

**VIC'S CHALLENGE**  
**CROP CONSULTANTS WORKING IN PARTNERSHIP WITH GROWERS TO**  
**DEMONSTRATE CHANGES IN THEIR PRACTICES THAT WILL IMPROVE**  
**RECOVERABLE SUGAR PER ACRE**

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**Introduction:**

Growers often use practices and methods in sugar beet production that restrict their ability to reach their full potential of recoverable sugar and dollars per acre. Over time crop consultants have gained considerable amount of knowledge on sugar beet production. This program puts in to action the knowledge and expertise of a crop consultant. The program gets growers and crop consultants working together. Growers can gain confidence in their crop consultant through partnering together to show changes in their practices. Originally, prior to 2010, the program was called “Beet the Pro”. A crop consultant would demonstrate this knowledge by directing every aspects of producing a field of sugar beets, from selecting a field to harvesting it and everything in between that it takes to raise the crop. As the program evolved and was refined, a crop consultant will now split a field with a grower or “cooperator” to demonstrate side by side change that can be made to a cooperator’s practices. This program was conceived by Vic Jaro, President and CEO of the Amalgamated Sugar Company LLC, hence the name, “Vic’s Challenge.

**Objective and Methods:**

Often times growers are reluctant to make changes to their practices for various reasons, some do not always believe in the crop consultant’s recommendation or advice. By partnering with a grower or “cooperator”, the crop consultant can demonstrate in the cooperator’s field changes that could bring a larger return per acre. The object of this program is to work with a grower to help him meet his potential. The cooperator must be willing to split a field in half, following the crop consultant’s recommendation on all aspects of growing the crop in a timely manner on half of the field. Cooperator would follow his own cultural practices on the other half of the field. Practices can include but are not limited to seed varieties, seed spacing, timing of planting, soil sampling for fertilizer and nematodes, fertilizer rates, timing and application of fertilizer, irrigation practices and water sources, tillage, weed, insect and disease control. Participating growers allow crop consultant to sample field as needed. Cooperator must have the ability to follow the program through from beginning to end. The focus usually involves changing only part of what a cooperator is doing. In one comparison the consultant recommended a different seed variety and narrower seed spacing along with irrigating the “off row” or dry row in a gravity irrigated field. Another crop consultant worked with a cooperator to switch from using irrigation water from a well, which tested to have high ppm nitrates, to the local irrigation district. The result’s was lower harvest bri nitrate to higher recoverable sugar per acre. In a third example, the cooperator could see early on the benefits of the changes that the crop consultant

was applying to his half of a Challenge field. The cooperator applied those changes to all of his fields including his half of the Challenge field. Other comparisons that have been done or will be done are changing or reducing tillage practices, nitrogen application and crops in rotation with sugar beets and the way they are grown.

### **Data Results:**

All data gathered through the year is compiled and measured. This information is then shared through various publications, annual shareholders meeting and district grower/member educational seminars.

Let's take a closer look at the first example. Protocol was to split a 31.7 acre field in half. The west half the cooperator used his current management practices. The east half the cooperator used practices as directed by Amalgamated Sugar's crop consultant. Management practices included, 1) Soil sample for both fertility and nematodes (both fields), 2) plant a nematode tolerant seed variety, 3) space seed at 4-4.25 inches (on 22" rows), 4) water the "off row" or dry row as directed and 5) apply in season nitrogen at the 2-4 leaf stage. Fertilizer was fall applied to both fields at the rate of 80 pounds of nitrogen and 80 pounds of phosphate, roller harrowed then bedded. In season nitrogen was shanked in the water row 3 inches deep then irrigated. As a note soil was a silt loam type. Vic's Challenge field was planted April 11<sup>th</sup> using BTS 29RR3N at 4 inch spacing and received its first irrigation starting April 23<sup>rd</sup>. The Cooperator's field was also planted on April 11<sup>th</sup> using HM9295RR at 4.7 inch seed spacing and received its first irrigation starting on April 19<sup>th</sup>. The first irrigation in the "off row" on Vic's Challenge field started on June 16<sup>th</sup>. Only two irrigation occurred in the "off row" before it became difficult to get water down the furrow. In season soil samples were taken in the bottom of the furrow one inch deep in the water row and the "off row" in both fields then flagged so it could be repeated in the same location. Sampling was done on June 15, July 19, August 15 and September 18. Results showed Vic's Challenge water row at 22, 7, 3, 3, ppm nitrates and the "off row" at 8, 5, 7, 6 ppm nitrates. The cooperator's water row results showed 19, 6, 4, 3 ppm nitrates and the "off row" at 10, 9, 19, 8 ppm nitrates.

On June 15<sup>th</sup>, the ppm nitrates at one inch in the water rows on both fields showed high levels of nitrogen due to the side dress application of N in May. The ppm nitrates in the "dry row" on the cooperator's field remain high into the middle of September. Often time rains occur in September making this nitrogen available to the sugar beet plant increasing the potential for higher harvest bri nitrates and lower sugar content.

Vic's Challenge field was harvested on Nov. 2<sup>nd</sup>. Harvest data show 42.49 t/ac, 18.55% sugar, 228 ppm nitrates, .60 conductivity, 240 beets/ 100ft, 13741 ERS per acre with a \$2806.22 per acre return. The cooperator's field was also harvested on Nov. 2<sup>nd</sup> with a 43.05 t/ac, 17.33% sugar, 436 ppm nitrates, .66 conductivity, 155 beets/ 100ft, 12866 ERS per acre with a \$2812.83 return. In comparing Vic's Challenge field to the cooperator's field, Vic's Challenge yielded .56 tons less but 1.22% more sugar. Higher ERS at 875lbs netted \$193.39 per acre more on Vic's Challenge than the cooperator's field. It was observed that the field held better moisture all season long by watering the "off row". When watering the "off row" it could be possible to

lengthen irrigation intervals. Also the “off row” must have a good furrow established early in the season.

All information is presented good and not so good alike. Growers need to know what works and what doesn't. Just because a practice or method will or won't work in one situation does not mean it will or won't in another with the same cooperator. A similar comparison was made the following year using the same cooperator.

Protocol was to split a 29.1 acre field in half. Again the cooperator would use his management practices on the west half and the east half the cooperator would use management practices as directed by Amalgamated Sugar's crop consultant. Management practices would include, 1) soil sampling for both fertilizer and nematodes, 2) apply nitrogen as recommended, 3) water the “off row” as directed and 4) lengthen time between irrigation intervals. 71 pounds of nitrogen was spring broadcasted then ripper-disked twice. The field was then bedded shanking into the bed 51 pound of nitrogen. Soil for this field was a sandy-loam type. Both fields was planted to BTS 28RR4N on March 24<sup>th</sup> with a 4.8 inch seed spacing. The first irrigation of two irrigations to establish a stand started on April 2<sup>nd</sup>. 6-7 day was needed to complete irrigation across both fields. One inch soil sample was taken in both the water row and the “off row” for both fields. Sampling was done on June 10, July 6, August 6 and September 10. Results showed Vic's Challenge water row at 31, 20, 9, 9 ppm nitrates and the “off row” at 17, 12, 20, 48 ppm nitrates. The cooperator's water row results showed 4, 5, 17, 5 ppm nitrates and the “off row” at 104, 363, 170, 188 ppm nitrates.

Vic's Challenge field was harvested on Oct 25<sup>th</sup> & 26<sup>th</sup>. Harvest data show 25.8 t/ac, 14.87% sugar, 74 ppm nitrates, .58 conductivity, 180 beets/ 100ft, 2274 ERS per acre with an \$1182.48 per acre return. The cooperator's field was harvested on Oct. 25<sup>th</sup> with a 27.7 t/ac, 14.41% sugar, 69 ppm nitrates, .57 conductivity, 175 beets/ 100ft, 6924 ERS per acre with a \$1215.16 return. In comparing Vic's Challenge field to the cooperator's field, Vic's Challenge field yielded 1.83 tons less per acre with sugar lower by .46%. ERS was 250lbs lower Vic's Challenge field resulting in the cooperator's field returning \$32.68 per acre more.

What happened? All nitrogen needed was applied pre-plant. The field being of a sandy-loam was irrigated heavily to establish a stand resulting in early season leaching of nitrogen. Also, allowance was made for 40 pounds of nitrogen release from the past crop of alfalfa that did not occur. Lengthening of the irrigation intervals could not be accomplished due to the time required to irrigate the field as a whole. The cooperator will continue to irrigate the “off row” on all of his furrow irrigated fields but will return to split applying nitrogen with part of it at the 2-4 beet leaf stage.

Most of the comparisons, in this program, have resulted in an increase in recoverable sugar per acre. This year, a sign will be placed by each “challenge field”. This sign will display information as to what has occurred within this field so other growers may observe it throughout the year.

### **Conclusion:**

Sometimes a grower finds it difficult to see the benefits in changing a practice or practices that he has been doing for many years. Vic's Challenge makes it possible for growers to have a side by side comparison in the same field so they can see the benefits in making change in their practices.