Farm Performance During the Transition to Organic Production: Analysis and Planning Tools Based on Minnesota Farm Record Data

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Research Questions

• Does farm production decline during organic transition? If so, how much?

• Does farm financial performance suffer during organic transition?

• How does a farm’s organic performance compare to the farm’s pre-transition conventional performance?
Project and Data Gathering

• “Tools for Transition” was a 5-year NIFA-funded project to build and analyze a database of farm records from transitioning farms.
  – Please find us on eOrganic → Tools for Transition [Reports] !!

• Previously there was no source of farm-level data from transitioning farms in the United States.

• Data from participating farms were collected through existing Minnesota Farm Business Management (FBM) Program.
Who Participated?

• Recruitment efforts focused on transitioning or recently certified crop and dairy farms in Minnesota.
  – Specialty crop farms were omitted due to extreme heterogeneity and lack of existing benchmarks.

• 46 farms were enrolled and provided scholarships to pay for FBM participation.
  – At enrollment this included roughly 4,500 acres in transition, 10,000 organic acres, 3,700 conventional acres
  – 700 dairy cows in transition, 1,500 organic cows, 130 conventional cows
What Information was Collected?

• Production metrics
  – Yield, acreage, transition status, lbs per cow, fairly detailed operating and ownership costs

• Financial performance and ratios
  – Net income, ROE/ROA, etc.

• Some farms were previously enrolled in FBM and thus had several years of data available.
Methods - Challenges

• The goal is to reveal performance changes as farms go from conventional, through transition, to certified organic management.

• We have means/medians for each transition status, but these are complicated by geography and annual weather outcomes.

• Solution: control for year and location effects by normalizing farm-level observations with county-level conventional averages.
Methods – Data Transformation

• Each farm-level observation is divided by the conventional county average, drawn from the FINBIN database.

• Example: A farm in Southwest MN observed organic corn yield of 120 bu/ac in 2014. The county average in that year was 170 bu/ac.

\[ \text{Ratio}_{\text{org,SW,2014}} = \frac{120}{170} = 0.706 \]
Results

• We report enterprise ratio medians, including production, expense, and financial ratios for corn, soybean, oat, alfalfa hay, alfalfa establishment, and dairy.

• We also report whole-farm financial ratios for crop and dairy farms during conventional, transitional, and organic management.

• We provide an editable spreadsheet tool populated with ratio results to assist farmers in forecasting outcomes during and after organic transition.
Result Highlights

- Before transition, participating farms were smaller but did not have significantly lower crop yields than their conventional neighbors.

- Before transition, dairy farms had lower production per cow and smaller herds, and also lower feed costs.

- Yields generally fell during transition and further still after certification.
  - Corn yields went from 0.95 to 0.78 to 0.69
  - Soybean yields went from 1.02 to 0.69 to 0.56
## Result Highlights

**Whole-Farm Results for TFT Dairy Farms**

<table>
<thead>
<tr>
<th></th>
<th>Conventional</th>
<th>Transition</th>
<th>Organic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Farm Income</td>
<td>0.59</td>
<td>0.21</td>
<td>0.56</td>
</tr>
<tr>
<td>ROA</td>
<td>0.75</td>
<td>0.44</td>
<td>0.96</td>
</tr>
<tr>
<td>Debt-to-Asset Ratio</td>
<td>1.30</td>
<td>1.04</td>
<td>0.80</td>
</tr>
</tbody>
</table>
Conclusions

• Transition is costly and difficult to navigate. Post-certification returns do not always allow farms to recoup lost revenue during transition.

• However, we present medians. Some farms have become far more profitable than before transition. Others have not done as well.

• What we are seeing suggests that existing farm-level data from organic farmers is likely skewed by self-selection.

• This is by no means definitive. Commodity prices during data collection have certainly impacted relative profitability of these systems. Ex. Dairy in 2009 vs. 2014.
For more information about the Tools for Transition Project, visit:  
www.eorganic.info/toolsfortransition