Effects of Reduced Irrigation on Sugar Beets

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Objectives

1. Determine the effect of reduced irrigation on yield.
2. Evaluate for differences in harvesting wet or dry.

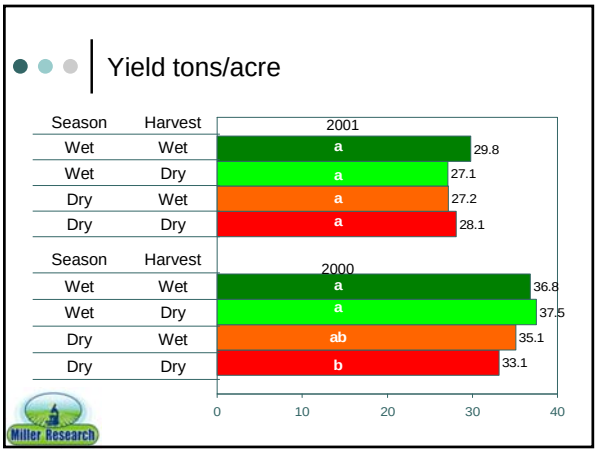
Irrigation Study

- Optimum irrigation - beets never wilted at any time (wet)
- Reduced irrigation – beets always wilted before irrigation (dry)
- All plots irrigated the same until layaway
- Measured irrigation did not include the preparation for harvest

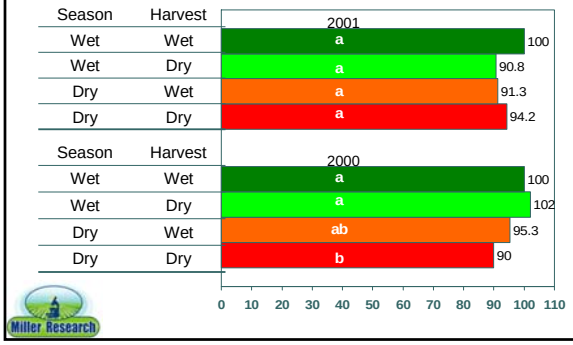
Study Data

	2000	2001
Planted	30 March	12 April
Harvested	9 October*	12 October
Reduced Irrigation	1”/week (11” total)	1”/6 days (12” total)
Optimum Irrigation	2”/week (22” total)	2”/6 days (22” total)

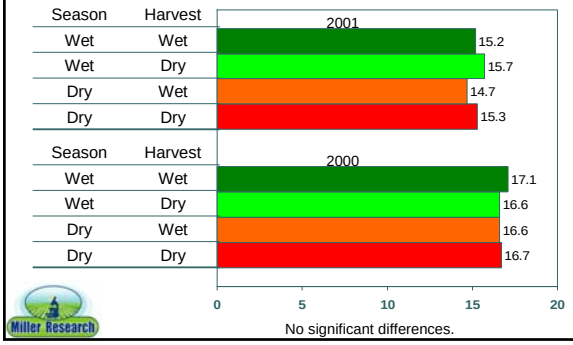
All plots were irrigated similarly prior to lay away cultivation.



Yield relative to optimum program

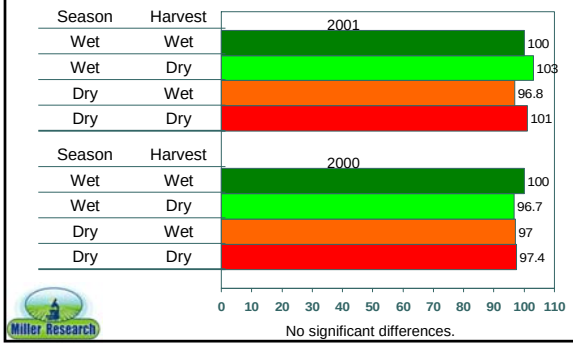


% Sucrose



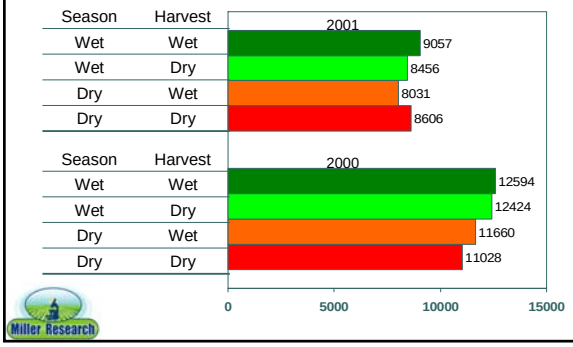
No significant differences.

% Sucrose relative to optimal program

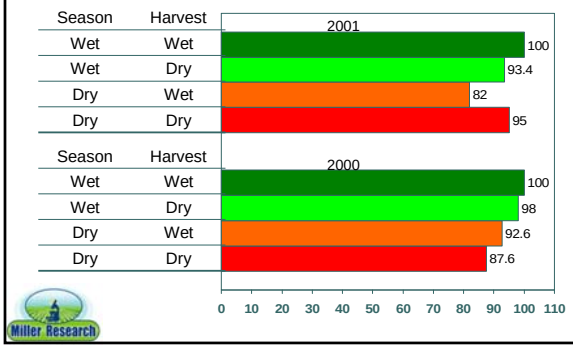


No significant differences.

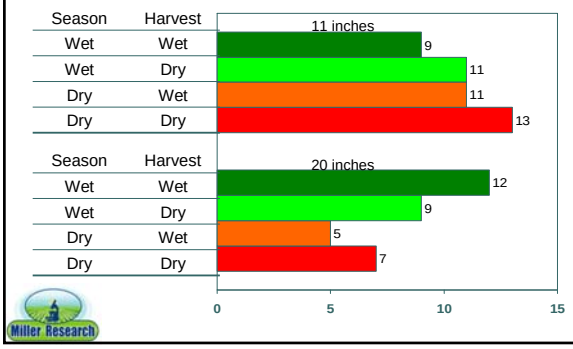
ERS/Acre



ERS/acre relative to optimum program



Soil nitrate at end of season (2000)



Irrigation Study

1. Both yield and percent sugar were higher in 2000 than 2001
2. Yield differences, when found, were much less than expected when the crop was shorted on water
3. Sugar content was not effected by either:
    a. irrigation
    b. harvest moisture

Irrigation Study

4. As expected the nitrogen was moved lower in the soil profile with increased irrigation
5. There were no clear differences found in juice purity.
6. If irrigation water was in short supply, it appears that sugar beets might be affected less than shallow rooted crops