**ECONOMICS of Soil Health Systems**

**Choctawhatchee, Pea, and Yellow Rivers Watersheds of Alabama**

**INTRODUCTION**

The Myron Johnson farm in the Choctawhatchee, Pea, and Yellow Rivers Watersheds of Alabama increased profitability for cotton and peanut by increasing crop yields with a soil health management system (SHMS) of strip till production and cover crops. The farm has practiced strip till production with cover crops for nine years.

**Benefits of the SHMS reported by the farmer:**

- **IMPROVED WATER INFILTRATION**
- **REDUCED EROSION**
- **IMPROVED SOIL STRUCTURE**
- **ENHANCED RESILIENCE TO EXTREME WEATHER CONDITIONS**

**ADDITIONAL INFORMATION ON THE FARM IS AVAILABLE IN A REPORT AND VIDEO PRESENTATION AT WWW.NACDNET.ORG/SOIL-HEALTH-ECONOMICS.**

**METHODS**

The Soil Health Institute conducted an interview to obtain production information for evaluating economics of the soil health system based on partial budget analysis. In this approach, the benefits and costs of a soil health system are assessed by calculating changes in revenue and expenses before and after adoption of that system. The change in net farm income associated with adopting a SHMS is calculated as shown below and presented in Table 1.

**Net change in farm income = Benefits - Costs, where:**

**Benefits = Reduced Expenses + Additional Revenue**

**Costs = Additional Expenses + Reduced Revenue**

**A DETAILED DESCRIPTION OF THE METHODOLOGY FOR PARTIAL BUDGET ANALYSIS CAN BE FOUND AT HTTPS://SOILHEALTHINSTITUTE.ORG/ECONOMICS.**

**FINDINGS**

**Initial Management System and Reduced Expenses**

- The initial management system was conventional tillage production.
- Pre-plant tillage with a subsoiler and two disc field trips were eliminated for both crops, and one post-plant field trip with a row crop cultivator was eliminated for peanut.
- Total reduced expenses were $45.95/acre for cotton and $51.28/acre for peanut.

**FARM SIZE**

- 2,000 acres
  - Cropland 1,400 acres
  - Pasture 400 acres
  - Hay 200 acres
  - Cow/Calf 300 brood cows

**CROPS GROWN**

- Double crop cotton/peanut
  - Cotton 600 acres
  - Peanut 600 acres

**SOIL TEXTURE**

- Ranging from clay to sandy textures

**SOIL HEALTH MANAGEMENT SYSTEM**

- Strip till production
- Cover crops
- Variable rate lime application
- Monitoring of soil nutrient levels

**NET INCOME INCREASE**

- Cotton $294.15/acre
- Peanut $104.11/acre
Table 1. Partial Budget Analysis, 9 Years with a Soil Health Management System on a 1,400-Acre Farm, $ per Acre per Year (2019 Dollars).

<table>
<thead>
<tr>
<th>Expense Category</th>
<th>Cotton Benefits</th>
<th>Cotton Costs</th>
<th>Peanut Benefits</th>
<th>Peanut Costs</th>
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<tbody>
<tr>
<td>Seed</td>
<td>0.00</td>
<td>23.00</td>
<td>0.00</td>
<td>23.00</td>
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<tr>
<td>Fertilizer &amp; Amendments</td>
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<td>6.00</td>
<td>0.00</td>
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<tr>
<td>Pesticides</td>
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<td>0.00</td>
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<tr>
<td>Fuel &amp; Electricity</td>
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<td>3.60</td>
<td>9.49</td>
<td>3.60</td>
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<tr>
<td>Labor &amp; Services</td>
<td>10.49</td>
<td>7.72</td>
<td>11.78</td>
<td>7.96</td>
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<tr>
<td>Post-harvest Expenses</td>
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<td>0.00</td>
<td>0.00</td>
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<tr>
<td>Equipment Ownership</td>
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<td>17.95</td>
<td>30.01</td>
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<tr>
<td><strong>Total Expense Change</strong></td>
<td><strong>45.95</strong></td>
<td><strong>86.80</strong></td>
<td><strong>51.28</strong></td>
<td><strong>108.17</strong></td>
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</table>

<table>
<thead>
<tr>
<th>Revenue Change</th>
<th>Cotton</th>
<th>Peanut</th>
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<tbody>
<tr>
<td><strong>Revenue Change</strong></td>
<td><strong>335.00</strong></td>
<td><strong>161.00</strong></td>
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</table>

<table>
<thead>
<tr>
<th>Change in Net Farm Income</th>
<th>Cotton</th>
<th>Peanut</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Change in Net Farm Income</strong></td>
<td><strong>294.15</strong></td>
<td><strong>104.11</strong></td>
</tr>
</tbody>
</table>

1 Expenses and expected yields based on farmer reported production practices. (https://soilhealthinstitute.org/economics/)