Value Chains in North Bay Agriculture

November 9, 2012

Robert Eyler, PhD
Professor, Economics
Frank Howard Allen Research Scholar
eyler@sonoma.edu
Value Chains as Strategy Tools

- Value chains show how each activity adds value to a good
  - Measured as “activities”
  - Can come directly from tax or accounting documents
  - Can compare to industry benchmarks, neighbors, regional farms to see where farmers need help
  - Can show where a farmer, industry or region has competitive advantage over others
  - Different than supply chains in subtle, important ways

- We investigated dairies, grass-fed beef ranching, and grain farming
Value vs. Supply Chains

- Value chains link activities financially within a production process for a good or service.
- Supply chains link activities financially between suppliers, wholesalers and final consumers.
- Each firm in the supply chain will have its own value chain.
  - Each part of the supply chain affects other parts and adds value to a good or service.
  - Hence the confusion: the sum of the supply chain is the “value-added” from raw material to final consumer.
Value Chain Example

- **Pre-Operations**: How raw materials are stored, maintained and used
- **Operations**: Daily Tasks and Activities, including Harvest and Processing
- **Post-Operations**: Storage and Transport
- **Marketing & Sales**: Business Development, Pricing and Contracts
- **Service**: Customer Relationships

- **Machines and Equipment**
- **People Management**
- **Internet and Technology**
- **Procurement**
Supply Chain Example

- Supplier
- Wholesaler
- Final Consumer/Retailer
Dairy Value Chains, Sonoma and Marin

● Dairies produce fluid milk
  ● Dairies may be able to expand to other, value-add operations
  ● Such expansions create new value chains
    ● If on the same farm, cheese becomes a step in the supply chain with a new value chain

● North Bay dairies show lack of competitive advantage in feed costs
  ● High feed costs (pre-operations) versus industry benchmark signals this
  ● Transportation costs can also rise quickly
Dairy Industry Value Chain Example

Pre-Operations
- Feed Purchase
- Feed Storage
- Pasture Maintenance
- Feed Production
- Herd Culling/Maintenance

Operations
- Milking Ops
- Milk Collection
- Cooling
- Processing
- Calf Production

Post-Operations
- Storage
- Refrigeration
- Transport

Marketing & Sales
- Pricing & Contracts
- Compliance

Service
- Customer Relationships
- Quality Assessment
- Quality Control

Machines and Equipment
People Management
Internet and Technology
Procurement

School of Business and Economics
Grass-Fed Beef Value Chains

- Need for a regional kill/hang/cut/wrap facility
  - Aging process in demand by final consumers
  - Need to have custom cuts and wraps
  - Inability for the rancher to add value onsite at low cost (not profitable)

- Question of regional resources and solutions
  - Cooperative kill facility?
  - Cooperative hang/cut/wrap?
  - Strategic arrangement with current facilities?
Grass-Fed Beef Value Chain Example

**Pre-Operations**
- Feed Purchase
- Feed Storage
- Pasture Maintenance
- Feed Production
- Herd Culling/Maintenance

**Operations**
- Herding
- Sorting
- Processing
- Calf Production

**Post-Operations**
- Storage
- Refrigeration
- Prepare for Transport
- Transport

**Marketing & Sales**
- Pricing & Contracts
- Compliance

**Service**
- Customer Relationships
- Quality Assessment
- Quality Control

**Machines and Equipment**
- People Management
- Internet and Technology
- Procurement

School of Business and Economics
Grain Farming Value Chains

- Value chains show that most operations are capital intensive
  - Need to add machines, tractors
    - May not be profitable for each farmer to make an individual purchase
  - Irrigation not an issue as most are dry farming operations
    - This may be an issue for expansion in certain parts of North Bay
- Marketing and customer demands for customization a larger question for value added
  - Do custom grains and adding value to final product provide profit?
Grain Farm Value Chain Example

Pre-Operations
- Fertilizer
- Seed Procurement
- Seed Storage
- Equipment
- Chemical Procurement and Storage

Operations
- Harvesting
- Waste Management
- Specific Use Processing
- Prep for next planting

Post-Operations
- Storage of Processed Grain
- Storage of Unprocessed Grain
- Prep for Transport
- Transport

Marketing & Sales
- Pricing & Contracts
- Compliance

Service
- Customer Relationships
- Quality Assessment
- Quality Control

Machines and Equipment
People Management
Internet and Technology
Procurement

School of Business and Economics
Economic Impacts as Econ Development Data

- Show the broad effects of employment on multiple industries
- Provides insight into further income and tax receipts from industry existence and expansion
- Can forecast changes due to expansion or contraction
- Connects direct to allied industries (services provided to farmers that exist mainly due to farms)
The Economic Impact Concept

- Direct Impact
- Indirect Impact
- Induced Impact
Economic Impacts: Dairy and North Bay

- Major Industries affected
  - Real estate agencies
  - All other crop farming
  - Wholesale trade businesses
  - Banks and Credit Unions
  - Cattle ranching and farming
  - Rental income for Property Owners
  - Accounting, tax preparation, and payroll services
  - Maintenance and repair construction: commercial
  - Bars and Restaurants
## Data for Dairy (Summary)

<table>
<thead>
<tr>
<th></th>
<th>Dairy</th>
<th>North Bay</th>
<th>Total Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td></td>
<td>100</td>
<td>131</td>
</tr>
<tr>
<td>Business Revenue</td>
<td>$14,769,000</td>
<td>$19,144,000</td>
<td></td>
</tr>
<tr>
<td>State and Local Tax Revenues</td>
<td></td>
<td></td>
<td>$768,000</td>
</tr>
</tbody>
</table>
Economic Impacts: Grass-Fed Beef

- Major Industries Affected
  - Support activities for agriculture
  - Real estate agencies
  - All other crop farming
  - Grocery Stores
  - Wholesale trade businesses
  - Bars and Restaurants
  - Banks and Credit Unions
  - Investment Banking
  - Transport by truck
Data for Beef (Summary)

<table>
<thead>
<tr>
<th></th>
<th>Grass-Fed Beef</th>
<th>North Bay</th>
<th>Total Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td></td>
<td>100</td>
<td>163</td>
</tr>
<tr>
<td>Business Revenue</td>
<td>$12,340,000</td>
<td>$20,995,000</td>
<td></td>
</tr>
<tr>
<td>State and Local Tax Revenues</td>
<td></td>
<td></td>
<td>$582,000</td>
</tr>
</tbody>
</table>
Economic Impacts: Grain Farming

- Major Industries Affected
  - Real estate agencies
  - Support activities for agriculture
  - Banks and Credit Unions
  - Rental income for Property Owners
  - Wholesale trade businesses
  - Maintenance and repair construction: commercial
  - Other state and local government enterprises
  - Natural gas distribution
  - Bars and Restaurants
## Data for Grain (Summary)

<table>
<thead>
<tr>
<th></th>
<th>Grain Farming</th>
<th>North Bay</th>
<th>Total Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td></td>
<td>100</td>
<td>121</td>
</tr>
<tr>
<td>Business Revenue</td>
<td>$4,832,000</td>
<td>$7,529,000</td>
<td></td>
</tr>
<tr>
<td>State and Local Tax Revenues</td>
<td></td>
<td></td>
<td>$212,000</td>
</tr>
</tbody>
</table>
Conclusions and Direction

- Dairies: feed cost as a major concern, organic versus conventional
- Grass-Fed Beef: hang/cut/wrap facility and use
- Grain Farming: equipment costs and marketing
- Economic impacts show broad community effects, and broad community support available
- Support industries the key for value-add activities
  - Can generate jobs off and on farms
  - Can solve regional problems locally (reduce need to transport)
- Value chains and economic impacts can help shape policy and support for farms and ranches
  - Provides comparison and forecast data