Using data to inform direct market programming and initiatives: farm and ranch profitability implications

National Direct Agricultural Marketing Summit
Arlington, VA
September 17, 2018
Today’s Presenters

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Colorado State University

Matt LeRoux
Cornell University Cooperative Extension
BUT, how do you evaluate if your direct market program or initiative is supporting improved farm or ranch profitability outcomes?
Profit Margin Increases with Farm Size

Can direct markets counteract this trend for scale?

Notes: Operating profit margin (OPM) = 100% x (net farm income + interest paid – charge for operator and unpaid labor – charge for management) ÷ gross farm income. Small family farms have annual gross cash farm income (GCFI) < $350,000. Midsize family farms have GCFI of $350,000-$999,999. Large-scale family farms have GCFI of $1,000,000 or more. Source: USDA, Economic Research Service and National Agricultural Statistics Service, 2015 Agricultural Resource Management Survey (data as of December 2016).
There is a likely tradeoff between volume of sales and two key management factors:

1) Managerial control retained by producers

2) Pricing power of producers

Is there an “optimal” place on continuum for an operation?
FINANCIAL PERFORMANCE IMPLICATIONS OF LOCAL FOOD ENTERPRISES

PROFITABILITY IMPLICATIONS OF LOCAL FOOD ENTERPRISES

FINANCIAL BENCHMARKS OF LOCAL FOOD ENTERPRISES

THE ROLE OF LABOR AND OTHER VARIABLE EXPENSES OF LOCAL FOOD ENTERPRISES

EVALUATING THE FINANCIAL EFFICIENCY OF LOCAL FOOD ENTERPRISES
Methodology: Profitability implications of local food marketing strategies

• We divide the sample into quartiles, segmented by profitability
  • Profitability is defined as return on assets.
  • A % representing the net income made per dollar of assets invested in a farm, common competitive returns for industry are 10-15%
  • For segments: Quartile 4-best performers, Quartile 1-lowest performers

• Provides benchmark information for comparisons across groups and time (as more years become available)
Profitability by Scale and Channel

Return on Assets by Quartile (Quartile 4 is the most profitable)

By Sales Class

Source: Bauman, Thilmany, Jablonski 2018
Profitability by Scale and Channel

Return on Assets by Quartile (Quartile 4 is the most profitable)

Source: Bauman, Thilmany, Jablonski 2018
Profitability by Scale and Channel

Key takeaways

• Local food system participants can be profitable at any scale (even the smallest producers)
  – But scale does matter in the choice of appropriate marketing strategies and the portfolio of channels.
  – Farms with direct and intermediated sales vary greatly in terms of profitability

• Intermediated sales are correlated with higher profitability at every size class when compared to producers with only direct-to-consumer sales.

Data Sources:

Financial Benchmarks for Local Food Producers

Labor Share of Variable Costs by Scale and Quartile

- $1,000 to $74,999
- $75,000 to $349,999
- $350,000 to $999,999
- $1,000,000 and higher

- Quartile 1
- Quartile 2
- Quartile 3
- Quartile 4
Financial Benchmarks for Local Food Producers

Business Debt to Asset Ratio by Scale and Quartile

- **$1,000 to $74,999**
  - Quartile 1: Lower
  - Quartile 2: Lower
  - Quartile 3: Lower
  - Quartile 4: Lower

- **$75,000 to $349,999**
  - Quartile 1: Lower
  - Quartile 2: Lower
  - Quartile 3: Lower
  - Quartile 4: Lower

- **$350,000 to $999,999**
  - Quartile 1: Middle
  - Quartile 2: Middle
  - Quartile 3: Middle
  - Quartile 4: Higher

- **$1,000,000 and higher**
  - Quartile 1: Higher
  - Quartile 2: Higher
  - Quartile 3: Higher
  - Quartile 4: Higher

Business Debt to Asset Ratio

0.6
0.5
0.4
0.3
0.2
0.1
0
$1,000 to $74,999
$75,000 to $349,999
$350,000 to $999,999
$1,000,000 and higher
Profitability by Scale and Channel

Key takeaways

• Labor costs are a relatively higher share of total costs as operations grow in scale.
  – As operations grow, the hours, skill and expertise needed to manage responsive supply chains increases.

• The highest performing farms generally have the highest asset turnover ratios.
  – Farms are highly effective in using assets to generate sales.

• Debt usage is bi-modal with the best and worse performing farmers using relatively more debt.

Data Sources:

CAN THIS DATA GUIDE YOUR PROGRAMMING OR TECHNICAL ASSISTANCE ROLE?
Market Channel Assessments
USDA Federal-State Marketing Improvement Program Grant

• Funders and partner organizations include:
Market Channel Assessments

How do you evaluate a market opportunity?
Six interacting factors impact the “performance” of a marketing channel including:

- **Price & Profit**: You can sell $500 worth per hour.
- **Associated Costs**: It costs $300/day to sell there.
  - ...and it’s only 1 hour per week.
  - ...and it takes 12 hours to prepare.
  - ...and if it rains, no customers come.
- **Lifestyle Preferences**: ...and it’s only 1 hour per week.
- **Sales Volume**: ...and it takes 12 hours to prepare.
- **Labor Requirements**: ...and if it rains, no customers come.
- **Risk**: ...and it’s only 1 hour per week.

Matt LeRoux, Cornell Cooperative Extension of Tompkins County
Methodology

- Collect logs of all marketing labor (from harvest to sale) for one typical, peak season week.
- Collect gross sales & mileage for the week.
- Collect ranking on lifestyle & risk.
- Collect weights for each ranked category.

Why labor logs?

- Labor is the largest marketing expense.
- Consistent unit and format.
- Operators tell hired help to complete the forms.
- Each employee filled out their own sheets.
Note that we start with **HARVEST**. Assumption that production labor requirements are not market dependents.
Methodology

• Use data to rank and compare channels:
  • **Profit** (gross sales – (labor + mileage cost))
  • Labor hours required
  • Sales volume

• Also use farmer ranking for:
  • Risk perception (financial risk, lost sales, etc...)
  • Lifestyle preference (enjoyment, stress aversion)
Included in the report:

- Labor hours required per marketing channel, divided between harvest, processing & pack, travel & delivery, and sales & bookkeeping.
  - Information is also broken down by employee to help farmers better understand labor efficiency and allocation.
- Gross sales per market channel compared to total labor cost.
- Marketing profit per market channel.
- Sales and gross profit per labor hour by channel.
- Preliminary statewide benchmarks
- Final channel rankings integrating the weights discussed above.
- Recommendations to support improved farm profitability, by market channel.
Producer quotes:

• “This report gives me concrete information on the hours I’m spending, and will be really helpful for developing my business plan.”

• “We know restaurants are not a productive avenue for us, and this report accurately reflected this.”

• “It is good to see that benchmark to help us set a goal to be above that 50th percentile.”

• “This report really got me thinking about why I am selling in certain areas.”

• “What I noticed with the farmers’ market is that it takes a lot more out of me. It makes the day after pretty rough. It is tiring, but it is also rewarding.”

• “The information you’ve given me is helpful to try and sort out differently. It gives me an idea of where I can put more effort and tweak things.”

• “It is pretty enlightening and very interesting. It wasn’t what I expected, and we learned something here.”

• “This will help me think of it [the market] differently or better.”

• “The work you’re doing really validates what we are doing as farmers.”
Profit Margin Percentiles, Direct Channels

Direct (n=101)
- 25th Percentile: 6.43%
- Median: 70.97%
- 75th Percentile: 76.13%

CSA (n=26)
- 25th Percentile: 61.79%
- Median: 79.75%
- 75th Percentile: 84.90%

FM (n=43)
- 25th Percentile: 4.92%
- Median: 69.90%
- 75th Percentile: 76.22%

FS (n=26)
- 25th Percentile: 12.96%
- Median: 55.61%
- 75th Percentile: 76.22%
Sales per Labor Hour Percentiles, Direct Channels

Sales ($) per Labor Hour

25th Percentile
Median
75th Percentile

Direct (n=101)
CSA (n=26)
FM (n=43)
FS (n=26)

$14.73
$32.46
$14.02
$62.81
$33.12
$39.46
$12.78
$25.68
$25.69
$25.68
$47.32
$70.30
$70.43
$70.30
$70.43
$80.00

Sales/LHr = Gross sales

Marketing Labor Hours
Percentage Distribution of Labor by Marketing Activity, Top (75th Percentile) and Bottom (25th Percentile) Performing Channels, All Channels

<table>
<thead>
<tr>
<th>Activity</th>
<th>Harvest</th>
<th>Process &amp; Pack</th>
<th>Travel &amp; Delivery</th>
<th>Sales &amp; Bookkeeping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct, Top</td>
<td>51%</td>
<td>22%</td>
<td>8%</td>
<td>19%</td>
</tr>
<tr>
<td>Direct, Bottom</td>
<td>30%</td>
<td>17%</td>
<td>11%</td>
<td>42%</td>
</tr>
<tr>
<td>Intermediated, Top</td>
<td>57%</td>
<td>22%</td>
<td>10%</td>
<td>11%</td>
</tr>
<tr>
<td>Intermediated, Bottom</td>
<td>44%</td>
<td>25%</td>
<td>16%</td>
<td>14%</td>
</tr>
</tbody>
</table>
Market Channel Assessments
FOR COLORADO SPECIALTY CROP PRODUCERS

Previous research indicates that the largest variation in market channel costs are associated with labor and distribution. Accordingly, this study focuses on understanding the relationship between sales and labor utilization by market channel and activity (e.g., harvest, process and pack, travel and delivery, and sales and bookkeeping).

This study used market channel assessments to populate individualized reports to help specialty crop producers analyze financial returns to their individual market outlets and make recommendations to improve market channel selection and performance.

Farm-level market channel data from 2016 and 2017 were then aggregated to develop state-level benchmarks that:

1. Determine predictors of success in marketing through different outlets; and
2. Provide market performance metrics that help guide existing and beginning specialty crop farmers by identifying market channels that maximize farm-level profitability.

What is a Market Channel?
There are two categories of market channels:

1) **Direct** (e.g., farmers’ markets, Community Supported Agriculture (CSA), and farm stands); and
2) **Intermediated** (e.g., sales to larger buyers such as restaurants, grocery stores, and distributors).

**Market Channel Assessments** provide customized information to Colorado specialty crop producers about the profitability and efficiency of their market channels.
Customizing MCATS to your Stakeholders

• Farmers Market Vendors
  • What data do you already collect?
  • Could you add questions or glean information from applications you already collect?
    • Location/hours traveled
    • Number of workers/hours at table
  • Brainstorm other ideas!!

• Food Hubs or Farm to School
  • Frame the value proposition
  • Lower prices justified if hours spent securing sale significantly lower than direct sales
  • Tradeoffs across markets, maybe all channels could make sense, but the balance of markets can be part of technical assistance
Cornell Meat Price & Yield Calculator

Matt LeRoux
Ag. Marketing Specialist

This material is based upon work supported by USDA/NIFA under Award Number 2015-49200-24225.
Each market channel has different costs.

Each cut of meat comes in a proportion on the carcass.

Each cut has a level of consumer/channel demand.

Therefore, farms need to develop pricing for each channel.
Cornell Cooperative Extension
Tompkins County

By-the-cut
With processing

Farmers’ Market
Farm Store (own)
Restaurant/Retail

Whole carcass
With processing

Restaurant/Retail
Freezer Trade

Whole carcass
No processing

Coop Brand
Regional Brands
Commodity

Price/lb. HCW
Farm Marketing Required

High
Low
An example:

- **Farmers Market (by the cut)**
  - Cost of Production: $1,000
  - Processing Cost: $638
  - Desired Profit/head: $300
  - Marketing Labor Cost: $960
  - **Total Gross Sales:** $2,898

- **Restaurant (by the cut)**
  - Cost of Production: $1,000
  - Processing Cost: $638
  - Desired Profit/head: $300
  - Marketing Labor Cost: $480
  - **Total Gross Sales:** $2,418

- **Freezer trade (quarters)**
  - Cost of Production: $1,000
  - Processing Cost: $638
  - Desired Profit/head: $300
  - Marketing Labor Cost: $240
  - **Total Gross Sales:** $2,178
What’s the point?

• To ensure a profit.

• To test & adjust current market channels.

• To evaluate and price for new opportunities.

• To account for labor & costs.

• To manage inventory of cuts.

• To aid wholesale buyers.

• To develop channel-specific pricing that works!
## Initial NY User Stats

### Freezer Trade

<table>
<thead>
<tr>
<th></th>
<th>Original</th>
<th>Revised</th>
<th>% Increase</th>
<th># Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef</td>
<td>$2.89</td>
<td>$3.67</td>
<td>27%</td>
<td>37</td>
</tr>
<tr>
<td>Pork</td>
<td>$3.25</td>
<td>$4.49</td>
<td>38%</td>
<td>13</td>
</tr>
<tr>
<td>Lamb</td>
<td>$3.95</td>
<td>$7.53</td>
<td>90%</td>
<td>15</td>
</tr>
</tbody>
</table>

*Prices include processing.*

### Farmers Markets

<table>
<thead>
<tr>
<th></th>
<th>WTD AVG Cuts $/lb.</th>
<th>Original</th>
<th>Revised</th>
<th>% Increase</th>
<th># Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef</td>
<td></td>
<td>$7.37</td>
<td>$7.43</td>
<td>4.8%</td>
<td>22</td>
</tr>
<tr>
<td>Pork</td>
<td></td>
<td>$7.97</td>
<td>$8.31</td>
<td>4.3%</td>
<td>14</td>
</tr>
<tr>
<td>Lamb</td>
<td></td>
<td>$10.69</td>
<td>$10.77</td>
<td>0.7%</td>
<td>6</td>
</tr>
</tbody>
</table>

*WTD AVG Cuts $/lb.*
Discussion question:

• So, what does it mean if you develop pricing but determine that your customers in that channel “would never pay those prices?”
As producers retain animals from birth to slaughter, they add cost and increase risk. So why do it?

Discussion question:
CONTACT INFORMATION

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http://calculator.meatsuite.com/
The Economics of Local Food: 

an Emerging Community of Practice

We are actively growing a new Community of Practice to help you and your community understand the ag and food enterprise viability, market dynamics and other key socio-economics metrics of local and regional food systems.
Appendices
## Market typology advantages and disadvantages

<table>
<thead>
<tr>
<th>Market Orientation</th>
<th>Customers</th>
<th>Managerial Control</th>
<th>Pricing Power</th>
<th>Market Volume Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roadside Stand and Online Sales</td>
<td>Local, traveling and national households</td>
<td>Full control</td>
<td>High</td>
<td>Low to high</td>
</tr>
<tr>
<td>Farmers Markets</td>
<td>Local households, travelers</td>
<td>Full control</td>
<td>High</td>
<td>Low to medium</td>
</tr>
<tr>
<td>CSA</td>
<td>Local households</td>
<td>Full control</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>Farm Direct to Wholesale</td>
<td>Local, independent businesses, institutions</td>
<td>Full control</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Multi-Farm CSA</td>
<td>Local households and businesses</td>
<td>Shared control</td>
<td>Medium</td>
<td>Medium to High</td>
</tr>
<tr>
<td>Food Hubs</td>
<td>Local businesses and institutions</td>
<td>Shared to limited control</td>
<td>Medium</td>
<td>Medium to High</td>
</tr>
<tr>
<td>Traditional Distributor</td>
<td>All buyers</td>
<td>Limited control and pricing power</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fact sheet: [http://webdoc.agsci.colostate.edu/DARE/EDR/EDR15-01.pdf](http://webdoc.agsci.colostate.edu/DARE/EDR/EDR15-01.pdf)
## Profitability by Scale and Channel

### Return on assets, by marketing outlets and by gross farm income

<table>
<thead>
<tr>
<th>Scale</th>
<th>Quartile</th>
<th>Direct-To-Consumer Only Mean</th>
<th>Intermediated Only Mean</th>
<th>Both Direct and Intermediated Mean</th>
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</thead>
<tbody>
<tr>
<td>$1,000 to $74,000</td>
<td>1</td>
<td>-1.37</td>
<td>-0.80</td>
<td>-2.63</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>-0.07</td>
<td>-0.07</td>
<td>-0.07</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>-0.01</td>
<td>-0.01</td>
<td>-0.02</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>0.20</td>
<td>0.04</td>
<td>0.07</td>
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<tr>
<td>$75,000 to $349,999</td>
<td>1</td>
<td>-0.24</td>
<td>-0.20</td>
<td>-0.33</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>-0.07</td>
<td>-0.09</td>
<td>-0.07</td>
</tr>
<tr>
<td></td>
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<td>-0.01</td>
<td>-0.01</td>
<td>-0.01</td>
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<td></td>
<td>4</td>
<td>0.08</td>
<td>0.26</td>
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<tr>
<td>$350,000 and higher</td>
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<td>-0.31</td>
<td>n/a</td>
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<td></td>
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<td>n/a</td>
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<td>0.00</td>
<td>-0.02</td>
<td>-0.01</td>
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<td></td>
<td>4</td>
<td>0.19</td>
<td>0.31</td>
<td>0.34</td>
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All MCAT Participants