APPENDIX I

References cited

Hills, T. M., and D. C. Peters. 1971. A method of evaluating postplanting insecticide treatments for control of western corn rootworm larvae. Journal of Economic Entomology 64: 764–765.

Oleson, J. D., Y. L. Park, T. M. Nowatzki, and J. J. Tollefson. 2005. Node-injury scale to evaluate root injury by corn rootworms (Coleoptera: Chrysomelidae). Journal of Economic Entomology 98: 1–8.

Node-injury scale (from Oleson et al. 2005)

0.0   No feeding damage

1.0   One node (circle of roots), or the equivalent of an entire node, pruned back to within approximately 3.8 cm (1.5 in) of the stalk (or soil line if roots originate from above ground nodes)

2.0   Two complete nodes pruned

3.0   Three or more complete nodes pruned (highest rating that can be given)

Damage in between complete nodes pruned is noted as the percentage of the node missing, e.g., 1.50 = 1½ nodes pruned.

For a complete explanation of the node-injury scale and a comparison with the Iowa State University 1-to-6 root rating scale (Hills and Peters 1971), visit the "Interactive Node-Injury Scale" Web site, http://www.ent.iastate.edu/pest/rootworm/nodeinjury/nodeinjury.html.

Weighted formula used for determining root injury for seed-blend treatments, Section 2

For seed-blend treatments, two root clusters were extracted from row one of each plot. Each cluster contained a non-rootworm Bt refuge root system (denoted below as root system R) and two adjacent Bt root systems (denoted as root systems A1 and A2). Spatially, root system A1 is nearest to the refuge root system and root system A2 is farthest. The formula described below assigns weights to the individual root ratings based on the proportion of root systems in the plot that can be identified as either R, A1, or A2.

$$NIR_W = P_1(NIR_R) + P_2(NIR_{A1}) + P_3(NIR_{A2})$$

where:

NIR_W = the overall weighted node-injury rating

P_1 = the proportion of root systems that can be identified as R

NIR_R = the mean node-injury rating for root system R from both clusters

P_2 = the proportion of root systems that can be identified as A1

NIR_{A1} = the mean node-injury rating for root system A1 from both clusters

P_3 = the proportion of root systems that can be identified as A2

NIR_{A2} = the mean node-injury rating for root system A2 from both clusters

For 10% seed-blend treatments, P_1 = 10%, P_2 = 20%, and P_3 = 70%.

For 5% seed-blend treatments, P_1 = 5%, P_2 = 10%, and P_3 = 85%.