

Understanding Trends in Farmer BMP Adoption

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Background

Soil loss and declining soil health are of heightening concern to Wisconsin farmers, policymakers, and citizens as these issues can be detrimental to profits and yields and can damage water quality through sedimentation and nutrient loading. Best Management Practices (BMPs) are ecologically sensitive alternatives to conventional farming practices that can mitigate soil loss, but their effectiveness is still debated.



Research Questions

1. Which incentives do farmers find to be effective in easing their transition to BMPs?
2. How interested are farmers in participating in education programs?
3. To what extent are farmers currently using BMPs?
4. Which variables and factors influence adoption of BMPs?

Methods

A survey with open ended, Likert scale, and multiple choice questions was sent to Wisconsin farmers via email, mail, and farm visits. Data was analyzed using regression analysis, correlation analysis, and other basic statistical tools.

Figure 1: Response Rates

Medium	Sent	Bounce-backs	Delivered	Returned	Response Rate
Qualtrics (e-mail)	459	74	385	74	19.22%
Mail	448	28	420	59	14.05%
Farm Visits	65	0	65	10	15.38%
Total	972	102	870	143	16.44%

Figure 2: Farm Size and Farm Type Representation within Sample



Results

Incentives

Figure 3: Mean Rating of Incentive Helpfulness in Easing Transition to BMPs

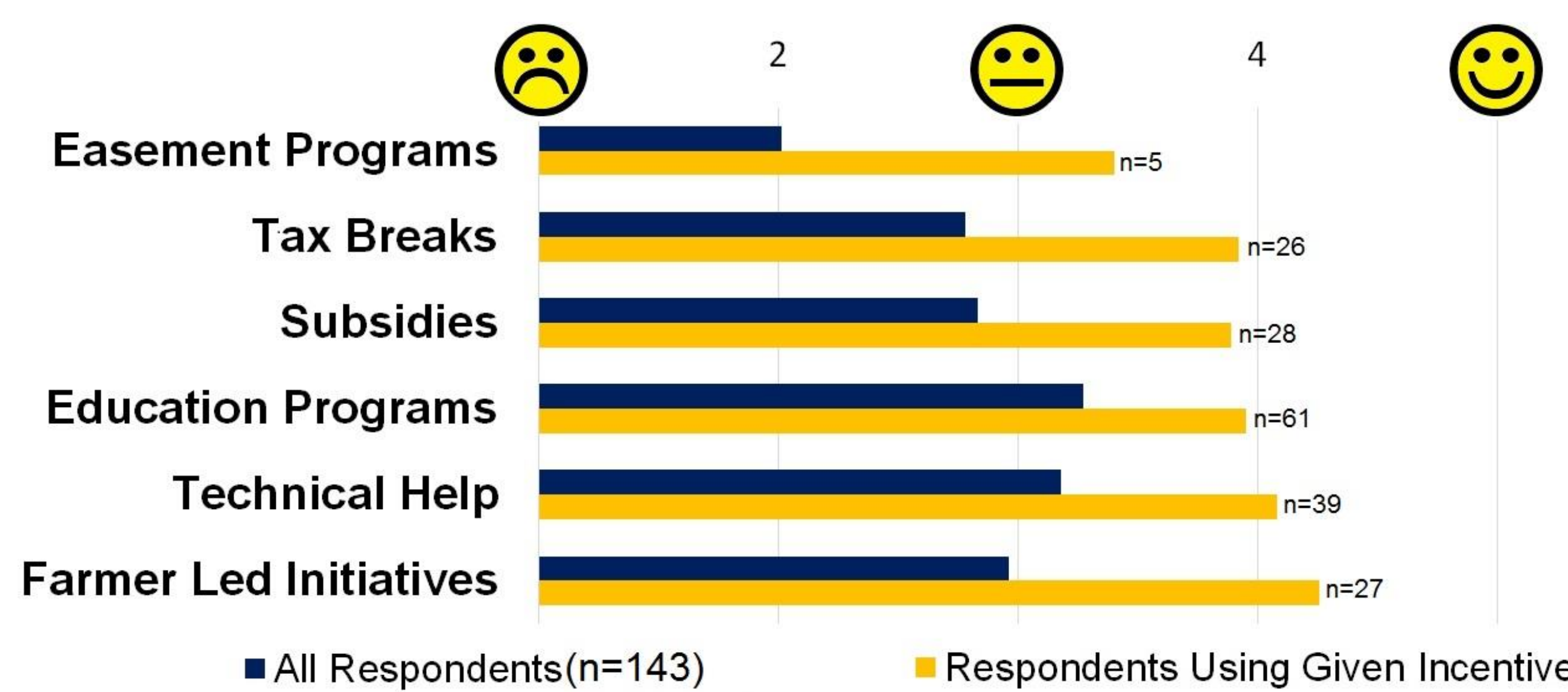
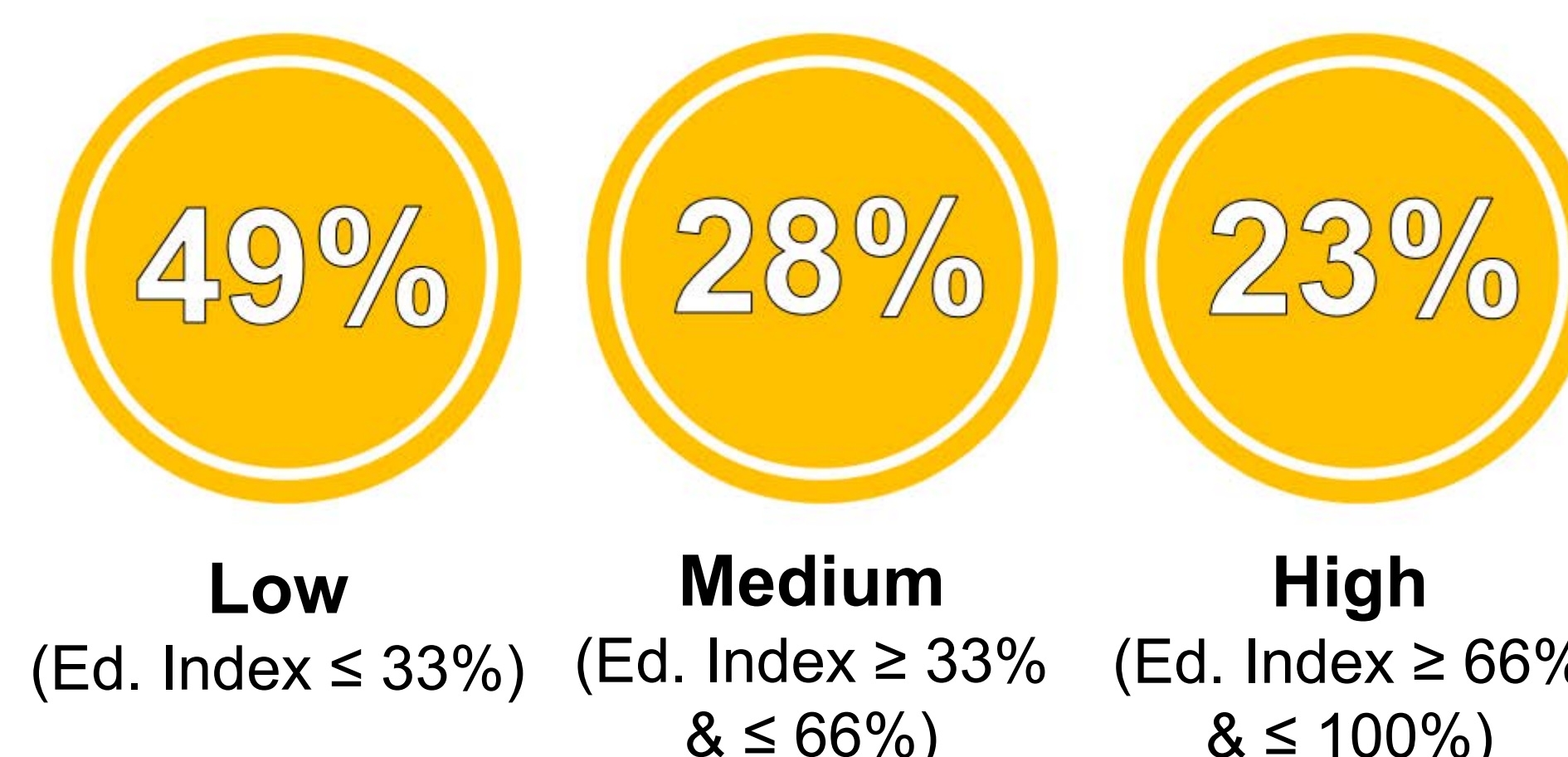


Figure 4: Incentives Rated At Least "Somewhat Helpful" in Easing Transition to BMPs by Farm Size and Farm Type

Incentive	Farm Size			Farm Type			
	Small	Medium	Large	Crop	Crop & Livestock	Livestock	Specialty
Easement Programs							
Tax Breaks							•
Subsidies			•		•	•	•
Education Programs	•	•	•	•	•	•	•
Technical Help	•	•	•	•	•	•	•
Farmer Led Initiatives		•	•	•	•		

Education

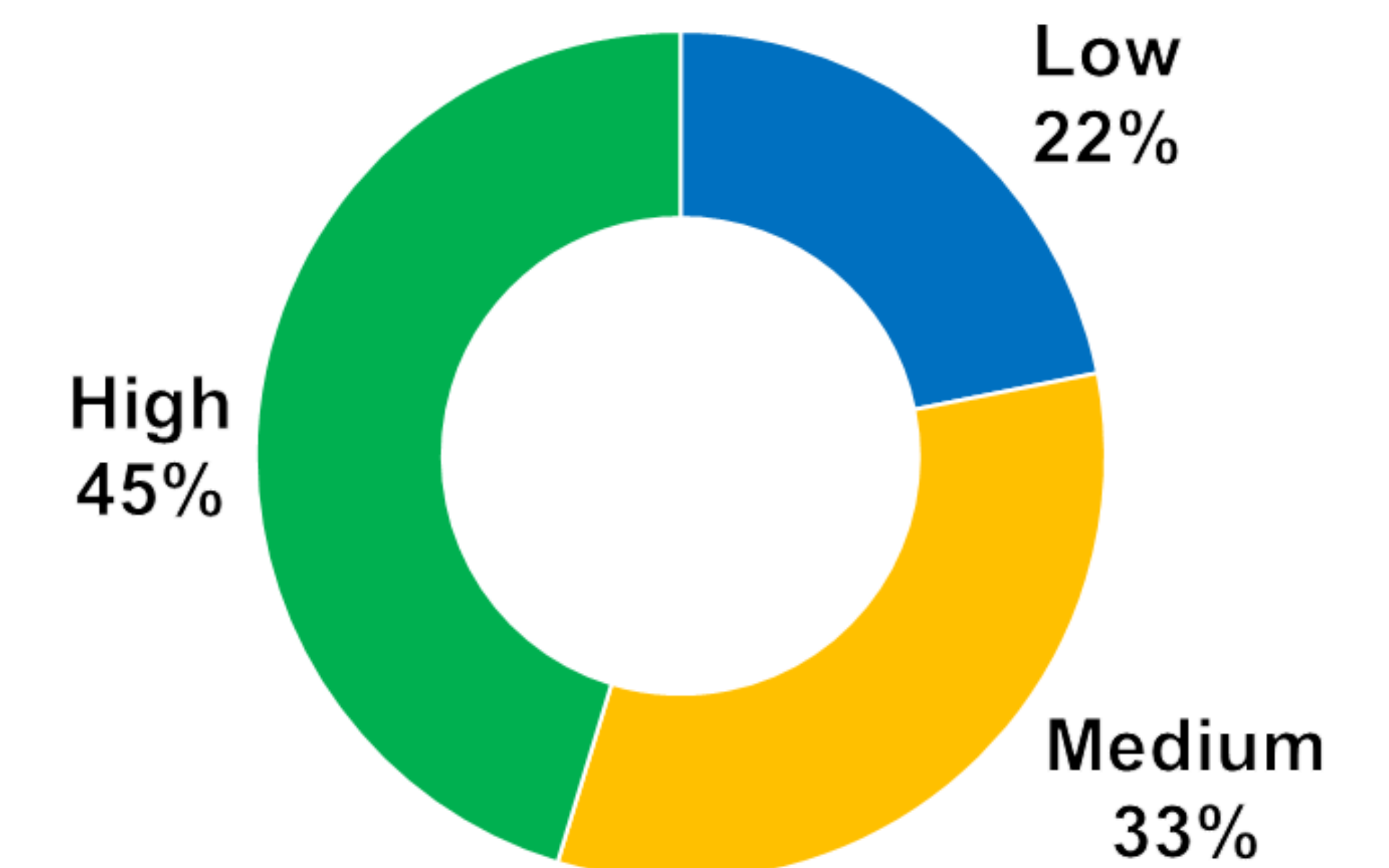
Figure 5: Farmer Interest in Education Programs (n=143)



- Index measures overall interest in education programs relevant to the particular farmer, including measurement of past participation in programs.
- Education program topics: soil health/management, water management, livestock management, conservation agriculture techniques, economic projections, and attendance at regional/national conferences.

BMP Adoption

Figure 6: Rates of Farmer BMP Adoption (n=143)



Regression Analysis of BMP Adoption

$$BMP\ Adoption = f(\text{Incentive use, Frequency of soil testing, Farm type, Farm size, Past participation in education programs, Education, Age, Children})$$

Key findings:

- For each additional incentive a farmer uses, their BMP adoption increases by **3.2%** (sig=0.061).
- For each unit increase in the frequency of soil testing, BMP adoption increases by **7.2%** (sig=0.004).
- Those farmers in younger age cohorts increase their BMP adoption by **6.1%** (sig=0.006).
- Farmers that have children have a BMP adoption rate that is **9.5%** higher than that of farmers without children (sig=0.090).

R² = 0.3469

Other Significant Findings

- On average, the prospect of **increased profits and yield in the long-run** encourages farmers of all farm types to adopt BMPs.
- **Current policies** are generally perceived to have a more negative than positive impact on BMP adoption.
- **Capital costs** generally hinder farmers from adopting BMPs.