Amino acid synthesis in soybean under moisture stress during embryogenesis. (C04-meints143340-Poster)

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Abstract:

Soybean (Glycine max L.) seed yield and quality is detrimentally impacted by drought stress during late embryogenesis. This preliminary study was conducted to identify changes in amino acid synthesis under drought stress conditions and subsequent effect on seed performance. Soybean plants were greenhouse grown under irrigation to container capacity through the R5 growth stage. At R5, half of the plants continued under irrigation and half were moisture stressed to pre-wilt daily through the remainder of the experiment. Seed pods were sub-sampled weekly beginning fourteen days after moisture treatments were initiated. Germination and conductivity tests were used to evaluate mature seeds and percent protein and amino acid content determined. Percent seed protein from moisture stressed plants was 5% lower than from irrigated plants. Arginine and cysteine levels were initially17% and 54% greater in seed from irrigated plants than moisture stressed plants respectively. Germination was not significantly impacted by moisture treatment, however membrane integrity was significantly greater (34%) in seed from irrigated plants.

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