

LATE SEASON INCREASE IN WEIGHT AND SUGAR PERCENT OF SUGAR BEET

STACEY D. CAMP and PAUL W. FOOTE

The Amalgamated Sugar Company LLC, P.O. Box 700 Paul, ID 83347

ABSTRACT

Sugar beet producers of the Amalgamated Sugar Company growing area are paid an incentive to deliver sugar beets before permanent storage begins. There is limited late season yield information to determine the incentive growers should receive. The objective in this study was to determine late season growth and sugar percent increase. In 2002 and 2003 five locations throughout the growing area were chosen to determine yield increase of weight (tons/acre) and sugar percent (pol sucrose). In 2004 two locations representing the growing area were chosen. Each location was a randomized complete block design using 6 blocks in 2002 and 8 blocks in 2003 and 2004. The center two rows of four rows were harvested, topped, cleaned by hand, and weighed every two weeks beginning approximately September 9th and finishing the middle of October totaling four harvest dates. Two sugar samples were analyzed by pol sucrose from each plot. The Amalgamated growing area was divided into two areas, Magic Valley (Mini-Cassia/Twin Falls) and Treasure Valley (Nampa/Nyssa), that vary in yield from weather conditions. The cumulative growth increase at Magic Valley and Treasure Valley from September 9th to October 20th indicates a three year average of 3.93 and 5.2 tons/year, respectively. From September 8th to October 20th in the Magic Valley there is a 4.13 sugar percent increase in the tare lab (including extrapolation) compared to a 3.14 increase in the 2002 - 2004 experimental plots and 1.92 increase from the 77 - 78 plot studies. From September 22nd to October 20th in the Treasure Valley there is a 1.78 sugar percent increase in the tare lab (including extrapolation) compared to a 0.90 increase in the experimental plot studies.

INTRODUCTION

There are generally two agronomic growing areas in the Amalgamated growing region, the western area which consists of the Treasure Valley and the eastern area which is the Magic Valley. The Treasure Valley is warmer and normally has higher tonnage and lower sugars than the Magic Valley. Sugar beet producers of the Amalgamated Sugar Company growing area are paid an incentive to deliver sugar beets before permanent storage begins. In order to optimize factory operations and reduce risk of sugar beet spoilage harvest begins before the sugar beet maximizes tonnage and sugar. Each factory district can begin harvest in September or October at different dates depending on predicted yields and fall storage conditions.

There is limited late season yield information to determine the incentive growers should receive for early harvest. Late season yield information over time at Treasure Valley cannot be found. In 1977 and 1978 (Carter, Jensen and Traveller) at Kimberly Idaho (Magic Valley) there was a study of water stress on sugar beet growth and yield. The University of Idaho (Gallian, Peterson and Stanger) published a current information series bulletin using the 1977 and 1978 data at Kimberly that shows the September and October yield increase to be .0458 sugar percent per day and .0665 tons per day.