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# Farmers' Adoption of Conservation Strategies for Nutrient Management and Water Quality Protection in Louisiana



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# Motivation..

- Louisiana Master Farmer Program is involved in nutrient stewardship and resource conservation
- Phase I, Phase II, RMS plan are part of the certification
- RMS plan – about adoption of BMPs to mitigate resource concerns
- BMPs adoption is based on more than costs and returns
- Adopted practices (BMPs) might/might not address the concerns



# Know what's out there ...



- Farmer's perspective on BMPs adoption
- The effect of BMPs on environmental consequences
- What differed among adopters and potential adopters



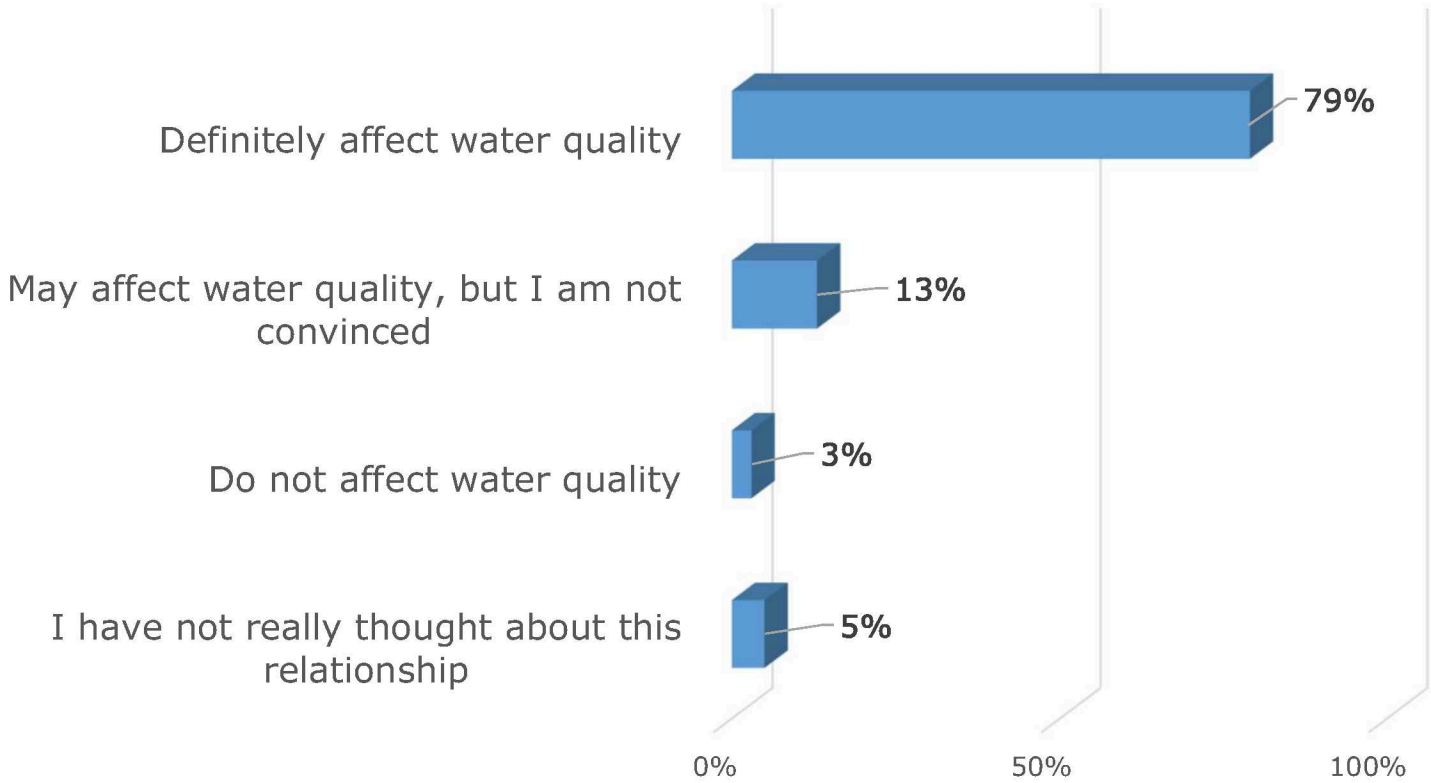
# What we found out....



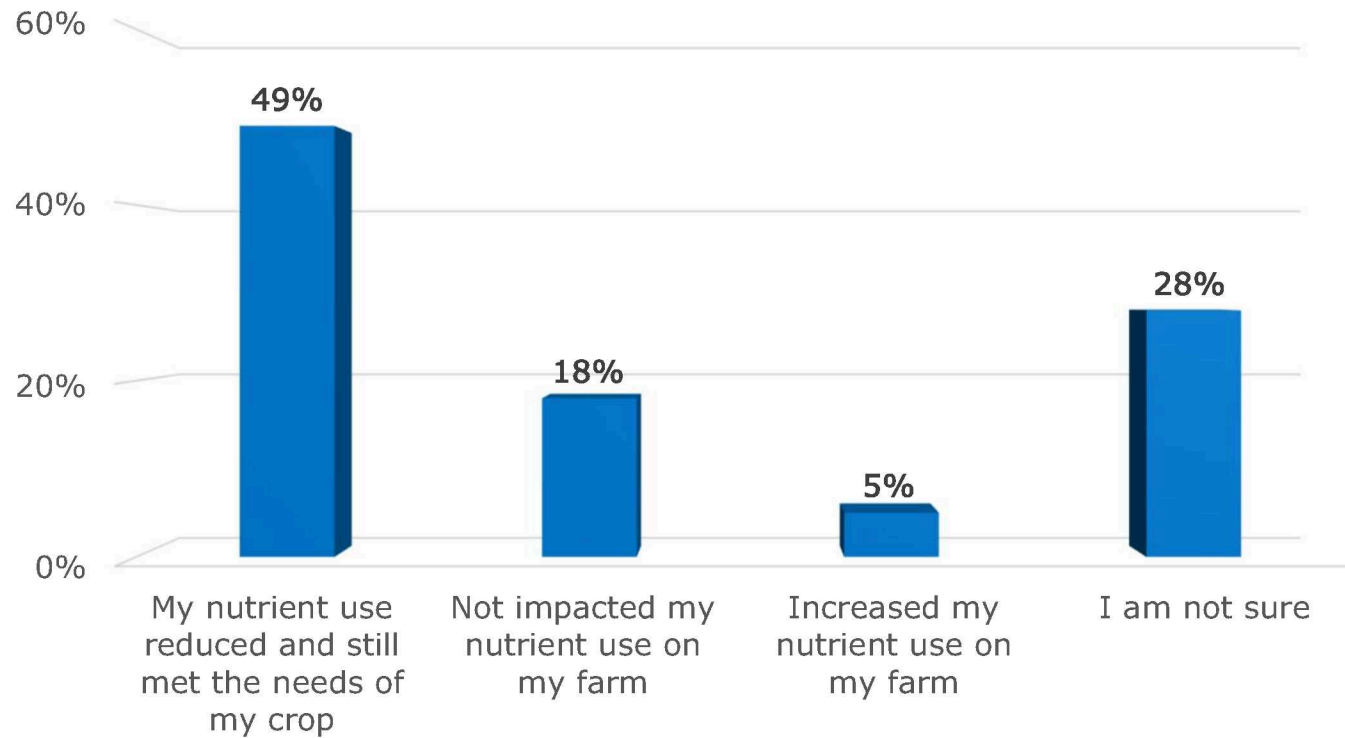
- Farmers often adopt practices that can address multiple resource concerns
- Adoption of interrelated conservation practices presents a long-term strategy, beyond short-term economic gains
- Little incentive to report



# Beliefs about the relationship between farming practices and water quality (n = 124)



## Beliefs about use of nutrient management practices (n = 103)



### Summary Statistics for Frequency of Adopting the BMPs

Number of Practices	Soil mgmt. practices	Water Mgmt. practices
	Freq.	Freq.
0	18	24
1	6	7
2	10	12
3	5	12
4	5	17
5	5	7
6	14	11
7	12	8
8	15	5
9	7	1
10	4	1
11	4	
<b>Mean</b>	<b>5</b>	<b>3</b>



# Method..



- Most literature treats adoption of soil conservation and water efficiency practices as separate decisions
- ignoring the complementarity might underestimate or overestimate the influence of factors on decision-making
- Bivariate probit, which considers two dichotomous decisions simultaneously and depicts these decisions as interdependent
- provides information on the type of producer who would adopt a specific technology under the two conservation strategies.



Estimation Results of Bivariate Probit Model

Explanatory Variables	Response Variables			
	SOIL_MGMT		WATER_MGMT	
	Coefficient	Standard Errors	Coefficient	Standard Errors
<i>ATTITUDE</i>	0.929*	0.555	0.123	0.537
<i>CROPSONLY</i>	0.985**	0.425	1.251***	0.421
<i>LANDOWNED</i>	-1.000**	0.444	-0.416	0.411
<i>CROPACRES</i>	0.565	0.360	0.204	0.359
<i>ENROLLED</i>	0.888**	0.370	1.426***	0.397
<i>LSUNRCS</i>	0.537	0.340	0.176	0.342
<i>FARMINGYEAR</i>	-0.950**	0.470	-0.418	0.434
<i>INCOME</i>	0.604	0.425	-0.023	0.404
<i>EDUCATION</i>	0.529	0.466	0.766*	0.459
<i>AGE</i>	-0.154	0.472	-0.420	0.467
<i>Constant</i>	-0.817	0.607	-0.456	0.607

Log-Likelihood = -56.460

Rho ( $\rho$ ) = 1.0 \*\*\*

Number of observations = 105

Note: \*, \*\*, and \*\*\* denote significance at 10%, 5%, and 1% levels, respectively. Standard errors reported.



# Call for action...



- The significant role of ownership on adoption of practices suggests strengthening institutions to accelerate adoption among farmers renting land for farming.
- Facilitating young farmers and ranchers participation in conservation programs
- Emphasis on adoption of a package of practices that would address multiple resource issues.





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acres, not in hours**

**Thankyou!!!**

