

NEHER, OLIVER T.^{1*}, GREG DEAN², CLARKE ALDER², PAUL FOOTE³, DAVID ELISON³ and DENNIS SEARLE², ¹The Amalgamated Sugar Company LLC 1951 S. Saturn Rd., Boise, ID. 83709, ²The Amalgamated Sugar Company LLC 138 W. Karcher Rd., Nampa, ID. 83687 and ³The Amalgamated Sugar Company, LLC 50 S 500 W, Paul, ID, 83347. **The Amalgamated Sugar Company Beet Curly Top Virus nursery - a philosophy of transparency and improvement.**

ABSTRACT

Sugar beet growing regions in Idaho, Montana and Wyoming can face significant losses caused by infections with Beet Curly Top Virus (BCTV). The virus is vectored by the beet leafhopper (*Circulifer tenellus*) and only genetic tolerance in conjunction with insecticide applications provides a measure of control. Disease nurseries are an important tool to survey and evaluate genetic tolerance. However, factors such as agronomical and environmental conditions can influence the outcome.

In 2013, The Amalgamated Sugar Company (TASCO) Ag Research Department established a preliminary BCTV nursery (Nampa, ID) with the goal to support the ongoing breeding efforts and to provide a second location to the existing Beet Sugar Development Foundation (BSDF) nursery (Kimberly, ID). The TASCO nursery was conducted based on the latest BSDF BCTV nursery protocol (established in a collaborative effort between BSDF, TASCO, USDA-ARS and seed companies) with certain adjustments. Adjustments to the latest nursery protocol included a switch to 1-row instead of 2-row plots and the utilization of drip tape irrigation. The shift to 1-row plots reduced the overall footprint and the number of needed beet leafhoppers as well as allowed for better management of the study area. Drip irrigation ensured proper and consistent irrigation even under windy conditions. The overall reduction of stress factors (water stress, weed pressure) lead to an improvement in plant health, resulting in the ability for multiple disease ratings even under sever disease pressure. At the moment, one rating will be used for the approval or selection process. This makes it necessary to potentially select different ratings from year to year to be consistent in regard to disease severity. Multiple ratings could be used to calculate the relative area under disease progress curve (RAUDPC, normalized by dividing with number of days from first to last rating) allowing for consistent data from year to year.

Consistency and uniformity are key components for a successful nursery. They have to be achieved not only within individual plots but also throughout the study area and from year to year. Transparency, openness to constructive criticism and the willingness for improvement will help to achieve these key components.