A BELTWIDE SEED QUALITY SURVEY; AN EXTENSION COTTON SPECIALISTS PROJECT

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Abstract

Seed costs often represent a substantial portion of the total cotton production cost. Recently, growers from across the US Cotton Belt have raised concerns over the quality of seed that is commercially sold. As a result, a seed quality assessment project was initiated during 2020. The objective of this multi-year project is to broadly assess and improve our overall understanding of seed quality. Field trials were executed in 15 locations across 13 States. At the time of this report, 10 locations had provided data, which were included in the Beltwide presentation, as well as in this abstract. A total of 129 seed samples, representing 7 brands and 37 individual varieties, were collected. Lint yield for these trials varied greatly, across and within location. The highest yielding location had an average lint yield of 1,552 lb./A as compared to the lowest yielding test (564 lb./A), for a 988 lb./A spread. Both standard germination test (SGT) and cool germination test (CGT) were conducted by the North Carolina Department of Agriculture (NCDA). For SGT germination, we found that 88.4% of the samples exceeded 80% germination. For the CGT, 54.7% of the samples tested > 70%. Approximately 38% of the samples CGT were reported between 70-79%. Concerning field trials, stand counts conducted at 7 days after planting (DAP), reported here as a percentage of the seeding rate, ranged from 15 - 108% across 6 locations. At 10 DAP stand counts ranged from 28 - 103% across 7 locations. Strong linear relationships between stand counts and final lint yield were observed, particularly at 7 DAP ($y = 517.1 + 9.666 * x$, $R^2 = 0.53$, p-value < .0001). While virtually no relationship was found between CGT values and the 7 or 10 DAP stand counts, it was noted that overall planting conditions were, at a minimum, adequate. For 10 days following planting soil temperatures ranged from 60 – 100 °F and 60 – 96 °F, at the 2 and 4 in. soil depth, respectively. Lint yield for the standard “check” ranged from 524 to 1,664 lb./a ($n = 8$). Stand counts ranged from 30-99% ($n = 5$) and 47-102% ($n = 6$) for 7 and 10 DAP, respectively. SGT and CGT values for the “check” as determined by NCDA ranged from 84-91% and 47-78% ($n = 4$), respectively.