Social & Economic Considerations
Module 8

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Getting soil health adopted

• “Requires not only an understanding of the physical resource data but also social data.”

  NRCS Social Sciences Institute

• Awareness and a deeper knowledge of key human consideration can assist with implementation and long term adoption and adaptation.

• What is the current perception of soil health in your region?

• What keeps people from implementing; how have they overcome these obstacles?
How To Impact Change

Adoption
Behavior associated with an individual's or group’s decision on whether or not to accept new ideas, practices or products

Technology Transfer
The process by which the adoption of a new idea, practice, or product spreads throughout a group, community or society.
Stages of adoption

The producer can return to any one of these stages at any time during the adoption process.
Stages of adoption

• As a planner where do you fit in the six stages?
  • In all of them

• What stage can you fail the landowner?
  • Any stage: by lack of follow through or interest after the initial contact at the awareness stage or anytime thereafter when the producer seeks assistance.
Attributes promoting technology adoption

**Personal**
- Above average income
- Formal education
- High participation in ag groups
- Greater reliance on mass media
- Willing to take risks

**Farm**
- Owner operator
- Smaller scaled farms and low to medium gross sales may be more likely to adopt soil health

**Practice**
- Economically feasible
- Observable; easy to use
- Compatible with producer beliefs
- Flexibly fit with the rotation
Adopter categories for community

Soil Health Champions

Rogers & Shoemaker, 1971
What are Some Obstacles to Soil Health Adoption?

- ↓ Technical Info
- ↓ Soil Health Social & Financial Support in Community
- Aversion to Risk
- ↑ Management Level
- ↑ Organizational Barriers with Various Agencies
- ↓ Landlord-Tenant Relationships
- Economic Obstacles
Cover crops

**Costs**
- Cover crop seed & planting
- Equipment, labor and herbicide for termination
- Extra insecticide
- Extra nitrogen
- More management
- Higher cash crop seed and planting costs
- More soil testing
- Extra herbicide

**Revenue**
- Lower crop seed & planting
- Improved nitrogen use
- Reduced tillage
- Savings on repairs due to soil erosion
- Savings on land rent
- Lower cash crop planting population

**Higher yields**
- Grazing/forage
- Cost share
- Rented more acres
- Replacing wheat by corn/soybeans

Plastina et al. 2018
### Sources of Changes in Net Profits

<table>
<thead>
<tr>
<th></th>
<th>Cover crops followed by corn</th>
<th>Cover crops followed by soy</th>
<th>Cover crops in corn-soy rotation</th>
<th>Cover crops followed by corn or soy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Change in revenue</strong></td>
<td>16.16</td>
<td>59.81</td>
<td>29.34</td>
<td>35.58</td>
</tr>
<tr>
<td><strong>B. Changes in costs</strong></td>
<td>36.91</td>
<td>34.69</td>
<td>41.12</td>
<td>29.16</td>
</tr>
<tr>
<td><strong>Net change in Profit (A-B)</strong></td>
<td>-20.76</td>
<td>25.13</td>
<td>-11.78</td>
<td>6.43</td>
</tr>
<tr>
<td><strong>Change in profit without cost share</strong></td>
<td>-46.09</td>
<td>-2.95</td>
<td>-42.92</td>
<td>-37.41</td>
</tr>
</tbody>
</table>

**Notes:**
- Over-wintered
- Winter-killed
### Zooming in on corn after rye

Plastina et al. 2018

...unless cover is used as forage, or environmental benefits quantified (Roth et al. 2018)

<table>
<thead>
<tr>
<th>Sources of changes in net profits</th>
<th>Mean ($/acre)</th>
<th>1st Quartile ($/acre)</th>
<th>Median ($/acre)</th>
<th>3rd Quartile ($/acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Changes in revenue</td>
<td>16.16</td>
<td>-16.50</td>
<td>25.00</td>
<td>43.36</td>
</tr>
<tr>
<td>B. Changes in Costs</td>
<td>36.91</td>
<td>48.65</td>
<td>30.90</td>
<td>23.77</td>
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<tr>
<td>C. Net change in profit (A-B)</td>
<td>-20.76</td>
<td>-65.15</td>
<td>-5.90</td>
<td>19.59</td>
</tr>
<tr>
<td>Net change in profit without Cost-Share:</td>
<td>-46.09</td>
<td>-82.15</td>
<td>-30.90</td>
<td>-5.41</td>
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</tbody>
</table>
Some farmers see economic gains with cover crops

2017 Cover Crop Survey, Conservation Technology Information Center and Sustainable Agriculture Research and Education
Example Erosion Costs

Degrades organic matter levels and other fines first

On-farm costs

- Nutrients & Yield: $4.78
- Water: $1.49
- Air Quality (Health): $3.19
- Air Quality (Property): $2.97

Water Quality: $6.57

$19/ton of soil

Soil Quality Inst., 2003
Change will last longer if producers choose it

- Be supportive
- Go slow
- Introduce them to other successful farmers
- Run the numbers