

**How Farmers Learn:  
Improving Sustainable Agriculture Education**

**Nancy K. Franz, Ph.D., Principal Investigator**  
Professor/Extension Specialist  
Virginia Tech

**Fred P. Piercy, Ph.D., Co-Investigator**  
Associate Dean  
Virginia Tech

**Joseph Donaldson, M.S., Co-Investigator**  
Extension Specialist  
University of Tennessee

**Jessie Deelo, M.S., Co-Investigator**  
Graduate Student  
Harvard University

**Johnnie Westbrook, M.S, Co-Investigator**  
Graduate Student  
Virginia Tech

**Robert Richard, Ph.D., Louisiana Project Coordinator**  
Department Head and Professor  
Louisiana State University

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**Table of Contents**

**Acknowledgement** ..... 2

**Executive Summary** ..... 3

**Overview**..... 3

**Research Project Objectives** ..... 3

**Research Team** ..... 3

**Methodology** ..... 4

**Findings** ..... 4

*How do farmers prefer to learn?* ..... 4

*What are Extension faculty’s perceptions of how farmers learn?* ..... 5

*How are agents’/specialists and farmers’ learning preferences different from each other?* ..... 6

*What should Extension faculty change or reinforce in teaching methods or educational experiences to align with farmer preferences?* ..... 7

*What motivates farmers to learn?* ..... 8

*Other Findings about Teaching and Learning*..... 8

*Changing Demographics and Nature of Extension Work*..... 8

*Age* ..... 8

**Implications**..... 9

**Conclusion**..... 10

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## How Farmers Learn:

### Improving Sustainable Agricultural Education

#### Executive Summary

##### Overview

This project examines how farmers prefer to learn and what that means for agricultural education, especially Extension educational program development and delivery. Extension educators 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 farmer learning preferences and Extension educator's instructional methods.

##### Research Project Objectives

###### *Objectives from Year Two*

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.
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 will 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

###### **Nancy K. Franz, Ph.D., Principal Investigator**

Dr. Franz is a Professor/Extension Specialist for Program Development with Virginia Cooperative Extension at Virginia Tech in the College of Agriculture and Life Sciences Department of Agricultural and Extension Education. She has over 25 years of experience working with Extension in Wisconsin, New York, New Hampshire, and Virginia. She received her Ph.D. from Cornell University in Agriculture, Adult, and Extension Education.

###### **Fred P. Piercy, Ph.D., Co-Investigator**

Dr. Piercy is the Associate Dean of Graduate Studies and Research within the College of Liberal Arts and Human Sciences at Virginia Tech. He has over 30 years of experience in the field of

marriage and family therapy in Indiana, Texas, Florida, Indonesia, and Virginia. He received his Ph.D. from the University of Florida in Counselor Education.

### **Joseph Donaldson, Co-Investigator**

Mr. Donaldson is an Extension Specialist for Program Planning and Evaluation with the University of Tennessee Extension. He has 10 years experience working with Extension in Tennessee. He received his M.S. in Agricultural and Extension Education from the Pennsylvania State University, and he is a Ph.D. student in Educational Psychology at the University of Tennessee, Knoxville.

### **Jessie Deelo, Harvard University Graduate Student, Co-Investigator**

Ms. Deelo is a graduate student in Environmental Management at the Harvard Extension School in Cambridge, MA. She established the organic agriculture research and outreach program for Virginia Cooperative Extension in 2007 and has over 10 years of experience with sustainable agriculture initiatives in Wisconsin, Colorado, Vermont, and California. She earned her MS at the University of California-Davis in International Agricultural Development.

### **Johnnie Westbrook, Virginia Tech Graduate Student, Co-Investigator**

Mr. Westbrook is a PhD student in Agricultural and Extension Education at Virginia Tech. He is studying Extension programming at 1890 Land Grant institutions. He has been an Extension agent and agricultural education instructor in North Carolina.

### **Robert Richard, Ph.D., Louisiana Cooperative Extension, Louisiana Project Coordinator**

Dr. Richard is Department Head and Professor with the Louisiana State University AgCenter. He works with Extension professionals and administrators on program development, evaluation, and reporting.

## **Methodology**

Six focus groups were conducted with 55 agricultural producers and Extension agents and specialists in Tennessee. Focus group participants completed a survey on preferred learning methods. Each focus group was facilitated by Joseph Donaldson. Observations were recorded during each focus group by Mr. Donaldson and members of the project steering committee in Tennessee.

## **Findings**

### *How do farmers prefer to learn?*

Forty-eight farmer focus group participants completed a worksheet and discussed the ways they prefer to learn in two categories: 1) prefer and 2) do not prefer. Farmers were split on their preference for show and tell, diagramming, interviews, lecture, letter, and TV.

The top five preferred learning methods by participating farmers are:

1. hands-on (100%),
2. demonstration (100%),
3. farm visit (96%),
4. discussion (92%), and
5. one-on-one (88%).

The following comments from Tennessee producers illustrate these preferences:

“I just think when you do something yourself you retain it better.”

“Once someone shows me I can basically do it.”

“I like farm visits, going to see other peoples. As a lot of us get older we kind of set in our ways. We want to do things one way but a lot of people have a lot better and easier and a more profitable way...”

Finally, five ways farmers do not prefer to learn are:

1. games (85%),
2. comics (83%),
3. role playing (79%),
4. radio (69%), and
5. lecture (52%).

### *What are Extension faculty's perceptions of how farmers learn?*

Surveys completed by six of seven Extension agents and specialists showed their perceptions of farmers' learning preferences, and their instructional delivery methods used with farmers.

These surveys revealed that agents and specialists believe farmers prefer to learn using:

1. workshop (100%),
2. Q&A (100%),
3. one-on-one (100%),
4. meeting (100%),
5. hands-on (100%), and
6. farm visit (100%).

However their most preferred ways of teaching farmers included:

1. demonstration (100%),
2. fact sheet (100%),
3. farm visit (100%),
4. field day (100%),
5. hands-on (100%),
6. meeting (100%), and
7. workshop (100%).

Tennessee agents and specialists indicated in the survey they believed farmers least preferred the following teaching methods:

1. CD/DVD (100%),
2. comics (100%),
3. game (100%),
4. interview (100%),
5. lecture (100%), and
6. role playing (100%).

However, the agents surveyed said they least prefer to teach farmers using:

1. tv (100%),
2. phone (100%),
3. show and tell (83%),
4. role play (83%),
5. radio (83%),
6. interview (83%),
7. game (83%), and
8. diagramming (83%).

One focus group agent commented, “I think the first shot is usually you know is trying to find the information, whether it’s a neighbor, or let’s say a farm, supply store, or whether it’s an extension agent. They look for information. Some are using the Internet now to look for information. I’ve had several lately that say I really searched this on the Internet to see what I could find. And then they call us [Extension Agents] to verify what they found or to get you know for more information on it.”

### *How are agents’/specialists and farmers’ learning preferences different from each other?*

The focus groups and surveys show that farmers and Extension agents and specialists are similar in their preferred learning/teaching methods. But methods used often depend on the individual agent and specialist, the context, or the farmer’s type of business, as shown in these comments from Extension Agents:

“You cannot talk about pruning over the phone. Ok, you cannot tell them how to prune....do a demonstration and come out and do a hands-on demonstration....hands-on show them exactly what they need to do, explain, and let them go through a demonstration, and then also let them do it.”

“[I] still prefer [teaching farmers with] the phone over email....a lot of times you send an email, you never have confirmation whether they got it or not. And when you are talking to them, you can still kind of feel their attitudes and know if they are really stressed out over this. You know a lot times the problem we have is that farmers get information from somebody that’s not correct and they do what they were told. And then they call us to say what would you suggest on here and we give them our information.”

Both farmers and agents/specialists valued workshops, meetings and experiments differently as instructional tools or learning methods. Extension agents more often preferred to teach using workshops and meetings whereas farmers tended to indicate a preference for experiments and discussion. Finally, over half of the farmers used the Internet in their work and very rarely were Extension agents/specialists using the Internet as a teaching method. Farmers' described how they use the Internet as one of multiple sources of information, and they appreciated the Internet's convenience, for example:

“If it is real specific with disease and stuff like that I go on the Internet, and if I am still lost I'll call up the UT Extension.”

“What I like about the Internet is the fact that you can do 24/7. You can do it at midnight or whatever...”

The agents realized that they need to increase their use of the Internet in working with farmers.

### *What should Extension faculty change or reinforce in teaching methods or educational experiences to align with farmer preferences?*

Focus group participants agreed education is often not about the information being delivered but the agent or specialist relationship with the farmer. Some focus group participants do not value information and resources from agents not experienced with their agribusiness enterprises. Unless the agent demonstrates experience and expertise in the field, some farmers resist engaging with agents and Extension education. This was especially true for the organic farmers.

Results from the five farmer focus groups demonstrate participating farmers want:

- one-on-one attention on the farm,
- agents who provide information they need,
- agents to facilitate information gathering and analysis, and
- agents to create networks between agricultural groups and service providers.

Farmers also want Extension to:

- be a “neutral” organizer to build farmer-to-farmer networks,
- work with agribusinesses and agencies to share information and opportunities to farmers,
- remain an unbiased source and mediate if needed,
- translate information and help farmers apply it to their operations,
- help farmers save time and money,
- provide educational programs that include economic feasibility,
- be on the cutting edge and relevant to the farmer,
- be sensitive to all types of agribusiness,
- know the audience they are working with and align educational efforts accordingly,
- provide assistance and advice to improve marketing,
- be available for immediate problem-solving (phone, email, in-person, etc.)

- offer on-farm, local demonstrations, but agents have a perception that the burden needs to be reduced for the host farmer.

### *What motivates farmers to learn?*

Farmer learning is motivated by saving time, increasing profitability, and social networking according to all the farmer focus groups (see the figure below). Farmer learning is also motivated by the desire to be on the cutting edge in their field. Innovation is a driving force, especially among young farmers and organic farmers, who are more connected to multiple markets, local community issues, and complexities of modern farming.

### *Other Findings about Teaching and Learning*

Content and methods need to be relevant to the audience, considering:

- Amount of farming experience
- Level of formal education
- Geographic location

One farmer stated that “Most experts are over my head, and when they start blowing smoke, they have lost me.” Another farmer described the difference between two expert opinions he had sought, and he summarized the importance of localized education by stating: “One of them is local and he knew what you needed to know.”

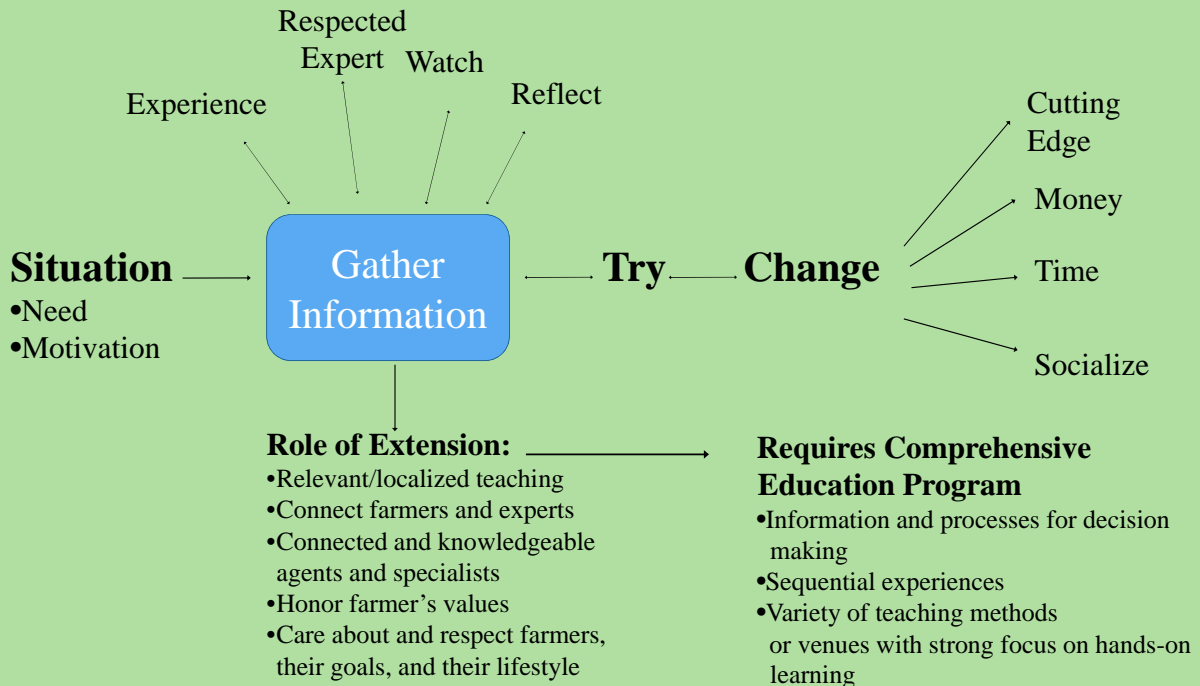
### *Changing Demographics and Nature of Extension Work*

- All communities (rural, urban and suburban) are changing due to migration
- Less traditional farmers and farms, yet increasing demands from new audiences
- Increasing demands from hobby farmers, retirees, and homeowners
- Wider, more diverse audience (not necessarily production agriculture)
- Increased public demand for locally and naturally grown food
- Agents having less time for on-farm visits and demonstrations

### *Age*

The average age of the producers was 48, and the producers’ preferences for learning methods were not tied to age, however, three trends were noted for newspaper, Internet and television. Of producers 50 and older, 74% prefer newspaper, compared to 36% of those 49 and younger. Of producers 60 and older, 38% prefer online/Web-based compared to 74% of those 59 and younger. Also, of producers 60 and older, 61% preferred television, compared to 39% of those 59 and younger.

# 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.

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## 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:

- Extension agents and specialists should explore the Internet for the farmers who use this technology.
- Extension agents and specialists need to facilitate research, industry relationships, and farmer networking.
- Extension agents and specialists should expand their role in building relationships with farmers and agencies.

- Extension's educational program delivery should reflect farmer's preferred learning styles. (i.e.: use lecture and Power Point less often and interactivity more often)
- Extension needs to give new agents time to build relationships with key farmers.
- New agents need a deep local orientation with key contacts to be socialized into farmer networks.
- New agents need to spend a few days shadowing farmers to create relationships with farmers and industry representatives.
- New agents need people skills and not just a focus on sharing information. Agents need to understand that book knowledge is not as important as building relationships with a local community.
- Agents need to be good generalists and trained in areas outside their specialty to meet a wide variety of farmer's needs.
- Farm visits made by agents are important to initiate and maintain farmer relationships.
- New agents need to be freed from bureaucratic duties for several months to build relationships and get to know the local context.
- Extension should spend more time on focused newsletters for specific agribusinesses rather than general "one size fits all" content.
- Extension should conduct problem analysis first, and education second. As one agent noted, "You have people that are not sure what their problem is because they are new to the business or the industry. So, they don't even know how to describe to you over the phone what their problem is. So, the only way for you to handle it, is to see it in person."

### Conclusion

The How Farmers Learn: Improving Sustainable Agriculture Education research project provides the opportunity for farmers to directly voice 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 aligned with farmers' preferred methods of learning.