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In the Tulelake region near the Oregon border, beets are grown on organic soils reclaimed from shallow lakes. Groundwater is present continuously throughout the season at approximately 1.1 m depth in most fields. Typically, April and May planted beets are irrigated until mid-September and harvested in October, however environmental restrictions may reduce farm water supplies in the future. To determine if sugarbeets could be grown with less irrigation water, five irrigation cut-off treatments were applied in 1995 and 1996 to replicated, large plots at approximately two week intervals starting in mid-July. Harvests were made at each cut-off date, together with a final harvest, and soil samples were collected simultaneously to 1.1 m to compare soil water and nutrient contents. In each year, irrigation applications plus precipitation ranged from approximately 200 mm to 600 mm across the treatments. Maximum sugar yields were achieved by cutting off irrigation 7 to 9 weeks prior to harvest. In both years, root yields increased with increasing irrigation rates from 54 to 63 Mg ha<sup>-1</sup>, but sucrose percent declined from 19.5 % to 18.5 % with continued late-season irrigation, resulting in equivalent gross sugar yields over the last three cutoff dates. There was a non-significant tendency for sugar production to decline with September irrigation. In 1995, beets in cut-off treatments reduced the soil water content in the surface 0.6 m depth, compared to fully irrigated treatments, but there were no significant differences in soil moisture content deeper in the horizon. Soil nutrient contents were unaffected by cut-off treatments but changed through the season. Farmers can save 150 to 200 mm of irrigation water by cutting off irrigation to sugarbeet crops 7 to 8 weeks before harvest under these soil and climate conditions.

| Treatment        | Root Yield (Mg ha <sup>-1</sup> ) | Sucrose % | Gross Sugar Yield (Mg ha <sup>-1</sup> ) |
|------------------|-----------------------------------|-----------|--|
| Full Irrigation  | 63                                | 18.5      | 1168                                     |
| Cut-off 7 weeks  | 54                                | 19.5      | 1053                                     |
| Cut-off 8 weeks  | 54                                | 19.5      | 1053                                     |
| Cut-off 9 weeks  | 54                                | 19.5      | 1053                                     |
| Cut-off 10 weeks | 54                                | 19.5      | 1053                                     |