

1302 Earliness, partitioning, and yield responses to potassium in cotton cultivars

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Potassium requirements may vary between cotton cultivars with differing growth habits, due to its effect on carbohydrate and biomass partitioning. Our objective was to characterize yield, earliness, and partitioning responses to potassium of contrasting cultivars. A three-year study of DP555 BG/RR and PM1218 BG/RR was conducted at Jackson, TN. Cultivars were compared by aboveground biomass, carbohydrate partitioning, lint yields, and earliness under two soil-potassium fertility treatments. Potassium levels were 56kg K/ha to represent adequate K and 112kg K/ha representing excessive fertility. Plants were sampled on two dates, early bloom and cutout, to examine both carbohydrate and biomass partitioning. PM1218 had higher above ground dry weight, starch concentrations and percent first harvest than DP555. Potassium affected maturity by decreasing percent first harvest at the 112kg K rate. Lint yields were decreased at 56kg K in PM1218, but K did not affect the yield of DP555. Cultivar yields were equivalent at 112kg K. Results suggests that cultivars differing in earliness and growth habit may also differ in K fertilization required for optimal yield response.