Using Cover Crops to Manage Soil and Weed Control While Being Economically Sustainable

Kris Verett
Overview

- Verett Farms background
- Why no-till & covers?
- Rotational sequence
- Cover progression
- Planting & setup
- Weed control strategies
- Budget comparison
- Questions
Verett Farms
Background

- Location: Ralls, TX
- Acres: approximately 4,000
- Primary crops:
  - Cotton
  - Multi-species covers
  - Cows?
Why No-Till & Covers?

- Less soil erosion
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- Cost savings
  - Fuel - using 60% less
  - Maintenance
  - Wear & tear
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- Keeps ground cooler
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- Less employee burnout
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- Collecting unruly precipitation
- Less evaporation
- Keeps ground cooler
- Soil health benefits
  - Less compaction
  - Firmer seed beds
Rotational Sequence
Drilling Rye

- Timeliness
- Planting rate
  - Rye
  - Radishes
- Minimal soil disturbance
<table>
<thead>
<tr>
<th>Seed</th>
<th>Rate (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daikon Radish</td>
<td>0.5</td>
</tr>
<tr>
<td>Dwarf Essex Rape</td>
<td>0.5</td>
</tr>
<tr>
<td>Purple Top Turnip</td>
<td>0.5</td>
</tr>
<tr>
<td>Proso Millet</td>
<td>2.0</td>
</tr>
<tr>
<td>Japanese Millet</td>
<td>2.0</td>
</tr>
<tr>
<td>Pearl Millet</td>
<td>2.0</td>
</tr>
<tr>
<td>Sorghum Sudan</td>
<td>4.0</td>
</tr>
<tr>
<td>Crimson Clover</td>
<td>1.0</td>
</tr>
<tr>
<td>Hairy Vetch</td>
<td>1.0</td>
</tr>
<tr>
<td>Sunn Hemp</td>
<td>2.0</td>
</tr>
</tbody>
</table>
Planting Multi-Species into Rye
Cover Progression – Wideman Pivot – April 25th
Cover Progression –
Wideman Pivot –
June 15th
Cover Progression – Wideman Pivot – July 9th
Cover Progression –
Wideman Pivot –
July 17th
Cover Progression –
Wideman Pivot –
August 3rd
Cover Progression – Wideman Pivot – August 17th
Cover Progression – Wideman Pivot – November 19th
Cotton Planting Setup

- Case IH Planter
- Yetter finger-style trash whippers, with depth band
- Martin spiked closing wheels
Planting Cotton Behind Cover
Emergence Progression Pics

9 DAP

16 DAP

28 DAP
• Ideal to have both horizontal & vertical cover

Cover Degradation – Starting Point – September 10th
Cover Degradation – You Can’t Have Enough!
<table>
<thead>
<tr>
<th>Timing</th>
<th>Herbicide Mix</th>
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<tbody>
<tr>
<td>Late February</td>
<td>8 oz Weedmaster + 1 qt Roundup</td>
</tr>
<tr>
<td>April</td>
<td>24 oz Weedmaster + 1 qt Roundup</td>
</tr>
<tr>
<td>Behind planter</td>
<td>2 oz Staple + 1 lb Direx + 32 oz Gramoxone</td>
</tr>
<tr>
<td>Early-mid post</td>
<td>Dual or Warrant + 40 oz Liberty + 1 qt Roundup</td>
</tr>
<tr>
<td>Post-directed layby</td>
<td>1 lb Direx + 1 qt Roundup</td>
</tr>
</tbody>
</table>
Justifying Herbicide Expense

- Cultivation not an option
  - Reseeding weeds
  - Increased soil erosion
  - Poor water infiltration
- Preventing emergence of resistant weeds
- Fibermax varieties
- Less annual weed pressure over time
## Budget Comparison - Irrigated

### 120 Acres Irrigated Cotton 2 gpm/a 850# yield potential

<table>
<thead>
<tr>
<th>Revenue</th>
<th>Acres</th>
<th>Yield</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>120</td>
<td>850</td>
<td>$66,300</td>
</tr>
</tbody>
</table>

### Expenses

<table>
<thead>
<tr>
<th>Expenses</th>
<th>Acres</th>
<th>$/Acre</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed Cost 45K/A</td>
<td>120</td>
<td>$75</td>
<td>$9,000</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>120</td>
<td>$50</td>
<td>$6,000</td>
</tr>
<tr>
<td>Herbicide</td>
<td>120</td>
<td>$60</td>
<td>$7,200</td>
</tr>
<tr>
<td>Land Prep and tillage</td>
<td>120</td>
<td>$60</td>
<td>$7,200</td>
</tr>
<tr>
<td><strong>Total Expense</strong></td>
<td></td>
<td></td>
<td>$29,400</td>
</tr>
</tbody>
</table>

### Net for 120 Acres

| Net for 120 Acres | $36,900 |

### 60 Acres Irrigated Cotton 4 gpm/a 1500# Yield potential

<table>
<thead>
<tr>
<th>Revenue</th>
<th>Acres</th>
<th>Yield</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>60</td>
<td>1500</td>
<td>$58,500</td>
</tr>
</tbody>
</table>

### Expenses

<table>
<thead>
<tr>
<th>Expenses</th>
<th>Acres</th>
<th>$/Acre</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed Cost 45K/A</td>
<td>60</td>
<td>$75</td>
<td>$4,500</td>
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<tr>
<td>Fertilizer</td>
<td>60</td>
<td>$70</td>
<td>$4,200</td>
</tr>
<tr>
<td>Herbicide</td>
<td>60</td>
<td>$75</td>
<td>$4,500</td>
</tr>
<tr>
<td>Herbicide</td>
<td>60</td>
<td>$10</td>
<td>$600</td>
</tr>
<tr>
<td>Cover Crop Seed</td>
<td>60</td>
<td>$45</td>
<td>$2,700</td>
</tr>
<tr>
<td><strong>Total Expense</strong></td>
<td></td>
<td></td>
<td>$16,500</td>
</tr>
</tbody>
</table>

### Net for 60 Acres

| Net for 60 Acres | $42,000 |

[https://southplainsprofit.tamu.edu](https://southplainsprofit.tamu.edu)
# Budget Comparison - Dryland

## 120 Acres Dryland Cotton 400# yield potential

<table>
<thead>
<tr>
<th>Expenses</th>
<th>Acres</th>
<th>$/Acre</th>
<th>Total Expense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed Cost 25K/A</td>
<td>120</td>
<td>$40</td>
<td>$4,800</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>120</td>
<td>$25</td>
<td>$3,000</td>
</tr>
<tr>
<td>Herbicide</td>
<td>120</td>
<td>$50</td>
<td>$6,000</td>
</tr>
<tr>
<td>Land Prep and tillage</td>
<td>120</td>
<td>$60</td>
<td>$7,200</td>
</tr>
<tr>
<td><strong>Total Expense</strong></td>
<td></td>
<td></td>
<td><strong>$21,000</strong></td>
</tr>
</tbody>
</table>

**Net for 120 Acres**: $10,200

## 60 Acres Dryland Cotton 650# Yield potential

<table>
<thead>
<tr>
<th>Expenses</th>
<th>Acres</th>
<th>$/Acre</th>
<th>Total Expense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed Cost 25K/A</td>
<td>60</td>
<td>$40</td>
<td>$2,400</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>60</td>
<td>$35</td>
<td>$2,100</td>
</tr>
<tr>
<td>Herbicide/Cotton</td>
<td>60</td>
<td>$50</td>
<td>$3,000</td>
</tr>
<tr>
<td>Herbicide/Cover Crop</td>
<td>60</td>
<td>$25</td>
<td>$1,500</td>
</tr>
<tr>
<td>Cover Crop Seed/Planting</td>
<td>60</td>
<td>$45</td>
<td>$2,700</td>
</tr>
<tr>
<td><strong>Total Expense</strong></td>
<td></td>
<td></td>
<td><strong>$11,700</strong></td>
</tr>
</tbody>
</table>

**Net for 60 Acres**: $13,650

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NO-TILL TEXAS
SOIL HEALTH SYMPOSIUM
Overton Hotel and Conference center Lubbock, Texas
February 11, 2020, 8 a.m. and February 12, 2020, 8 a.m.

Questions?