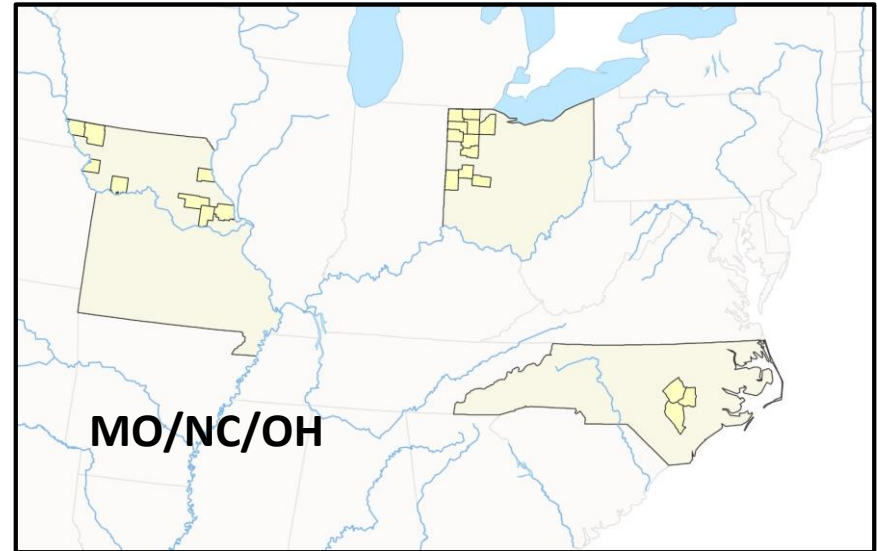
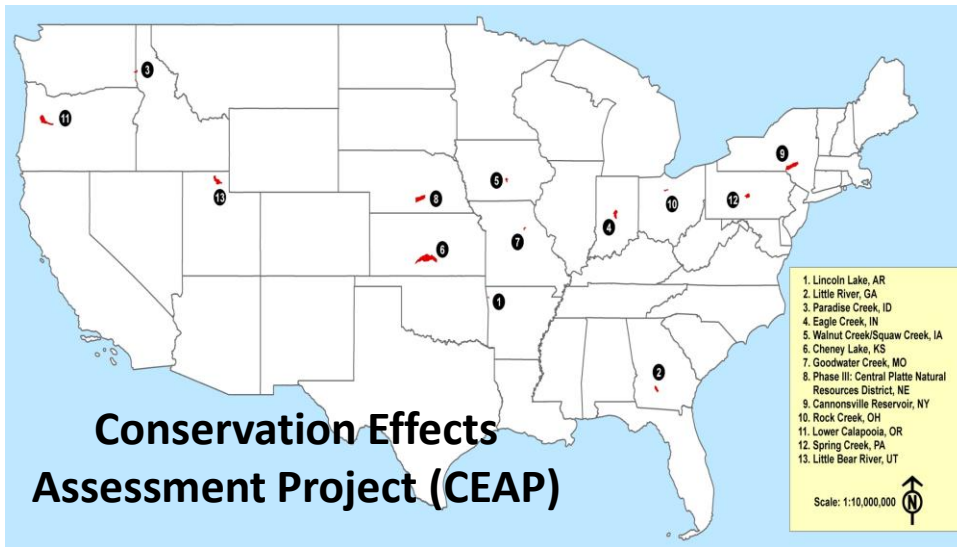
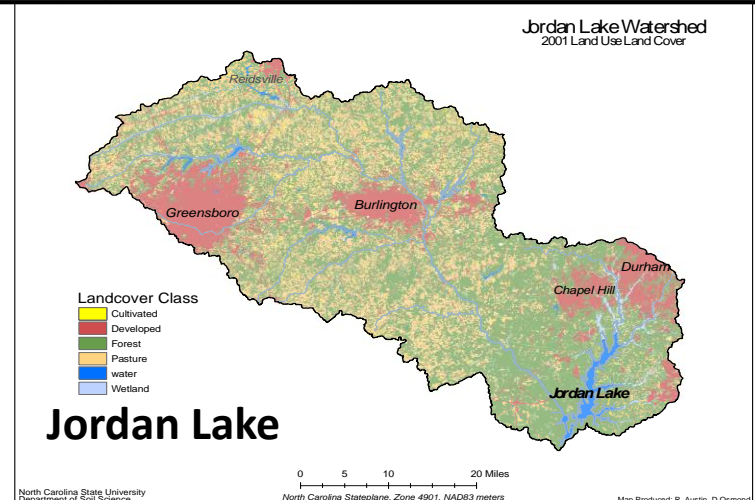


# Farmers and Conservation Practice Adoption



Deanna Osmond, NC State University,  
Department of Crop and Soil Sciences



# Methodology: Collect Information

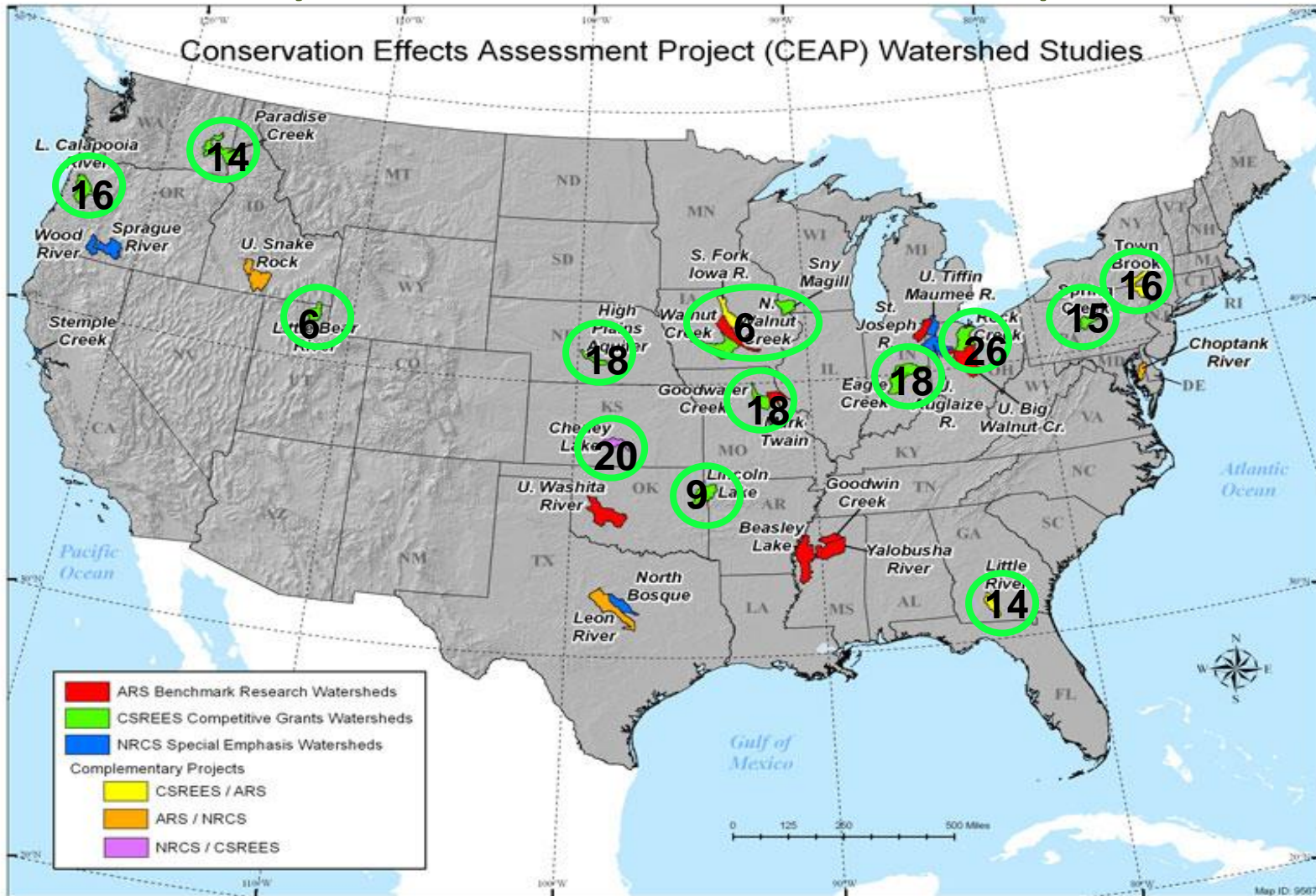
## Key informant survey

- Receive IRB
- Develop survey
- Identify participants
- Interview participants, including recording and transcription
- Analyzed transcription
- Finalize key informant information

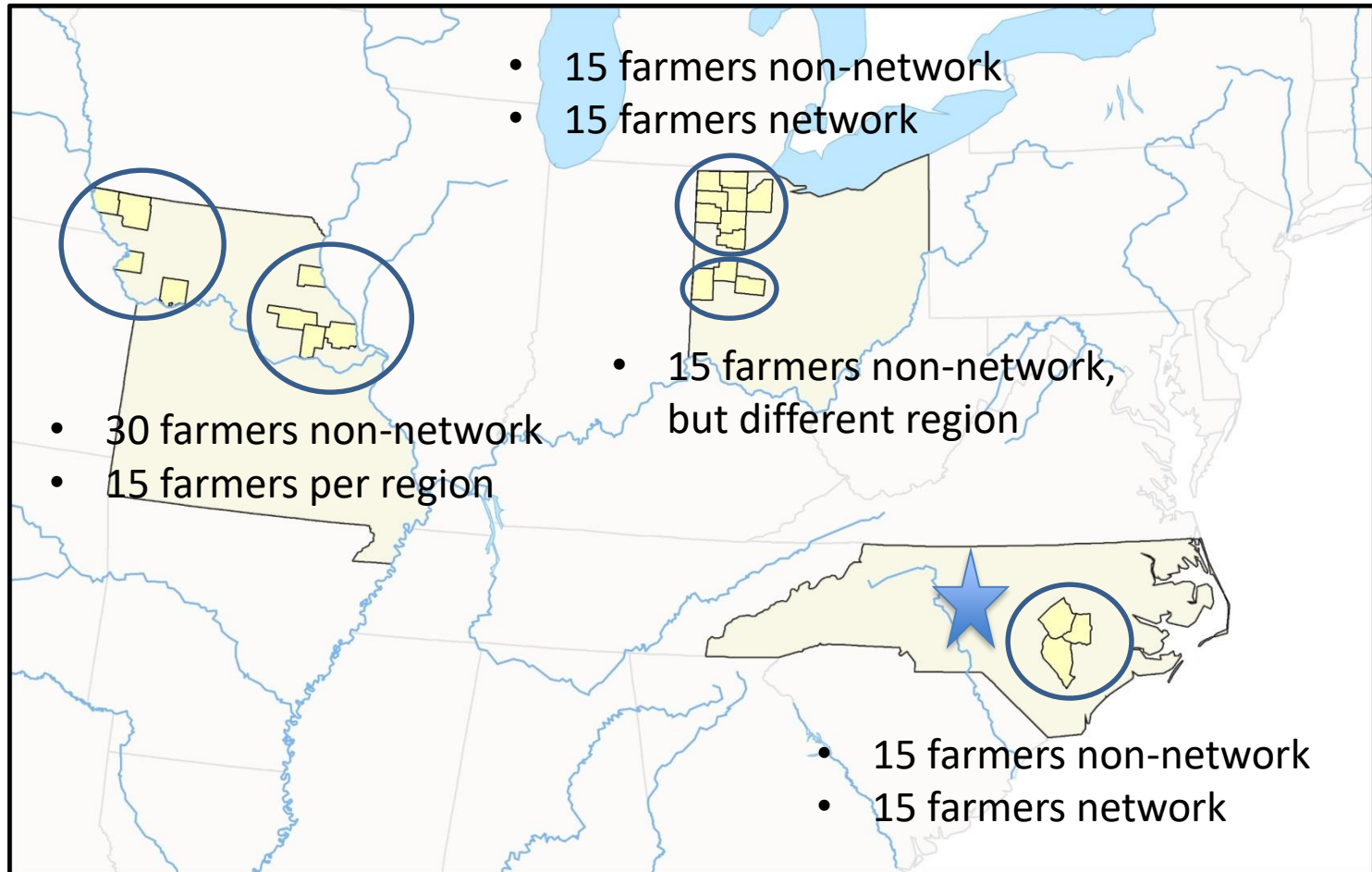
## Who was interviewed?

- CEAP
  - Project personnel (33)
  - Agency personnel (61)
  - Producers (34)
  - Community leaders (22)
  - Agribusiness (24)
- MO/NC/OH
  - Geographical distribution
  - Networks/non-networks
- Jordan Lake
  - Ranchers
  - Farmers
  - Small farmers

# Number of Key Informants Interviewed per Watershed



# MO/NC/OH: Distribution of Farmers





# Key Informant Survey: Questions

Question 1: *Every agricultural region is a bit different. What makes the place and people where you live unique?*

Question 2: *What are the most critical water quality concerns in your watershed?*

Question 3: *Many factors make conservation practices work, or not work. Given your experiences, which conservation practices are being used in this watershed? Which ones work best? How would you measure the success of these practices?*

Question 4: *Where do you receive information about or obtain help for conservation practices?*



# Key Informant Surveys: What We Found





# Overarching Conclusion

Conservation practice adoption is a multivariate choice and although economics are exceptionally important, there are many other factors that are part of the decision-making process.



Cannonsville Reservoir (NY CEAP)



Photo by Don Meals, Kansas CEAP 2010

# CEAP: Is Lack of Knowledge the Problem?

- Understanding of water quality problems differed across constituencies
  - federal agency personnel – 83%
  - Soil and Water Conservation personnel - 67%
  - producers, people working for watershed associations, and university personnel - 70%
  - local agency personnel and local residents - 60%
  - local business men and women - 41%
  - local government -17%





# CEAP: What Conservation Practices Are Used and Work Best?

- Practices focused on visual impacts - sediment
- Predominant practices used
  - conservation tillage
  - terraces
  - grassed waterways
- A few projects installed riparian areas, including livestock exclusion and buffers
  - ***Buffers were the most disliked practice***
    - producers had the following sentiment “no one makes money on buffers because they take my most valuable land out of production.” (GA, KS, OH)
  - Buffers may take too much land out of production to be rentable



# All: Where Do Farmers Receive Their Information?

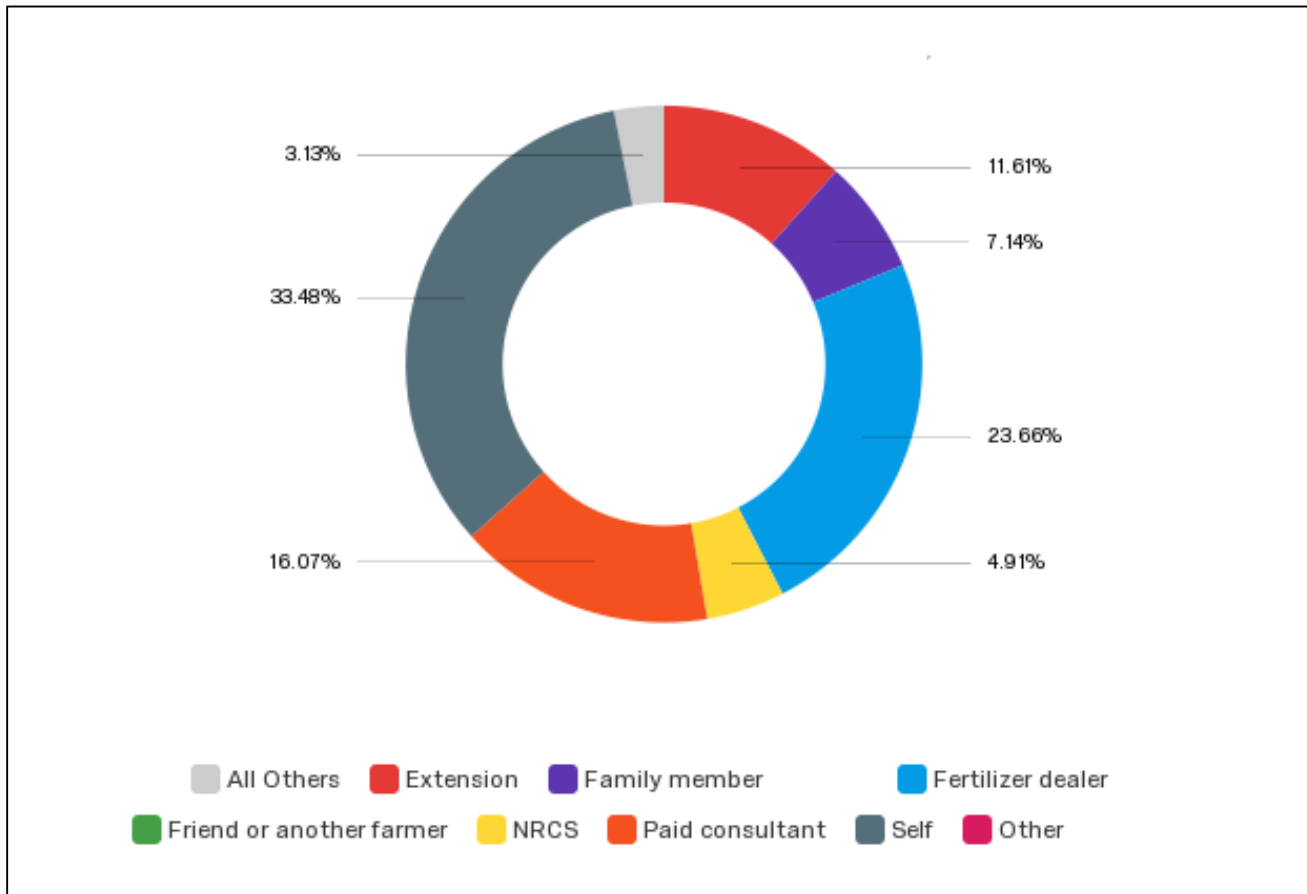
Farmers obtain their information from:

- other farmers
- farmer-to-farmer programs
- self research
- suppliers
- agency personnel (Extension, Soil and Water, NRCS)
- magazines, field days, grower meetings



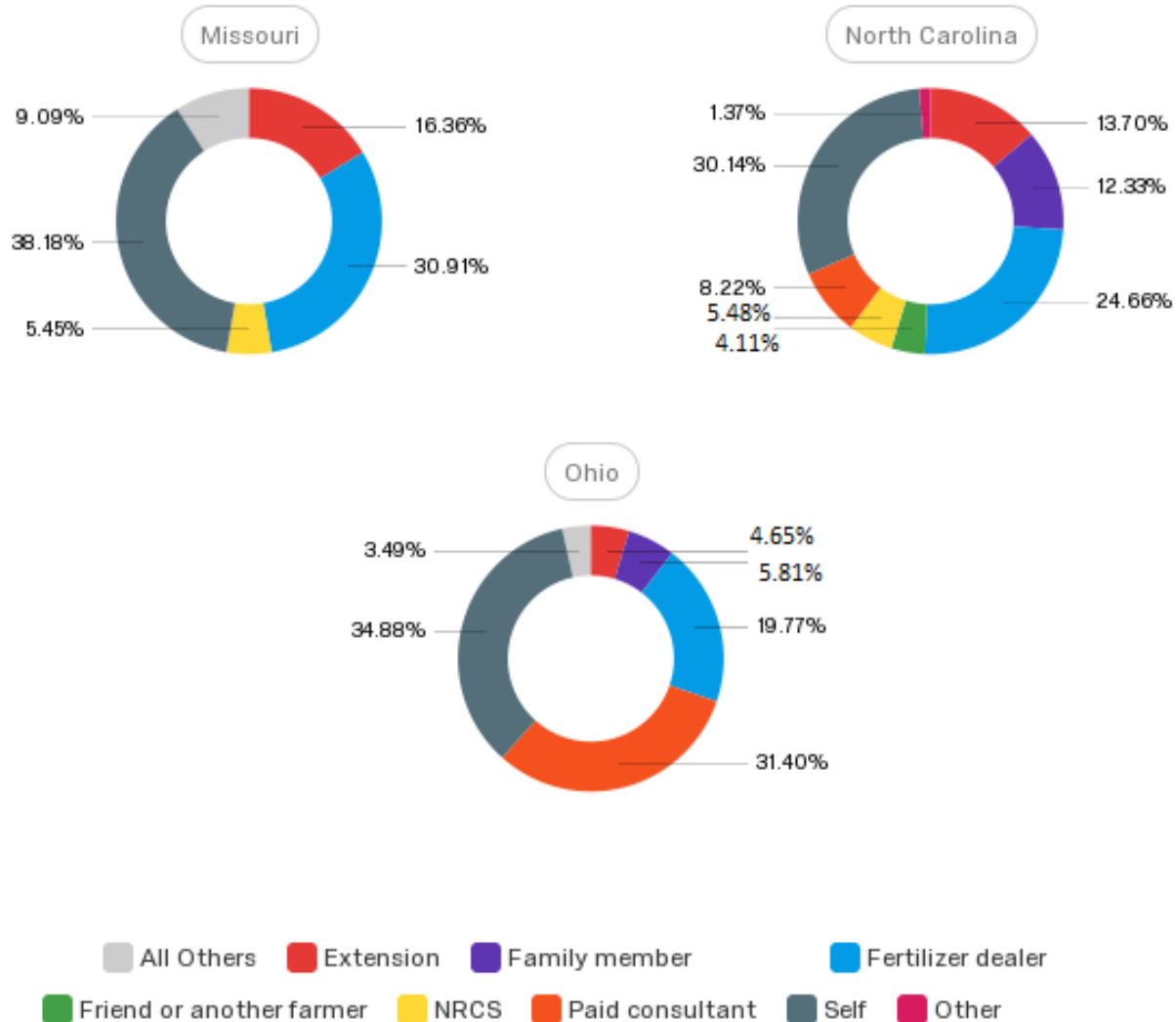
Cannonsville Reservoir Watershed farmer and extension agent (NY)

# MO/NC/OH: Importance of Social Networks for Fertilizer Decision-making: All Farmers





# MO/NC/OH: Social Networks for Fertilizer Decision-making: By State



# All Projects: Where Do Farmers Receive Their Information?

- Local trusted advisor increased adoption
  - official from Extension, Soil and Water, or NRCS
- Reduction in technical assistance
  - “... a lot of the USDA programs became so program driven and administrative, I didn’t feel like I could continue to serve our customers with enough technical information.”
  - “Office of Management and Budget turned NRCS into people that implement programs rather than solve problems.”



Cheney Lake Watershed farmer (KS)

# CEAP: Agency View of Farmer Education

- Agency personnel believe farmers receive their information from
  - agency personnel
  - field days, workshops, meetings, and flyers produced by agency personnel





# CEAP: Why Did Farmers Accept Practices?

## Economics of Practices

- *Conservation practices must be cost effective and convenient -*  
“conservation competes with the time the farmer could be using to make money”
- Cost share needs to cover a significantly larger share than at current
- High crop prices compete with conservation
- Conservation practices are a business decision



Buffer in Eagle Creek Watershed (IN)

# Conservation Practice Continuation

Even after conservation practices have been adopted, continue to work with farmers on maintenance and sustained use of the practices.



Little Bear River (UT CEAP)



# Jordan Lake: Exclusion Fencing or VFS Embraced as a Major Conservation Practice

- Soil and Water Conservation Districts began offering around the mid-1990's
- 62% identified it as a practice
- 55% of landholders reported identifying exclusion fencing as a practice, implemented this practice on their pasturelands





# Jordan Lake: Demographics and Adoption of Vegetative Filter Strips

Demographic Variables	Conservation Tillage	Exclusion Fencing	Nutrient Management
	<b>P values</b>		
Age	0.07	<b>0.87</b>	0.97
Years in Community	0.37	<b>0.54</b>	0.37
Hectares farmed	0.31	<b>0.22</b>	0.25
Hectares owned	0.82	<b>0.30</b>	0.24
Education	0.24	<b>0.44</b>	0.44
Farmer type	0.46	<b>0.16</b>	0.79
Agriculture income	0.53	<b>0.74</b>	0.59
Rank of agricultural income	0.80	<b>0.56</b>	0.86

# Jordan Lake: Enhancers to Adoption of Exclusion Fencing

Social Networks <sup>†</sup>		Identity and Beliefs <sup>‡</sup>	
Factors	Frequency Referenced	Factors	Frequency Referenced
Educators, experts and mentors	44	Environment, stewardship and water quality	53
Neighbors, peers and community members	13	Utility/benefit for farmer & farm	53
Immediate family & relatives	11	Good farming or “the right thing to do”	46
Education, courses	8	Autonomy and regulations	37

# Jordan Lake Survey Results: Lack of Adoption for Exclusion Fencing

- Reasons for Lack of Adoption of Exclusion Fencing or VFS
  - aesthetics (unkempt, poor stewardship, and generally an eyesore)
  - one long-time farmer reflected on his aversion saying,  
*“I guess a lot of it is my management style too-I'm a stickler for neatness. So some of our conservation things don't look very neat. That kind of bothers me to a degree. Like the buffer strip that they wanted us to put along the fence. Well, if we put that buffer strip along the fence then we couldn't maintain the fence. So that just didn't fit in the line with what I considered keeping the farm neat and in order. Looking tidy.”*



# Factors Affecting Conservation Acceptance and Use

## **Cost-share is necessary but not sufficient**

- Economic incentives often required for adoption of conservation practices not obviously profitable or fitting with current farming systems
- Ease of use or management
- Type of practice – structural
- Conservation practices that have multiple benefits
- Ability to see the pollutant
- Threat of regulation
- Changes in technology
- Belief system of farmer
- Age of farmer
- Family dynamics
- Land ownership: type and length of lease
- Additional partners providing resources

# Bring the Discussion Back to Vegetative Filter Strips: A True Adoption Story



# Bring the Discussion Back to Vegetative Filter Strips: Landscape and Hydrology Matter





# Bring the Discussion Back to Vegetative Filter Strips: Multi-ecosystem Services





# Questions

**Thanks To our social scientists:**

**Caela O’Connell, UNC-Chapel Hill and Al Luloff, PSU (retired)**

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