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## How Farmers Learn: Improving Sustainable Agricultural Education Executive Summary/Research Brief

This project examines how farmers in Louisiana, Tennessee, and Virginia prefer to learn and what that means for agricultural education, especially Cooperative Extension educational program development and delivery. Extension agents and specialists use a variety of methods for teaching content and processes that enhance farmer learning and adoption of new practices. This research project specifically looked at 96 farmers' learning preferences and 21 Cooperative Extension agents and specialists' instructional methods.

### Research Project Objectives

1. Farmers, Extension agents and specialists, and project staff, as a group, design and carry out an assessment of how Louisiana and Tennessee farmers prefer to learn and compare it with data from year one in Virginia.
2. Farmers, Extension agents and specialists, and project staff assess Extension agent perceptions of how farmers in Louisiana and Tennessee prefer to learn and determine how these perceptions are similar to or different from farmer's stated learning preferences.
3. Farmers, Extension agents and specialists, and project staff recommend how Extension educators should change or reinforce teaching methods and educational experiences to align with farmers learning preferences for more successful educational programming.
4. Farmers, Extension agents and specialists, and project staff analyze and interpret the data with stakeholders, write summary reports, and begin to disseminate findings to farmers, Extension agents and specialists, and secondary audiences.

### Research Team

#### *Principal Investigator:*

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#### *Co-Investigators*

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### Methodology

A steering committee of farmers and Cooperative Extension specialists and agents guided the research in each state. They helped determine research methods and assisted with focus group participant recruitment, logistics, and data collection, analysis, interpretation, and dissemination of results. Fifteen focus groups of 94 farmers and 21 Extension agents/specialists were conducted in Louisiana, Tennessee,

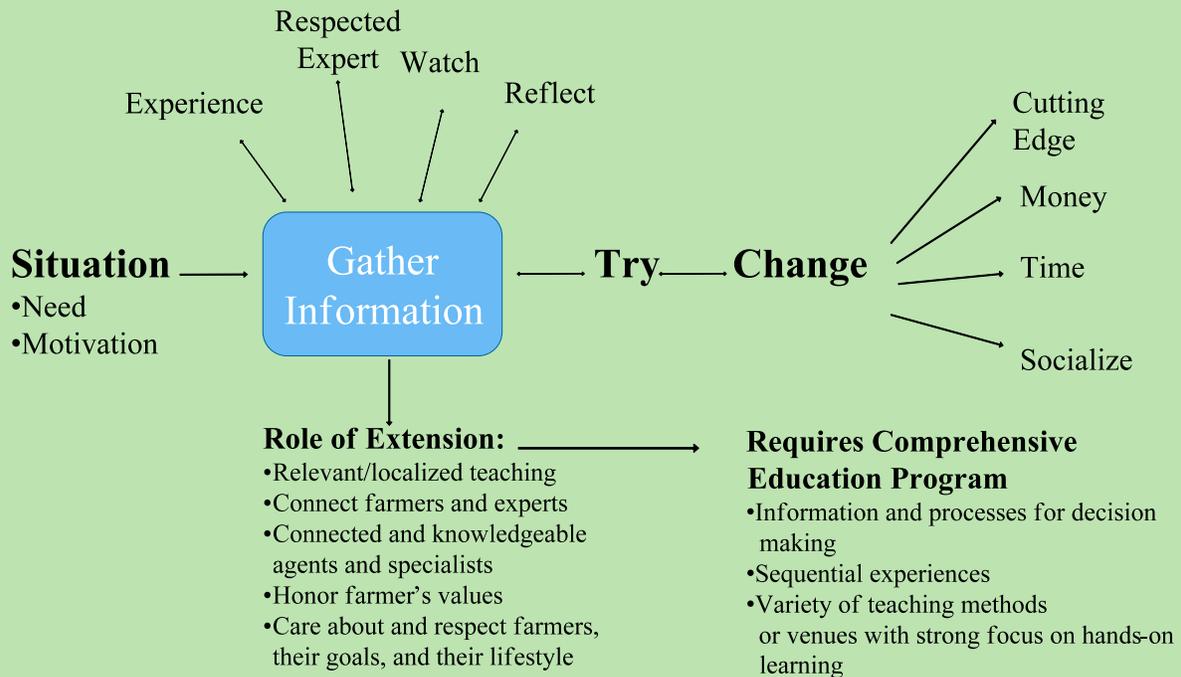
and Virginia. Focus group participants were given a written survey partway through the interview about their learning method preferences.

## **Findings**

### *How do Farmers Prefer to Learn?*

All focus group participants discussed ways farmers prefer to learn and how specific situations or events lead the farmer to learn which in turn motivates the farmer to “gather information” over time from many sources (see the figure below). During the “gather information” stage the farmer seeks evidence to support their decision, ensures the costs and savings of the decision are sound, discovers any pitfalls of the decision, and then applies it to their situation. The “gathering information” stage can lead to making change or not making change to save time and/or money, to adopting cutting edge research, or to simply enjoy socializing with and learning from others.

# How Farmers Learn: Improving Sustainable Agriculture Education



Research results from focus groups consisting of 115 participants including 94 farmers and 21 Extension agents and specialists indicate that farmers:

- encounter situations that stimulate learning ,
- gather information over time from experts and peers,
- try/experiment after reflecting on information and observations, and
- are motivated by being cutting edge, socializing, saving time and money.

Agricultural education’s role in learning is the “gathering of information” stage. Extension agents/specialists need to provide comprehensive educational programs with sequential information delivered through a variety of teaching methods. Farmers value Extension agents/specialists who get to know them, facilitate farmer-to-farmer networks, work with agricultural industries, and have experience in their area of agriculture.

This project is funded by SSARE.

Eighty-six of 94 farmer focus group participants completed a survey and discussed the ways they prefer to learn. The top six preferred learning methods by participating farmers were:

1. hands-on (99%),
2. demonstration (96%),
3. farm visit (94%),
4. field day (88%),
5. discussion (87%), and
6. one-on-one (85%).

Farmers had mixed preference for online-web, newsletters, books/manuals, on-farm tests, meetings, and lectures. Finally, four ways these farmers do not prefer to learn are:

1. games (80%),
2. comics (78%),
3. role playing (77%), and
4. radio (63 %).

#### *What are Extension Agent/Specialist Perceptions of how Farmers Learn?*

Twenty of 21 agents/specialists who participated in focus groups completed a survey, and discussed the ways they believe farmers prefer to learn. The top five preferred learning methods, as perceived by agents/specialists were:

1. farm visits (100%),
2. one-one-one (100%),
3. demonstrations (95%),
4. field day (90%), and
5. on-farm tests (90%).

Mixed preferences were discussion, networking, question and answer, workshops, experiment, and hands-on. Agents/specialists indicated that farmers least often preferred:

1. comics (80%),
2. role-playing (80%), and
3. games (75%).

#### *How are Agent/Specialist and Farmer Learning Preferences Different from Each Other?*

In focus groups, farmers' top preferences for learning methods did not totally match agent/specialist perception of how farmers prefer to learn (see the table below). This was also found in a survey of Virginia Extension agents/specialists. The survey revealed that agents and specialists most often used the following with farmers:

1. demonstration (96%),
2. lecture (88%),
3. field trip (71%),
4. experiment (67%), and
5. problem solving (58%).

Agents and specialists responding to the survey least often used the following teaching methods with farmers:

1. online presentation (0%),
2. creative arts (2%),
3. debate (2%),
4. online tutorial (2%), and
5. simulation (4%).

## Comparison of Agent/Specialist Perceptions of Farmer Preferences and Farmer Learning Preferences

	<b>Agent/Specialist Perception of How Farmers Learn</b>	<b>Farmer Response</b>
Prefer	<ul style="list-style-type: none"> <li>• Farm visit (100%)</li> <li>• One-on-one (100%)</li> <li>• Demonstrations (95%)</li> <li>• Field Day (90%)</li> <li>• On-farm test (90%)</li> </ul>	<ul style="list-style-type: none"> <li>• Hands-on (99%)</li> <li>• Demonstration (96%)</li> <li>• Farm visit (94%)</li> <li>• Field Day (88%)</li> <li>• Discussions (87%)</li> <li>• One-on-one (85%)</li> </ul>
Not Prefer	<ul style="list-style-type: none"> <li>• Comics (80%)</li> <li>• Role-Playing (80%)</li> <li>• Games (75%)</li> </ul>	<ul style="list-style-type: none"> <li>• Games (80%)</li> <li>• Comics (78%)</li> <li>• Role-Playing (77%)</li> <li>• Radio (63%)</li> </ul>

Methods used with farmers often depend on the individual agent and specialist, the context, or the farmer’s type of business. One agent said, “We all know what is best for teaching farmers, but we don’t always do what is best because of the constraints on our time.”

### *What Should Extension Agents/Specialists Change or Reinforce in Teaching Methods or Educational Experiences to Align with Farmer Preferences?*

For meaningful educational experiences and opportunities, farmers in focus groups want from Extension:

#### Help with Interpreting Information

- unbiased opinions
- help translate information in lay terms
- validate or disconfirm information from other sources
- help farmers understand how they can apply information to their operations
- remember that farmers have a short attention span
- realize farmers are kinesthetic learners

#### Knowledge

- research-based knowledge
- knowledgeable agents and specialists
- participation in and use of Extension/Land Grant research
- technical assistance and advice to improve marketing
- expanded educational offerings in both content and process
- cutting edge and relevant
- farmers seek out trusted sources of information

- Extension is a valued information provider, but may not be the primary provider (industry reps, non-governmental organizations, cooperatives, government agencies)
- increase online learning resources

### Relationship Building

- agents and specialists need to create networks between agricultural groups and service providers
- agents and specialists need to build a relationship with farmers
- organize farmer-to-farmer networks, as one farmer described, “So even if they don’t have the answer, at least they have a network of other people. Even if it’s just other farmers in the area...at least know who to send you to...at least be able to network you to other information avenues.”
- provide opportunities for socialization as part of educational events
- the needs of female and organic farmers are not being met by Extension
- hire agents/specialists with people and group process skills

### Support

- public service
- one-on-one attention on the farm
- agents who honor and respect farmer’s lifestyle goals and values
- be available for immediate problem-solving (phone, email, in-person)
- increase support for Extension so that agents can spend more time with farmers
- be sensitive to all types of agribusiness
- know the audience they are working with
- localize education (one size does not fit all operations)
- realize the agricultural industry is changing

### Time and Money

- provide research results in a timely manner so farmers can quickly incorporate results into decision making
- help farmers save time and money
- provide educational programs that reveal the economic feasibility of practices

Agents and Specialists want Extension to do the following to support better learning for farmers:

### Dynamics of Learning

- know that many people see information as learning, but learning is actually what you do with the information
- know that farmers collect information in a lot of places and ask the agent to check it
- know there are a wide variety of learners and ways they prefer to learn

### Provide and Extend Resources

- technology resources for agents/specialists, including instructional technology
- have “master” programs to train farmers and/or volunteers to help deliver Extension education. As one agent/specialist stated, “Master Beef Producers... I keep referring back to, is probably

one of the greatest things to happen to us in beef education. I am telling you this because it sure brings our producers to us.”

- set up strong mentoring programs for new agents

#### Recognize and Remove Barriers

- better communication between specialists and agents
- a lot of agent time goes to helping new farmers and farmers new to the area
- eroding and fluctuating Extension budgets are compromising Extension’s ability to use farmers’ preferred learning methods
- streamline reporting requirements for agents/specialists
- agent turnover/age affects the ability to teach farmers because teaching competence comes from experience
- job demands from changing demographics (migration, pressure to serve new farmers, retirees, hobby farmers, homeowners, etc.)
- job demands from nature of the work (working multiple counties, for example)
- agents assigned to larger geographic areas compromise trust at the local level (social relationships are not as deep)

#### The Role of Cooperative Extension in Farmer Learning

##### **Provide Relevant and Localized Teaching**

The learning context and methods should be relevant to the farmer by taking into account the producer’s amount of experience with farming, their level of education, and their geographic location. Many focus group participants agreed that information to help farmers learn should be understandable regardless of education and experience levels, but also specifically tailored to their context.

##### **Connect Farmers and Experts**

The nature of Extension work is changing. Agents and specialists must now be able to meet the needs of a wide variety of producers from conventional agriculture to alternative agriculture to part time farmers and those farmers who hire others to work their operation. Extension is no longer seen as the only source of information and education for farmers. Therefore, agents and specialists increasingly need to facilitate farmer-to-farmer networks and other group processes to help farmers and experts learn from each other.

##### **Provide Connected, Trusted, and Knowledgeable Agents and Specialists**

Farmers prefer that Extension agents and specialists be well-connected to agricultural groups, agencies, and resource people. They should also have a wide variety of agricultural content and build deep and trusting relationships with a diverse array of farmers.

##### **Honor Farmer’s Values**

Even though agents and specialists have often been exposed to one type of agriculture or a specific set of values that guide agricultural production, they need to be willing to work with farmers who hold a wide variety of values and practice a variety of production methods.

##### **Care About and Respect Farmers, Their Goals and Their Lifestyle**

Farmers appreciate agents and specialists who take the time to show they care about them as individuals, their profession, their dreams, and who they are in the world. Many of the focus group participants talked about the importance of educators understanding their agribusinesses before they are ready to learn from them. They often directed this at Extension agents. Focus group participants said their work ethic and values should be understood and respected before educators start teaching.

### **Farmers Enjoy Teaching Each Other**

Peer teaching and learning was mentioned by many of the focus group participants. This included apprenticeships with experienced farmers or helping a new farmer get started. Many participants commented on generational learning. One farmer said, “My learning began with my grandmother and my father and my mother and I’m still learning from my mother who is ninety one years old.” Another farmer said, “I had no agriculture background when I wanted to start farming. I found a farm and went and worked for them for two seasons.”

## **Implications**

This project gave farmers the opportunity to voice their perceptions and positively influence the delivery of Extension educational programs. The data suggests the following improvements and changes for Cooperative Extension:

### Administration

- New agents/specialists need people skills and not just a focus on sharing information.
- Extension needs to give new agents/specialists time to build relationships with key farmers.
- New agents/specialists need a deep local orientation with key contacts to be socialized into farmer networks.
- Agents need to be good generalists and trained in areas outside their specialty to meet a wide variety of farmer’s needs.
- New agents/specialists need to be freed from bureaucratic duties (what one farmer called “butt work”) for several months to build relationships and get to know the context.
- As State Cooperative Extension Systems have fewer agents and specialists, they need to work across states to share information and learning opportunities.
- If the goal of Extension is to build deep and long-term relationships with clientele, the organization should enhance incentives to retain agents and specialists long-term.
- Extension agents/specialists’ professional development should equip employees with the tools and experience necessary to meet farmer learning preferences and needs.

### Agents/Specialists

- Extension agents and specialists should expand their role in building relationships with farmers and agencies that may require learning group process and facilitation skills.
- Extension’s educational program delivery should reflect farmer’s preferred learning styles. (i.e.: use interactivity more often and other methods less often)
- Farmers have many sources available to them for educational information. Agents/specialists can enhance the motivation for farmers to place a priority on Extension information by adding incentives to educational programs (i.e. pesticide safety credit, meals, have quality speakers, etc.)

- Farm visits made by agents/specialists are important to initiate and maintain farmer relationships.
- Extension agents and specialists should use the Internet for learning for the 73% of farmers who indicated they preferred this learning method.
- Extension agents and specialists need to facilitate on-farm research, farmer and industry relationships, and farmer networking.
- Extension should provide focused newsletters for specific agribusinesses rather than general “one size fits all” content.
- One-on-one and face-to-face educational delivery is highly-valued by agents and specialists. They have less time for field visits than in the past, so they need to develop volunteers to expand their work.
- Eroding Extension budgets are compromising the ability to meet preferred farmer learning needs, therefore new partnerships need to be built to maintain and expand farmer relationships and learning.
- Extension agents and specialists need to realize that farmers are not highly motivated to attend meetings unless their needs are directly and specifically addressed.

The overall lesson learned from this research is that Extension agents and specialists need to not only be experts but to be an architect of learning processes and environments that directly meet farmer’s needs.

### **Conclusion**

The How Farmers Learn: Improving Sustainable Agriculture Education research project provided the opportunity for farmers to voice directly their learning preferences to influence and improve Extension educational program development and delivery. A farmer’s desire to remain viable and innovative can be met in part, through effective Extension agent and specialist professional development that results in educational programs, both content and processes aligned with farmers’ preferred methods of learning.