STRIP TILLAGE FOR SPRINKLER-IRRIGATED SUGARBEETS

FORUM – REDUCED/STRIP TILLAGE

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Strip Tillage For Sprinkler-irrigated Sugarbeets

Bart Stevens, Bob Evans, Bill Iversen
Conventional Sugarbeet Tillage

Furrow & Sprinklers

- Typical Fall Prep *(Yellowstone Valley)*:
  - Broadcast fertilizer (all N-P-K)
  - Disking barley residue
  - Moldboard or chisel plowing
  - Leveling-1 to 2X
  - Mulching
  - Bed formation

- Soil is a packed fine powder—for good seed contact in spring

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Dual compartment fertilizer box

Angled Fluted coulters till and squeeze

24 inch rows

Straight Fluted Coulter

Mon-rib lift assist tires

Trash Cleaners

Fertilizer drive wheel

Semi-parabolic shank

Fertilizer boot

Dual Crow’s foot packer wheels

Shank & V-wheel

For guidance
Where do I drive?
Guidance is necessary
High Precision RTK GPS Guidance
Cone-Wheel Guidance Furrow
Beets Emerge in Residue
Wind Damage--2005

Conventional Till

Strip Till
Sugarbeet Emergence 2004

Plants/acre

Conventional tillage
Strip tillage

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Sugarbeet Yield and Quality

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Strip tillage in Sandy Soil

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## Average NV Beet Yield and Quality

### Three Years, 2006-2008

Sandy soils, fall tillage

<table>
<thead>
<tr>
<th>Measured Item</th>
<th>Conventional Tillage</th>
<th>Strip Tillage</th>
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</thead>
<tbody>
<tr>
<td>Beet Yields (t/ac)</td>
<td>28.3</td>
<td>28.1</td>
</tr>
<tr>
<td>Sucrose (lbs/ac)</td>
<td>9,938</td>
<td>9,859</td>
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<tr>
<td>Sugar %</td>
<td>17.5</td>
<td>17.6</td>
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</tbody>
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2008 was Roundup Ready®

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Observations
Strip Tillage vs. Conventional

- Earlier emergence
- Higher spring soil moisture
- Better protection from wind
- Yields about the same ("normally")
- Sugar content sometimes higher? (common finding in previous studies)
- Differences in N-fertilizer response?
- CSP program for irrigated lands?

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Good Fit for Strip Tillage

- Roundup Ready® varieties
- Light, erodible soils
- Sprinkler irrigation
- Flat planting
- Wide row spacing (e.g. 30 inches)
- Flat field topography
Concerns/Questions

- Insect and disease incidence
- Residue management
- Guidance
- Fertilizer management
- Irrigation management
- Soil moisture during tillage
- Furrow irrigation
Special Equipment Needs for Strip Till

High trash cultivator

Planter for “trashy” conditions

H&S Mfg.
Fertilizer Placement

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Furrow Irrigation

- Future research emphasis
- Several local producers have implemented
- Special equipment needs: Double shovels?
Thank You for Your Attention and Interest

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