Environmental and Genetic Impacts on Growth Stage Variation in Switchgrass. (C06-boe163618-Poster)

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Abstract:

Switchgrass (Panicum virgatum) is being evaluated for potential as a biomass crop. We determined genetic and environmental effects on frequencies of developmental stages and variability among and within stages for biomass from 8 cultivars harvested in October in young and old stands in South Dakota. Large differences were found among cultivars and between stands for tiller morphology and frequency of growth stages. Frequency of reproductive tillers was 3 times greater in a young than an old stand, but differences among cultivars were relatively consistent across stands. Averaged across developmental stages, biomass of reproductive tillers was about 3 times greater than that of elongated vegetative tillers for all cultivars. Biomasses of vegetative tillers in comparable stages of stem elongation were about 2 times greater for the young stand. Vegetative tiller biomass was related to stage of development. Within developmental stage variation for biomass increased with advanced development. These results identified plasticity at the tiller population and within developmental stage levels for morphological characteristics related to biomass production in switchgrass.

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