype/reduced spray production combinations resulted in higher net revenue per acre in comparison to Georgia-06G under a full fungicide regime. Most of these differences were over \$300 per acre.