Analysis of Protein Partitioning in Large-Seeded Sorghum Hybrids. (C04-stamm122212-Oral)

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Abstract:

To improve yield potential and feed quality of sorghum, researchers are currently focusing their efforts on developing large-seeded hybrids. Studies have shown that large-seeded hybrids genetically have higher protein contents. The biological basis for these changes in composition is not know, but may be associated with changes in germ and endosperm size and composition. To evaluate these effects, eight sorghum hybrids of varying seed size were grown in Manhattan, KS, in the summer of 2000. Samples were analyzed in a nested sampling design with repeated measures. Protein contents ranged from 10.63% to 11.13% in the normal hybrids and from 12.06% to 13.13% in the large-seeded hybrids. Mean values for endosperm protein ranged from 9.99% to 13.42%, with the four large-seeded hybrids having significantly higher protein contents than the normal hybrids (p=0.05). Mean values for germ mass ranged from 0.0247 to 0.0455 grams. The two largest seeded hybrids had significantly larger germs and endosperms than all normal hybrids. Germ-to-endosperm ratio mean values ranged from 11.08% to 13.31%. Higher protein contents may be attributable to a genetically larger germ and endosperm in large-seeded hybrids.

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