Profitability of Conservation Systems: A Case Study of 20 Iowa Farms

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Iowa Soybean Association

An investigation completed by Regional Strategic, Ltd. with funding provided by the Iowa Soybean Association and the Walton Family Foundation
Participant Selection

- 20 farm operators were selected by Iowa Soybean Association staff

Participant Interviews

- Initial interviews solicited
  - General farm information
  - Crop production and conservation practices, costs, and outputs for the 2018 crop production year
    - Between 2017 harvest and 2018 harvest
  - Farm lifecycle and succession information
8 Participants Were Selected for Follow-up Interviews on 7 Topics

- Records management and information systems
- Risk management
- Cover crop valuation and monetization
- Reduced tillage
- Nitrogen management
- Land ownership impacts
- Farm transitions and succession
Covered and Non-covered Portions of Rotations Compared in 3 Ways

- Averages across all participants (17) who supplied sufficient information for comparison
- Averages for participants who produced both covered and non-covered crops in a specific rotation and could distinguish yields between covered and non-covered acreage
- Averages for participants who either covered all acreage within a specific rotation or covered no acreage within that rotation
Table 7: Production practice and cost for participants raising only covered or non-covered crops in any given rotation

<table>
<thead>
<tr>
<th>Rotation</th>
<th>Input costs</th>
<th>Yield</th>
<th>Net profitability</th>
</tr>
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<tbody>
<tr>
<td>Corn following soy</td>
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Impact of adding covers to rotation:

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<tr>
<td>Corn following soy</td>
<td>0.84 0.20 1.96 2.37 3.69 1.97 7.30</td>
<td></td>
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<td>Corn following corn</td>
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Costs and profitability:

- Soy following corn:
  - Input costs: 12.19 13.32 0.00 0.00 13.52 0.00 0.00
  - Yield: 7.14 0.00 7.54 0.00 0.00 0.00
  - Net profitability: 6.38 6.38 16.34 0.00 0.00 0.00

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In all comparisons, the $ value of total pesticide expenditures per acre were lower on acreage following cover crops.

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<th>Cover</th>
<th>No cover</th>
<th>Cover savings</th>
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<td>Soybean following corn</td>
<td>41.76</td>
<td>44.85</td>
<td>3.09</td>
</tr>
<tr>
<td>Corn following soybean</td>
<td>40.33</td>
<td>45.39</td>
<td>5.06</td>
</tr>
<tr>
<td>Corn following corn</td>
<td>42.18</td>
<td>49.79</td>
<td>7.60</td>
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In 3 of 4 comparisons where producing cover crops was advantageous, $/acre fertilizer costs were lower for crops following a cover crop.

In all 6 comparisons where corn was the production crop, fertilizer expenditures per acre for acreage following a cover crop were either equal to or lower than fertilizer costs per acre on acreage not following a cover crop.

For 2 of 3 comparisons where soybeans were produced, acreage following a cover crop showed higher average fertilizer expenditures per acre than acreage that did not follow a cover crop.

On average, our participant population was targeting a nitrogen application rate 30 lbs. N/Ac over the MRTN recommendation.
Participant Cover Crop Harvest

- 5 participants harvested cover crops on 560 acres in 2018
- Harvested covers netted a total of $78,160 (an average of nearly $140 per acre) after harvest costs were paid
- Cover crop products include
  - Grazing – 250 acres
  - Hay – 150 acres
  - Harvesting grain for seed or feed – 160 acres
    - Straw – 4 acres
- Nearly all participants harvesting cover crops indicate an intention to expand the practice
Participant Record Systems

- Participant record keeping systems appeared to range from
  - No or minimal discernable record system (about 1/3 of all 20 participants)
  - Computerized accounting and implement-generated agronomic data (about 1/3 of participants)
  - The final third are scattered between

- Good record systems do not appear to be a function of farm size

- Good record keeping systems appear to be correlated with younger participants
  - But one of the best systems observed was on the operation of an older participant

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Record Keeping Follow-up Interviews
7 selected participants with good record systems

- Generally more engaged in conservation practices
- None cultivated corn following corn
- Cover 68% of row-crop acreage (compared to 45% for other participants)
  - 4 cover all row-crop acreage
- 3 are profiting from cover crop harvests or support activities
Record System Costs Are Not Trivial

- Record system costs among 7 participants ranged from
  - $1.50 per acre
  - $19.69 per acre
- Average was $5.14 per acre
- 2 had expenses of over $10.00 per acre
- 5 had expenses below $8.00 per acre

Measuring, documenting, and evaluating profitability is every bit as important to accelerating the pace of conservation adoption as is gathering yield data, measuring soil and phosphorus losses, calculating nitrogen loss, or evaluating soil health impacts.
Thank you

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