

STRAUSBAUGH, CARL A.¹, ANNE M. GILLEN¹, JOHN J. GALLIAN², KELLY TINDALL², STACEY CAMP³, AND J.R. STANDER⁴, ¹USDA-ARS NWISRL, 3793 N. 3600 E., Kimberly, ID 83341, ²Univ. of Idaho, Twin Falls R&E Center, Twin Falls, ID 83303, ³Amalgamated Sugar Co., Paul, ID 83347, and ⁴Betaseed, Inc., Kimberly, ID 83341. **Influence of Host Resistance and Insecticide Seed Treatments on Curly Top in Sugarbeets.**

ABSTRACT

Curly top in sugarbeets caused by *Beet severe curly top virus* or closely related species is a considerable problem in the semi-arid growing regions of the western United States. In an effort to develop improved and more environmentally friendly control measures, we conducted studies to evaluate the relative influence of host resistance and insecticide seed treatments on the control of curly top in sugarbeets. In 2005, two insecticide seed treatments, Poncho Beta (60 g ai clothianidin + 8 g ai beta-cyfluthrin/100,000 seed) and Gaucho (45 g ai imidacloprid/100,000 seed), and four sugarbeet cultivars varying in curly top resistance were evaluated for their influence on the control of curly top in comparison to untreated checks. In 2006, similar studies were conducted except Cruiser (60 g ai thiamethoxam/100,000 seed) was substituted for Gaucho. Two studies were conducted each year and relied on natural inoculum except for Kimberly in 2006 where 0.5 viruliferous leafhoppers per plant were released. All insecticide treatments reduced curly top symptoms compared to the untreated check by September regardless of location and year. When comparing across cultivars, contrasts indicate that Poncho Beta reduced curly top symptoms better than Gaucho and Cruiser by September. In 2005 when comparing across cultivars with moderate disease pressure, Poncho Beta increased yield by 20.2 and 21.7% compared to the untreated checks at the two locations, respectively. At Kimberly, Poncho Beta also reduced the number of plants with leafminers in 2005 and black bean aphids in 2006 by at least 97%. Poncho Beta and Cruiser provided a level of control for curly top that would justify their application as a supplement to host resistance under Idaho conditions.