Management of Unharvested Sugar Beet 2009

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Introduction

- During the 2009 Sugar Beet Harvest, extremely low temperatures (as low as -13.9ºC/7.0ºF) persisted from October 8th to October 14th.
- This frost event resulted in significant unharvested sugar beet acreage in Southern Alberta.
- Seedbed management for 2010 cropping was a concern to growers.
- A strip trial was initiated to evaluate different tillage options on unharvested sugar beet.

Objectives

- To evaluate 3 different tillage options on unharvested sugar beet to determine the best seedbed management method when planting to wheat in 2010.

Methods

- November 26, 2009 – Unharvested sugar beet strip trial with 3 treatments and 4 replications in a randomized complete block design.
- May 26, 2010 – Spring wheat planted @120lbs/ac with a Conserva-Pak Air Seeder, low disturbance hoe opener on 9” spacing.
- Direction of wheat planting – Parallel to sugar beet rows.
- Plant Nutrition – 120lbs N/acre and 40lbs P₂O₅/acre applied at planting.
- Oct 15, 2010 – Wheat samples harvested with a Winter Steiger Plot Combine and adjusted to 13.5% moisture.

Treatments

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Tillage Implement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Plough (FP)</td>
<td>Moldboard Plough</td>
</tr>
<tr>
<td>Fall/Spring Disk</td>
<td>Tandem Disk</td>
</tr>
<tr>
<td>Zero Tillage (ZT)</td>
<td>None</td>
</tr>
</tbody>
</table>

Results

Wheat Yield and Protein Content

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Wheat Yield (Bu/ac)</th>
<th>Wheat Protein %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Plough (FP)</td>
<td>94.4</td>
<td>11.3</td>
</tr>
<tr>
<td>Fall/Spring Disk (FD)</td>
<td>99.8</td>
<td>10.9</td>
</tr>
<tr>
<td>Zero Tillage (ZT)</td>
<td>98.1</td>
<td>11.3</td>
</tr>
</tbody>
</table>

Wheat Harvest

- October 15, 2010
- Wheat was harvested perpendicular to the direction of the strips, giving 4 wheat samples per individual strip.
- Plot dimensions were measured after wheat harvest for accurate determination of wheat yield.
- The individual plot wheat samples were weighed and moisture tested.

Summary

- Average spring wheat yields were 94.4 bu/ac for fall ploughed strips, 99.8 bu/ac for fall/spring disk strips and 98.1 bu/ac for strips with zero tillage/direct seeded.
- The absence of tillage when sugar beet was left unharvested did not appear to result in any detrimental effects to wheat yield or protein content the following year.

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