Welcome to Session II of **AG 101**.

You should be able to hear music – and can control the MP3 Player shown in your view.

Program will begin at 1:00 PM.

Having difficulties with audio? Please send us a note in the space provided to the left of this presentation area.
The Winter “Burst” focuses on Intro to Pennsylvania Farms and Livestock Operations

Session IV – 2/10/11
- Equine
- Specialized Species

Session V – 2/17/11
- Pre-farm visit preparation
- Biosecurity & other important info

FARM & FIELD VISITS
http://guest.cvent.com/d/vdqt1f
Questions You’ve Identified

- How has the economic situation changed the Pennsylvania farmer?
- Average age of farmers, new farmer statistics, types of new farms, average age of current FARMS, raised in community where they farm or transplants? Last session we learned that many farms are not the sole income source of farm owners. What are commonly the other sources of income / types of careers for such farmers?
- How commonly is the person doing the farming not the landowner (e.g., renting, leasing land)?
Questions You’ve Identified

• What is age distribution of farmers like? -- Are we losing many farmers as generations age?
• How have the demographics of the PA farmer shifted over the last two decades?
• As a generation of farmers are leaving agriculture, are there enough families and individuals willing and interested to take their place?
• How does the Pennsylvania farmer differ from neighboring states? What makes the Pennsylvania farmer unique?
Program Focus of Session II

- Social Context for the Pennsylvania Farmer
  Kathy Brasier, Assistant Professor of Rural Sociology

- Economic and Business Context for the Pennsylvania Farmer
  Jay Harper, Professor of Agricultural Economics
Understanding the Pennsylvania Farmer: The Social Context for Farm-Based Conservation Actions

Kathy Brasier, PhD
Dept. of Ag Econ & Rural Sociology
Penn State University

Understanding Pa Farm Operations Webinar
January 27, 2011
Goals & Topical Outline

• Goals:
  • To understand potential drivers of farmers’ conservation decision-making
  • To identify parts of farm context to be keyed into, to understand before arriving on farm

• Topics:
  • Adoption process
  • Identify contextual factors
    • Conservation technology
    • Farmer and his/her family
    • Farm
    • Community and social context of farms
  • Lessons & strategies
Adoption Process

Conservation Practice Created

Farmer learns about
Farmer never learns about

Evaluate

Adopt
Partially adopt
Reject

Continue to support
Re-invent
De-adopt
Key Moments in Process

- Information
- Evaluation

**Depend on social context**

- Individual
- Farm
- Household & Family
- Friends
- Important social groups
- Change agencies/organizations
- Community
- State, federal, global policy
Context Influences...

• Information
  • Whether information is received
  • How information is received
  • How information is evaluated

• Evaluation
  • How landowner evaluates practice
  • How much control landowner has over choice to use practice
  • The resources farmers have to use practice
  • How landowner sees him/herself as a user of that practice
Characteristics of Technology

- Fit to farm and ecosystem
- Cost
  - Money, labor, time requirements?
  - Loss of productive land?
- Long-term support available?
- Benefits
  - On-farm vs off-farm
  - Benefits outweigh risk
- Complexity and unfamiliarity
  - Learning curve
  - Standardized vs adapted to farm
Individual Contextual Factors

- Demographics
  - Age
  - Gender
  - Family position / composition
- Ethical and cultural systems
- Personal values, beliefs
- Comfort with risk
- Background / education / training

Operators of PA Farms 2007

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>71%</td>
<td>29%</td>
</tr>
</tbody>
</table>

Women principal operators in PA

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>6079</td>
</tr>
<tr>
<td>2007</td>
<td>8550</td>
</tr>
</tbody>
</table>

Age of Farmers

Average Age of Principal Farm Operators: 2007

Average Age
- Under 55
- 55 - 55.9
- 56 - 56.9
- 57 - 57.9
- 58 - 58.9
- 59 and over

United States Average 57.1
Individual ↔ Society

- Individual identity:
  - How we think of ourselves
  - How we portray ourselves to others through our actions
  - How we define ourselves in relation to social groups important to us
  - Hierarchical mix of multiple self-concepts
    - Agricultural producer
    - Agri-business person
    - Conservationist
    - Community member

- Reference groups and expected behaviors
  - What is a ‘good farmer’? What does he/she do?
  - What is a ‘conservationist’? What does he/she do?
  - Do the expectations of the reference groups conflict?

  *If I install riparian buffers, will I still be a ‘good farmer’?*

  *If I allow a few weeds to grow, will I still be respected by my neighbors?*
Examples of Reference Groups and Behaviors

• “I’m a young, fun parent, not a soccer-mom.”
• “I’m a farmer, not a forester.”
• “I produce food, not grass.”
• “I grow corn. I’m not a gas station attendant”
Household/Family Context

- Majority of farms in PA are *Family* farms
  - Multiple decision-makers
  - Multiple generations
  - Financial support needed for multiple individuals / multiple individuals to support farm
- Often tight integration of farm business and household budget
- Mix of family and non-family labor
Farm Context

- Off-farm income/benefits
  - Decreased time/labor available
  - Differential need to maximize net farm income
- Farms are diverse
  - Differing goals
  - Diversified businesses
- Ownership/tenure
- Access to credit
- Retirement/succession planning

![Bar chart showing percent of household income from farming in PA](Source: Pennsylvania Ag Statistics Service)
Impact of Farm Context on Adoption

• Corn is corn, right?
  • *Different goals for corn across farms (dairy vs grain vs biofuels)*

• A practice that decreases yield will always be rejected
  • *Less of a problem for larger farms*

• Those with many non-farm neighbors will use more conservation practices
  • *Or are they less willing to invest in farm because of development pressure?*

• When commodity prices are higher, farmers will have resources to invest in practices
  • *They might prefer to invest in higher production capacity*

• The next generation of farmers will use practices
  • *Will they want to ‘undo’ the work of previous generations?*
### New Farmers are Different

- **Percent of Total**: 100% for All Farms, 13% for New Farms
- **Average Size**: 418 ac for All Farms, 201 ac for New Farms
- **Average value of products sold**: $135,000 for All Farms, $71,000 for New Farms
- **Sales and government payments < $10,000**: 58% for All Farms, 73% for New Farms
- **Average age of operator**: 57 years for All Farms, 48 years for New Farms
- **Farming as primary occupation**: 45% for All Farms, 33% for New Farms

- **New farmers tend to:**
  - Not have background in ag
  - Need hands-on, basic training
  - Run more diversified farms
  - Use more/different markets
  - Participate in different, non-traditional networks

- **Differences lead to differing educational, outreach needs**
Policy Context

• Factors external to farmers’ control + farmers’ perceptions of these factors
  • Market forces
  • Short-term profit vs long-term viability
  • International and national farm policies

• Uncertainty
  • Farm economy
  • Farm policy (commodity and conservation programs)
  • Local development
Social Context: Networks

- Bridging networks
  - Weak ties - acquaintances, resource people
  - Exposure to new information and ideas
- Bonding networks
  - Strong ties - family, close friends, advisors
  - Moral and emotional support, behavioral norms
  - Evaluation and decision-making
Community Context

- History, culture and context of community
  - Relationships between farmers and non-farmers
  - Previous attempts at incentives and regulations
- Ex: Cannonsville Watershed (NY) *(James 2005)*
  - Provides water to NY City – reservoir built 1950s, displaced 5 villages and 94 farms
- Adopters of CREP
  - Positive evaluation of Watershed Ag Council
  - Positive relationship to NY City water supply protection
- Non-adopters of CREP
  - More negative about technology
  - Self-identity as ‘innovator’
Information Resources

- Content
- Purpose of information
  - Initial information => Secondary (agencies, farm media)
  - Evaluation => Personal (other farmers, family)
- Farmers filter information
  - Perceived motivation, expertise of information source
  - Personal trust in source
  - Previous experience, knowledge, ‘habits’
- Types of information sources may vary by scale of farm
  - Large scale farms => hired consultants
  - Medium scale family farms => public/private sources
  - Small scale farms => informal networks
- What information is each of these likely to have?
- Power of ‘negative experience’
Lessons & Strategies

• Match your communication purpose (awareness vs evaluation) to methods

• Develop knowledge of local community, interpersonal relationships, local norms of behavior

• Understand farmers’ networks, their composition, how farmers use them
  • Be aware of your role in networks
  • Create opportunities for diversifying networks, learning from other farmers
  • Seek out outliers and those outside of networks
  • Build coalitions across traditional boundaries
Pro-active Strategies

- Participatory resource management
  - Build two-way communication mechanisms
    - Use farmers’ knowledge of specific farm conditions and community to improve programs and technologies for all
  - Build ‘learning teams’
    - Teams of experts and farmers to address specific problem
    - Farmers experiment, teach each other
    - Locally-based, built over time
    - Focus on problem-solving, experimentation, mutual learning
Thank you!

QUESTIONS & COMMENTS?
Additional Resources

The Pennsylvania Farmer: Understanding the Business of Farming

Jayson K. Harper

Professor of agricultural economics
Department of Agricultural Economics and Rural Sociology
The Pennsylvania State University

Penn State is committed to affirmative action, equal opportunity, and the diversity of its workforce
Challenges to Growing Crops Profitably in Pennsylvania

- High production variability
- Redundant machinery complements
- Low machinery performance rates
  - Small equipment
  - Small, irregularly shaped fields
  - High slopes, low field speeds
- High land values (agricultural vs. development value)
- Lots of over the road time
  - Transportation of equipment
  - Transportation of harvest
- Labor availability
PA has a very diverse agriculture

- Growing season
- Geology/soil types
- Access to large markets
- Farm size
Characteristics of Principal Operators
(2007 Census of Agriculture, PA data)

Average age: 55.2 years

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 25</td>
<td>0.8%</td>
</tr>
<tr>
<td>25-34</td>
<td>7.2%</td>
</tr>
<tr>
<td>35-44</td>
<td>13.9%</td>
</tr>
<tr>
<td>45-54</td>
<td>26.6%</td>
</tr>
<tr>
<td>55-64</td>
<td>25.6%</td>
</tr>
<tr>
<td>65-74</td>
<td>16.7%</td>
</tr>
<tr>
<td>75+</td>
<td>9.2%</td>
</tr>
</tbody>
</table>

Days worked off farm

<table>
<thead>
<tr>
<th>Days Worked Off Farm</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>36.3%</td>
</tr>
<tr>
<td>&lt; 50</td>
<td>11.2%</td>
</tr>
<tr>
<td>50-99</td>
<td>4.6%</td>
</tr>
<tr>
<td>100-199</td>
<td>8.5%</td>
</tr>
<tr>
<td>200+</td>
<td>39.4%</td>
</tr>
</tbody>
</table>

Primary Occupation

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farming</td>
<td>44.5%</td>
</tr>
<tr>
<td>Other</td>
<td>55.5%</td>
</tr>
</tbody>
</table>

Sex

<table>
<thead>
<tr>
<th>Gender</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>86.5%</td>
</tr>
<tr>
<td>Female</td>
<td>13.5%</td>
</tr>
</tbody>
</table>
Business organization of farms
(2007 Census of Agriculture, PA data)

- Family/individual: 91.4%
- Partnership: 5.2%
- Family corporation: 2.3%
- Other corporation: 0.4%
- Other: 0.7%
## Land in Farms

(2007 Census of Agriculture, PA data)

<table>
<thead>
<tr>
<th></th>
<th>% of farms</th>
<th>Acres farmed</th>
<th>Acres/farm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full owners</td>
<td>70.6%</td>
<td>3.57 million</td>
<td>80</td>
</tr>
<tr>
<td>Part owners</td>
<td>23.7%</td>
<td>3.76 million</td>
<td>263</td>
</tr>
<tr>
<td>Tenants</td>
<td>6.7%</td>
<td>0.47 million</td>
<td>113</td>
</tr>
</tbody>
</table>
### Farm Size and Land Value
(data from 2007 Census of Agriculture, PA and IL and USDA, ERS, 2010)

<table>
<thead>
<tr>
<th>Average farm size (acres)</th>
<th>Total land</th>
<th>Harvested cropland</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA</td>
<td>123.6</td>
<td>62.4 (50.5%)</td>
</tr>
<tr>
<td>IL</td>
<td>348.4</td>
<td>294.2 (84.4%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Land values and rental rates</th>
<th>Value of Farmland</th>
<th>Rent per acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA</td>
<td>$5,000</td>
<td>$56.50</td>
</tr>
<tr>
<td>IL</td>
<td>$4,650</td>
<td>$169.00</td>
</tr>
</tbody>
</table>
# Farm Income

(2007 Census of Agriculture, PA data)

<table>
<thead>
<tr>
<th>Net Farm Income</th>
<th>Average/farm</th>
<th>% farms w/gains</th>
<th>% farms w/losses</th>
</tr>
</thead>
<tbody>
<tr>
<td>All farms</td>
<td>$18,567</td>
<td>42.6%</td>
<td>57.4%</td>
</tr>
<tr>
<td>Full owners</td>
<td>$5,746</td>
<td>33.5%</td>
<td>66.5%</td>
</tr>
<tr>
<td>Part owners</td>
<td>$52,843</td>
<td>63.1%</td>
<td>36.9%</td>
</tr>
<tr>
<td>Tenants</td>
<td>$37,714</td>
<td>69.9%</td>
<td>30.1%</td>
</tr>
</tbody>
</table>
Getting a bigger piece of the “pie”

Profitability is the name of the game

\[ \pi = (\text{Price} \times \text{Yield}) - \text{Cost} \]

\[ \pi = (\text{Price} \times \text{Yield}) - \text{Variable Costs} - \text{Fixed Costs} \]
Types of Risks Faced by Farmers

- Production
- Marketing
- Financial
- Human resource
- Institutional

- Drought: 59%
- Excess moisture: 17%
- Hall: 6%
- Heat: 4%
- Cold, wet weather: 4%
- Freeze: 3%
- Wildlife: 2%
- Frost: 2%
- Other: 3%

Drought, 59%
Yield Risk: Sources and Solutions

Sources:
- Adverse weather
- Pest damage

Solutions:
- Pest management practices
- Site selection
- Variety/hybrid selection
- Rotation/diversification
- Irrigation
- Crop insurance
Managing cash flow

The flow of income and expenses rarely matches in agricultural enterprises

- Crop farmers usually borrow money in the spring to plant their crops and don’t receive any income until harvest

- Some livestock producers wait for over a year before they collect any income from their production expenses

- Dairy farmers receive a monthly milk check, but it varies greatly over the course of the year because of production and seasonality of prices
## Equipment age
(2007 Census of Agriculture, PA and IL data)

<table>
<thead>
<tr>
<th>Equipment</th>
<th>PA</th>
<th>IL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 5 years old</td>
<td>5+ years old</td>
</tr>
<tr>
<td>Tractors</td>
<td>8.2%</td>
<td>91.8%</td>
</tr>
<tr>
<td></td>
<td>10.4%</td>
<td>89.6%</td>
</tr>
<tr>
<td>Combines</td>
<td>3.4%</td>
<td>96.6%</td>
</tr>
<tr>
<td></td>
<td>18.3%</td>
<td>81.7%</td>
</tr>
<tr>
<td>Forage harvesters</td>
<td>9.0%</td>
<td>91.0%</td>
</tr>
<tr>
<td></td>
<td>10.9%</td>
<td>89.1%</td>
</tr>
<tr>
<td>Trucks</td>
<td>17.6%</td>
<td>82.4%</td>
</tr>
<tr>
<td></td>
<td>21.4%</td>
<td>78.6%</td>
</tr>
</tbody>
</table>
Labor Management

• If you are a farmer how do you attract people to work on your farm?
  – Migrant workers

• Can you take a vacation?
Managing Labor Risk

What is the most expensive cost item in fruit and vegetable production?

Quantity & Quality

Understand federal, state, and local laws which apply to the use of agricultural labor:

- migrant and seasonal workers
- immigration
- child labor
- wages and hours
- withholding taxes
- unemployment compensation
- family and medical leave
- worker’s compensation
- worker protection (pesticide exposure, safe workplace, field sanitation)
- migrant housing
Rural-Urban Interface

• Infrastructure has not kept up with population in rural Pennsylvania
  – Pinchot roads

• People want to live in the country, but don’t understand rural economic realities
  – Right to farm regulations
Intergenerational Transfer

• Is the business large enough to employ another person/family?
• Is the business profitable enough to support another operator? Is expansion possible?
• Can management responsibilities be shared? Will a partnership work? Is the older generation ready to share management?
• Recording of this session will be posted in the “AG DIALOGUE” box, along with a pdf of today’s powerpoint AFTER the live session at http://breeze.psu.edu/AG101

• Registered participants will receive post program/pre-program assessment survey following each live session. To register – visit http://guest.cvent.com/e/d/vdq1f
PA Conservation Partner Training

• NRCS Conservation Training

• Pennsylvania Nutrient Management Specialist Certification Program,
  http://panutrientmgmt.cas.psu.edu

• Pennsylvania Association of Conservation Districts Trainings
  http://pacd.org/calendar/training-calendar/

• Other Penn State Cooperative Extension Trainings,
  www.extension.psu.edu
NEXT on AG 101: Intro to Livestock Production Systems

An overview of the production systems in PA for livestock. Feeding, health, welfare, wastes, products, operation scale, etc.

- February 4–1:00 to 2:30 PM at [http://breeze.psu.edu/AG101](http://breeze.psu.edu/AG101)
- Jerry Martin will moderate and be joined by Virginia Ishler (Dairy), Paul Patterson (Poultry) and Robb Meinen (Swine)