A Business School Perspective on Agriculture

David Sparling, Ph.D.
Chair in Agri-Food Innovation and Regulation

Enhancing Data for Complex Agricultural Establishments
June 28, 2011
Why does a business school care?

• Researchers bumping into agriculture in several areas
  – Sustainability
  – Energy
  – Economic driver – particularly food processing as other manufacturing declined
  – Public/private partnerships – intersection of policy and management to address major local or global challenges
Business school approach

- **Profitability** – although triple bottom line getting traction
- **First person vs third person**
- **Decision oriented** – It’s your problem – own it, solve it and move on.
- Information is important but incomplete
- Consistent with farmer’s approach
  Craig Yunkers – “A farm is a collection of economic activities”
From data to decisions

Objectives

Data & Measures

Strategies

Implementation & Results

What goals? What is success?

What do we know? How can we measure success?

What strategies help achieve the objectives?

What was achieved?

www.ivey.ca/agri-food
The farm income approach

Objectives beyond direct support? Success? – enough income for every farmer?

Policies

Measures

What policies can help support incomes?

What measures best represent the politically appropriate view of farm income?

Results

Actual farm incomes?
The Public Goals – far from obvious

• Economic
  – Competitiveness?
  – Profitability?
  – Increasing output and value

• Social – Who are the targets? What are the criteria for needing help?

• Environmental – Only for focused organizations
Complex agriculture systems
- success only partly determined on farms

- Global market trends and consumer response
- Retail stores and distribution chains
- Biotechnology and input supply companies
- Equipment and technology firms
- Universities and government labs
- Food processing companies
- Bioproduct and manufacturing companies
- Policy, trade negotiations and public partners
- Linkages to health and health sector
We need information on farms but also beyond

• Thinking beyond farms to build an industry that supports farmers
• How do we create more competitive value chains?
• How do we improve agri-food innovation systems?
• How do we link to other areas like energy and health?
Problems are complex – i.e. food and health

Government Policy
- Subsidies, income support
- Food safety
- Regulation
- Research policy
- Trade policy

Industry Strategy
- Research focus & investment
- Promotion, product development
- Reformulation, private standards
- Self regulation

Food system
- Inputs
- Production
- Processing
- Distribution
- Retail
- Purchase
- Consumption
- Health impacts
- Health, social & economic costs

Consumer system
- Education
- Health claims
- Nutrition labels
- Nutrition research
- Front of pack systems

Economic focus
- Product mix, sourcing promotion
- Pricing information, advertising
- Advocate restrictions on product or access
- Medical and nutrition research
- Economic and social research

Medical, NGO strategy
Survival is not a right

• Business is tough and sustaining a business requires constant management and innovation.
• Businesses do not have a right to a decent return
• Government can help in many ways but if you need government to step in every year to supplement income find another business
Comparative results matter - We don’t teach students to aggregate results

- If you want to know how successful your business is look at the measures that matter to owners and shareholders
  - Net income for the business or the business units
  - Capital appreciation is be important

- If you are trailing your competitors you can become a target – for management change, for takeover.
Limited value in this kind of image
What kind of data do we use?

• Statistics Canada/Agriculture and Agri-Food Canada
  – Multiple divisions
  – Big picture - trends
  – but also questions on what’s behind the trends

• Industry Canada datasets

• USDA/ERS/NAS data
We’re interested in how farms are doing?

Average Canadian Farm Net Income by income quartile - 2007

Net income $1,898,530

Net income quartile

Q1 Q2 Q3 Q4

Revenue class $10k-99k $100k-249k $250k-499k $500k-999k $1M-2.5M >$2.5M

Net income $-720,925
Average Canada Farm Government Payments by income quartile - 2007

Gov’t payments

$200,000

$175,000

$150,000

$125,000

$100,000

$75,000

$50,000

$25,000

$0

Revenue class

$10k-99k $100k-249k $250k-499k $500k-999k $1M-2.5M >$2.5M

Net income quartile

Q1

Q2

Q3

Q4

www.ivey.ca/agri-food
Where are the businesses?

Average income for Canadian farms by source 2009

- Average net income
- Average government payments
- Average off-farm income (employment/ pensions)

www.ivey.ca/agri-food
## Does scale matter?

<table>
<thead>
<tr>
<th>Sales Class</th>
<th>2009</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sales</td>
<td>Total Assets</td>
</tr>
<tr>
<td>$10,000-$249,999</td>
<td>$73,539</td>
<td>$928,326</td>
</tr>
<tr>
<td>$250,000-$499,999</td>
<td>$331,303</td>
<td>$1,989,088</td>
</tr>
<tr>
<td>$500,000+</td>
<td>$1,313,579</td>
<td>$4,850,959</td>
</tr>
</tbody>
</table>
## Capital appreciation has value

<table>
<thead>
<tr>
<th>Sales Class</th>
<th>2009</th>
<th>2005</th>
<th>Change in net worth</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>$10,000-$249,999</td>
<td>$829,070</td>
<td>$655,767</td>
<td>$173,303</td>
<td>26.4%</td>
</tr>
<tr>
<td>$250,000-$499,999</td>
<td>$1,582,205</td>
<td>$1,502,902</td>
<td>$79,303</td>
<td>5.3%</td>
</tr>
<tr>
<td>$500,000+</td>
<td>$3,604,676</td>
<td>$3,193,741</td>
<td>$410,935</td>
<td>12.9%</td>
</tr>
</tbody>
</table>
One company’s shareholders if we portrayed them as we portray farmers

Another dismal year for stricken company shareholders

- **Dividend** $0
- **Yield** $0

“We can’t take another year of this. We need government assistance says one devastated shareholder.”

But shares were up about 30%

www.ivey.ca/agri-food
What questions would help?

• Expanding activities – getting at the complexity of agriculture and agri-business
• Farm strategies
  – Optimal organizational structure
  – Relationships - within their value chains but also with other organizations
  – Knowledge management strategies
• We can’t get all of the answers that we need from statistical databases
Collecting data & using information

**Information use** – for policy & business strategy

**Data availability and data access** – can policy makers and researchers get access to the data they need to advise policy and business strategies?

**Turning Data into Information** – for policy and business strategy

**Data collection** – for policy and business strategies

www.ivey.ca/agri-food
Datasets are not enough so we use case studies

• Farms are too complex to capture in a survey
• It’s impossible to get at strategies from farm level survey
• Relationship between strategies, policies and results
• If you want to understand role of intellectual property, technology, risk management strategies, etc you need to talk to people
It’s not just about policy – We use data to help create industry strategies

• Some data on markets
• Statistical data on strategies
• Conversations and facilitated sessions with industry leaders
• Iterative development of strategies and specific tactics as well as the recommendation for policy development to support the strategy
• Development of measures that can assess impact of the strategies
Cross-enterprise leadership

The future for agriculture depends on leadership at different levels, from individual farms to entire industries.
We need data on new opportunities – for example Canadian Bioproducts Survey

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2005</th>
<th>2006</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$ thousands</td>
<td>$ thousands</td>
<td>$ thousands</td>
<td>$ thousands</td>
<td>$ thousands</td>
</tr>
<tr>
<td>Canada</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total firm revenues (all sources)</td>
<td>11,914,662</td>
<td>7,081,904</td>
<td>7,486,339</td>
<td>19,685,698</td>
<td>14,898,795</td>
</tr>
<tr>
<td>Revenues from bioproducts</td>
<td>3,129,455</td>
<td>1,697,799</td>
<td>1,758,309</td>
<td>1,047,418</td>
<td>1,333,503</td>
</tr>
<tr>
<td>Revenues from bioproducts - exported</td>
<td>1,491,626</td>
<td>828,455</td>
<td>632,606</td>
<td>187,976</td>
<td>438,667</td>
</tr>
<tr>
<td>Total cost of biomass input</td>
<td></td>
<td>319,886</td>
<td>343,373</td>
<td>1,731,080</td>
<td>1,852,135</td>
</tr>
<tr>
<td>Revenue from bioproducts minus cost of biomass input</td>
<td></td>
<td>1,377,913</td>
<td>1,414,936</td>
<td>(683,662)</td>
<td>(518,632)</td>
</tr>
<tr>
<td>Total R&amp;D spending</td>
<td>242,371</td>
<td>241,227</td>
<td>242,299</td>
<td>305,924</td>
<td>127,389</td>
</tr>
<tr>
<td>R&amp;D spending on bioproduct development</td>
<td>96,327</td>
<td>88,091</td>
<td>81,329</td>
<td>49,934</td>
<td>50,152</td>
</tr>
<tr>
<td>R&amp;D spending on biomass development</td>
<td></td>
<td>5,236</td>
<td>3,000</td>
<td>14,540</td>
<td>14,428</td>
</tr>
</tbody>
</table>

Case based research when survey data isn’t enough

• A research strategy focusing on understanding the **dynamics** within **single** settings

• Cases can answer the question “how?”, rather than “how many?”

• Can be used for various purposes: motivate a research question, provide description, test theory, or create theory
Methodology

• Can involve single or multiples cases and numerous levels of analysis

• Typically combine data collection methods – e.g. archives, interviews, questionnaires, observations..

• Single cases allow an in-depth study of a single situation or entity.

• Multiple case studies provide understanding of broader phenomena - Cross-case analysis

• Evidence may be qualitative, quantitative, or both
Helps answer questions like why do companies enter bio-chemical markets?

• Varies depending on the level of the chain
• *Bio-focused firms* enter to build a *new* bio-based idea into a successful *business*
• *Chemical firms* – oil replacement – for *cost*, assurance of *supply* and *environmental* impact
• *Chemical consumers* – responding to customer/consumer *demand* for sustainable products. Same product with *new properties*
How can we use cases?

• **Illustration** - To tell stories and highlight examples of phenomena that we already understand

• **Application** – To examine specific situations and to understand how specific factors, policies or strategies are affecting agribusiness performance building on existing theory or knowledge

• **Theory** – To develop and test new theories about how agribusinesses compete and the role of different public and non-public stakeholders
Requirements for policy

• Flexible approach to data collection – give me what I need not what you have

• Understandable information – as an external research group we can analyze quickly, say what we really think and report quickly

• Stories to explain the reasons for the policy and/or the benefits – Cases help build the data and the stories.
Thank you
David Sparling
dsparling@ivey.ca

The Chair of Agri-Food Innovation and Regulation is supported by the Agricultural Adaptation Council

www.ivey.ca/agri-food