Sink Size Reduction and Development of Green Stems in Soybean. (C03-bruening115145-Oral)

Authors:

- W.P.Bruening* - *University of Kentucky*
- D.B.Egli - *University of Kentucky*

Abstract:

Soybean green-stem syndrome is a condition where the stem stays green and succulent after the pods mature. It occurs sporadically throughout the soybean belt and may cause harvesting complications and/or reductions in seed quality. Green-stem syndrome can be caused by pod-feeding insects, disease or environmental conditions, all of which may create a source-sink imbalance favoring the source. To test the source-sink imbalance hypothesis, plants from nine high-yielding cultivars from three maturity groups were depodded (50%) at the beginning of growth stage R6 in 2001. Visual estimates of pod and stem color (green, yellow, brown) were recorded at 2 d intervals as the plants matured. Stem N and carbohydrate content was determined when control plants matured. Pods on depodded plants turned brown 5 days after pods on control plants. Stems on control plants were brown when all pods turned brown, but stems of depodded plants remained green for up to 25 days after the pods matured. Stem N, soluble sugar and starch levels of depodded plants were 3 to 10 times higher than control plants. The results demonstrate that a large source-sink imbalance can induce green-stem syndrome.

Corresponding Author Information:

William Bruening
University of Kentucky
N-106 Agriculture Science N
Lexington, KY 40546-0091

phone: 859-257-9404
fax: 859-257-7874
e-mail: bruening@uky.edu

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