

Factors Affecting the Adoption of Best Management Practices in the Inland Northwest

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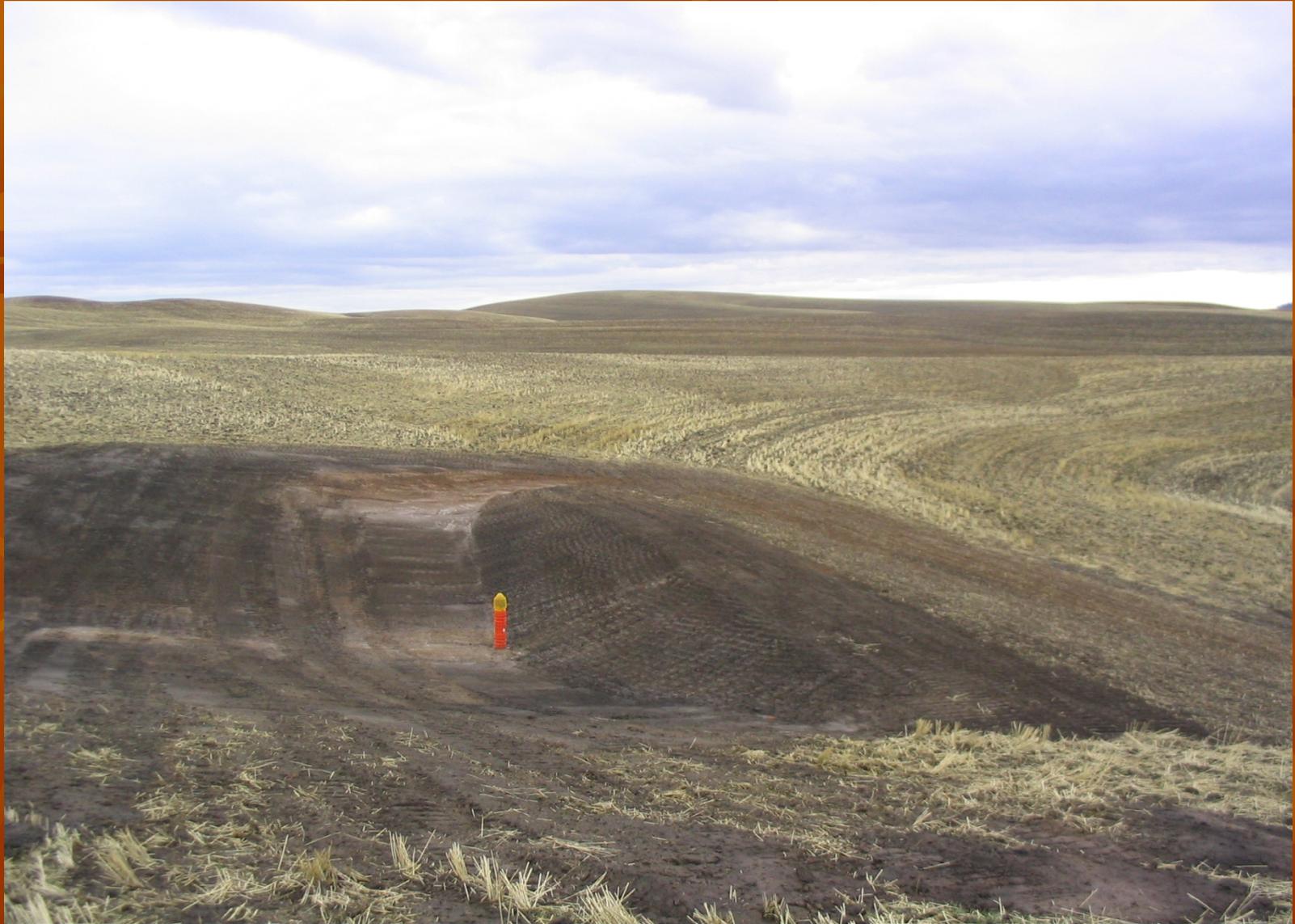
Objective

- To identify the motivations and barriers related to the adoption of selected BMPs by farmers in the Inland Northwest.

Four BMPs



Gully Plugs



Strip Cropping



Buffer Strips



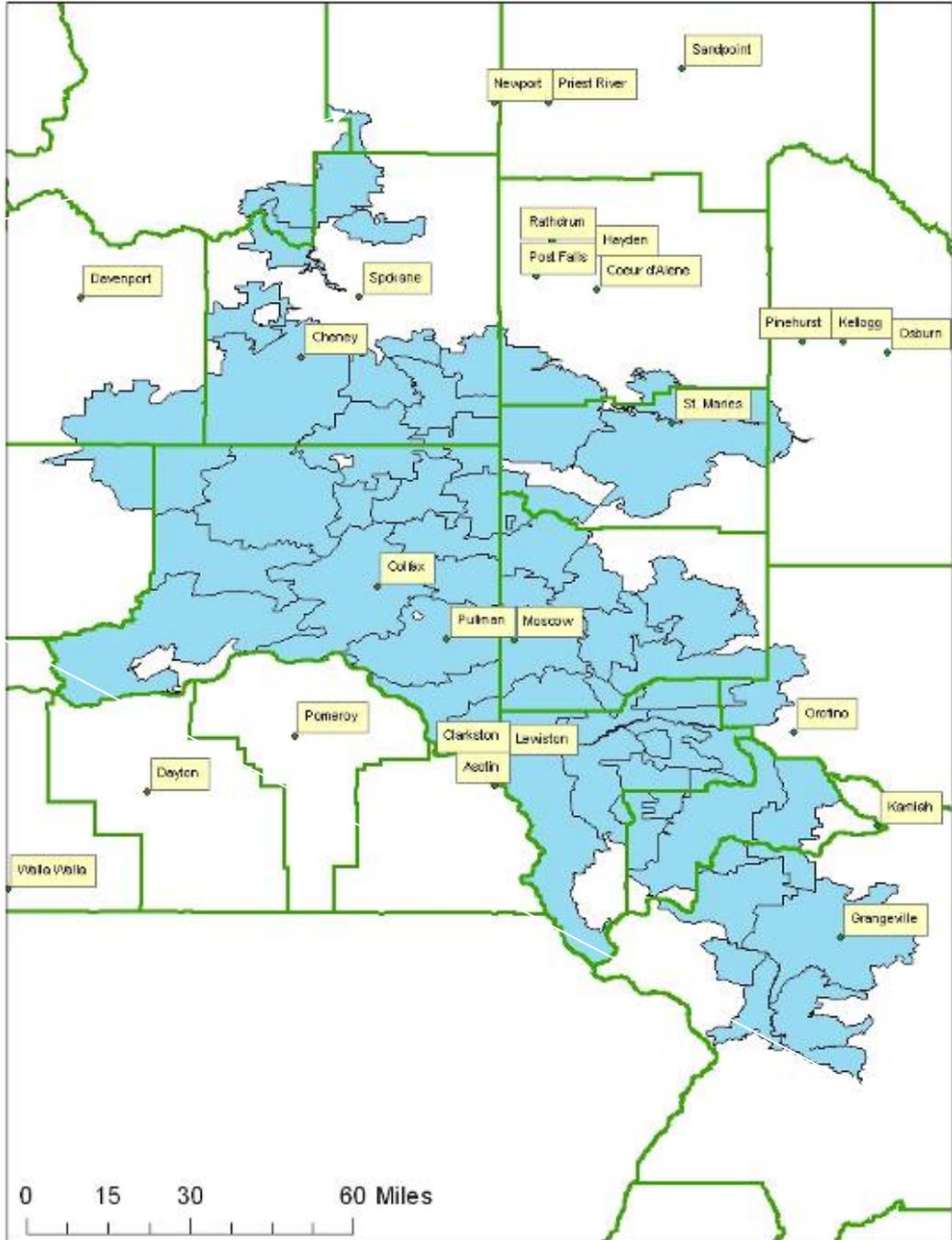
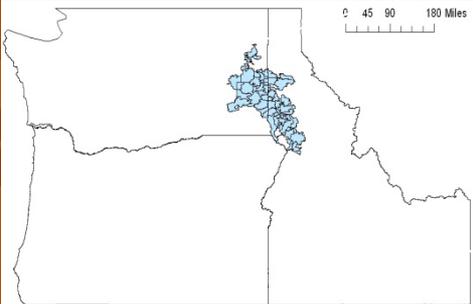
Contour Tillage



Data and Methods

- Mail survey (Dec 2006 - March 2007)
- Conducted by the UI SSRU
- Random sample of farm households
 - ID & WA sub-sampling regions
- Population of 1,504—narrowed to 1,000
 - 554 completed surveys (55% adj. resp. rate)

Survey Region with county boundaries





Model

- Adoption (use) of BMPs
 - 1 = none
 - 2 = some
 - 3 = often
- is a function of:
 - Demographics of decision-maker
 - Physical characteristics of land
 - Attitudinal factors
 - Economic factors

Model

- $\text{ADOPTION}_{ij} = f ($
 - ❖ Perceived effectiveness of practice (Effectiveness)
 - ❖ % of land in each Slope category (Slope)
 - 0 – 5% slope
 - 6 – 15% slope
 - >15% slope
 - ❖ Total acreage on farm (Totacres)
 - ❖ Percentage of leased land (Leaseperc)

Model

- $ADOPTION_{ij} = f ($
 - ❖ Primary decision maker (DecisionM)
 - ❖ (yourself or others)
 - ❖ Years of managing farm operations (Managing)
 - ❖ Full-time or Part time (FT)
 - ❖ Level of education (Education)
 - ❖ Financial stress (Finstress)
 - ❖ (none to severe)

Model

- $\text{ADOPTION}_{ij} = f ($
- ❖ **Regulatory requirements** make instillation of BMPs not worth the possible benefits ($D_{\text{construct}}$)
- ❖ Importance of **cost of implementation** in conservation decisions ($D_{\text{implementing}}$)
- ❖ Importance of **cost of maintenance** in conservation decisions ($D_{\text{maintenance}}$)

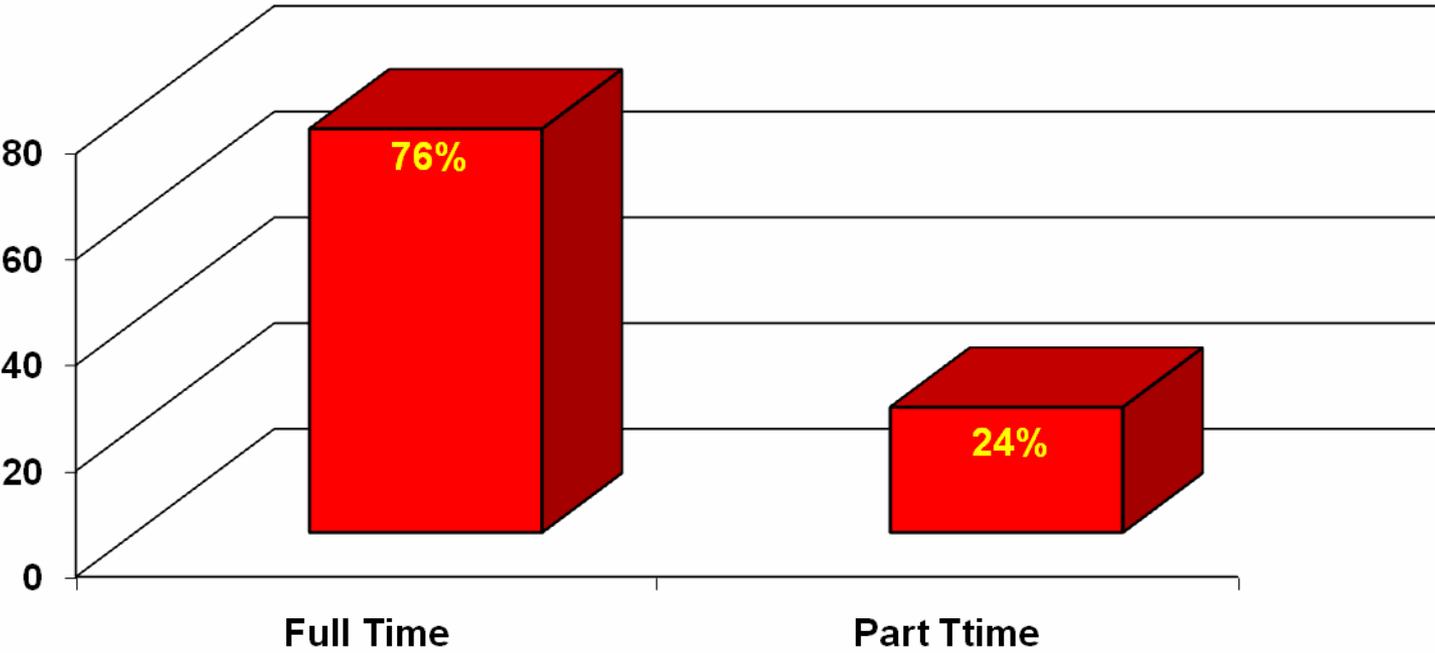
Model

- $ADOPTION_{ij} = f($
 - ❖ Importance of the risk of not **continuing a lease** in conservation decisions (DLeaserisk)
 - ❖ Importance of the **landowner's willingness to invest** in conservation practices (Dlandowner)
 - ❖ Leaseperc*DLeaserisk (XLease)
 - ❖ Leaseperc* Dlandowner (XPCentL)

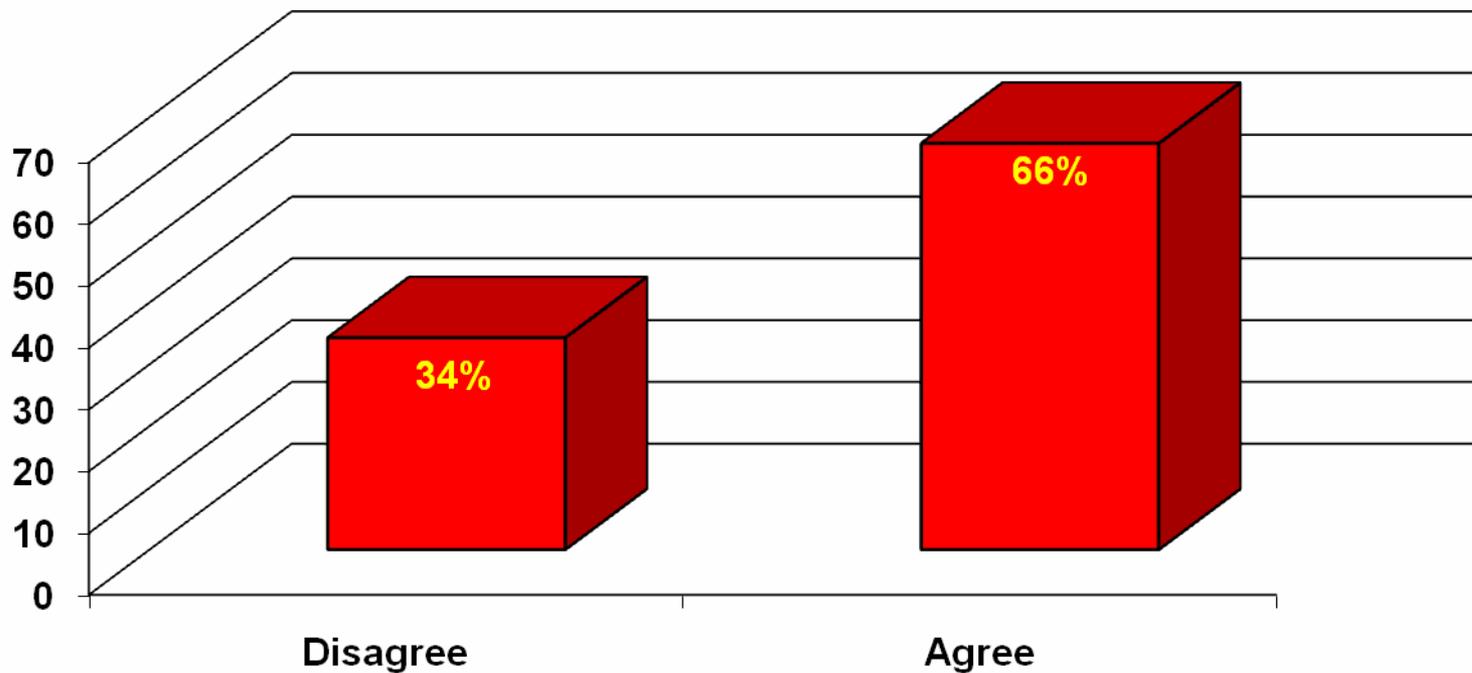
Results

	Mean	Min	Max
Total Acres	1,590	8	24,500
% Leased	48%	0%	100%
Years Managing	28	1	65

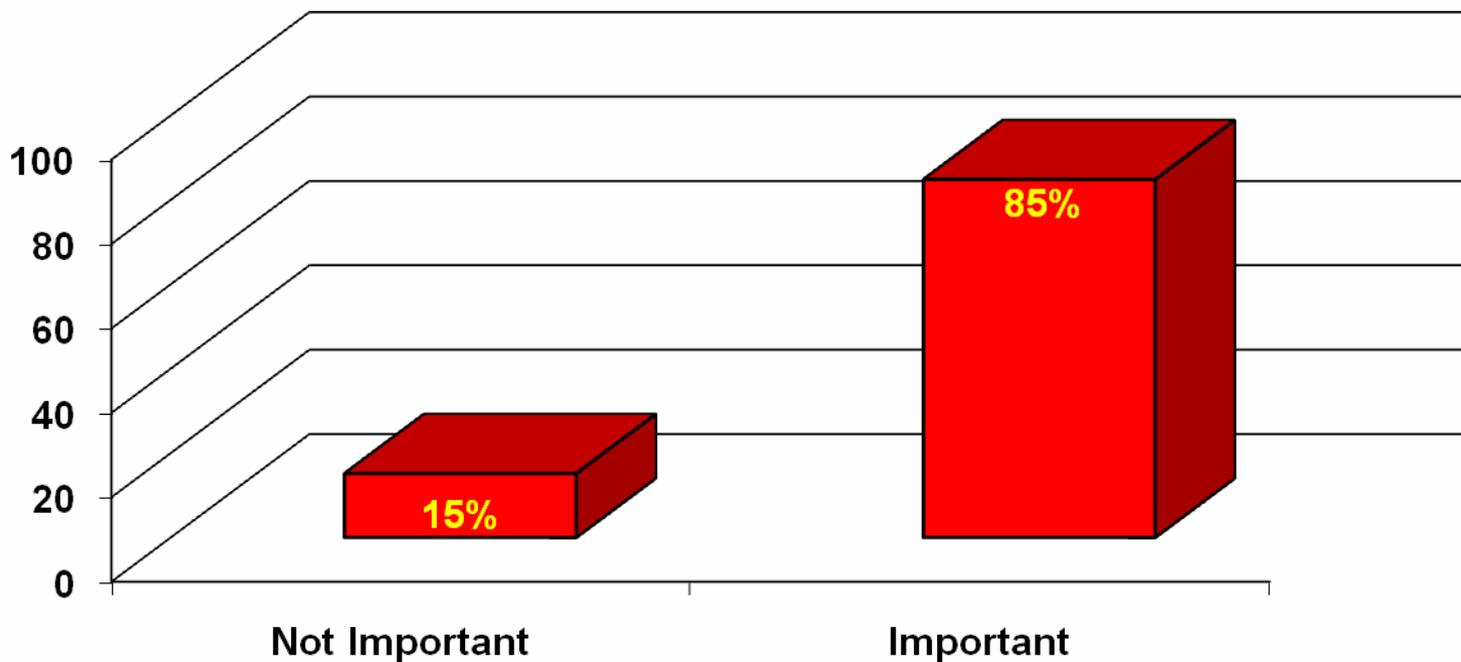
Operator Full-Time or Part-Time



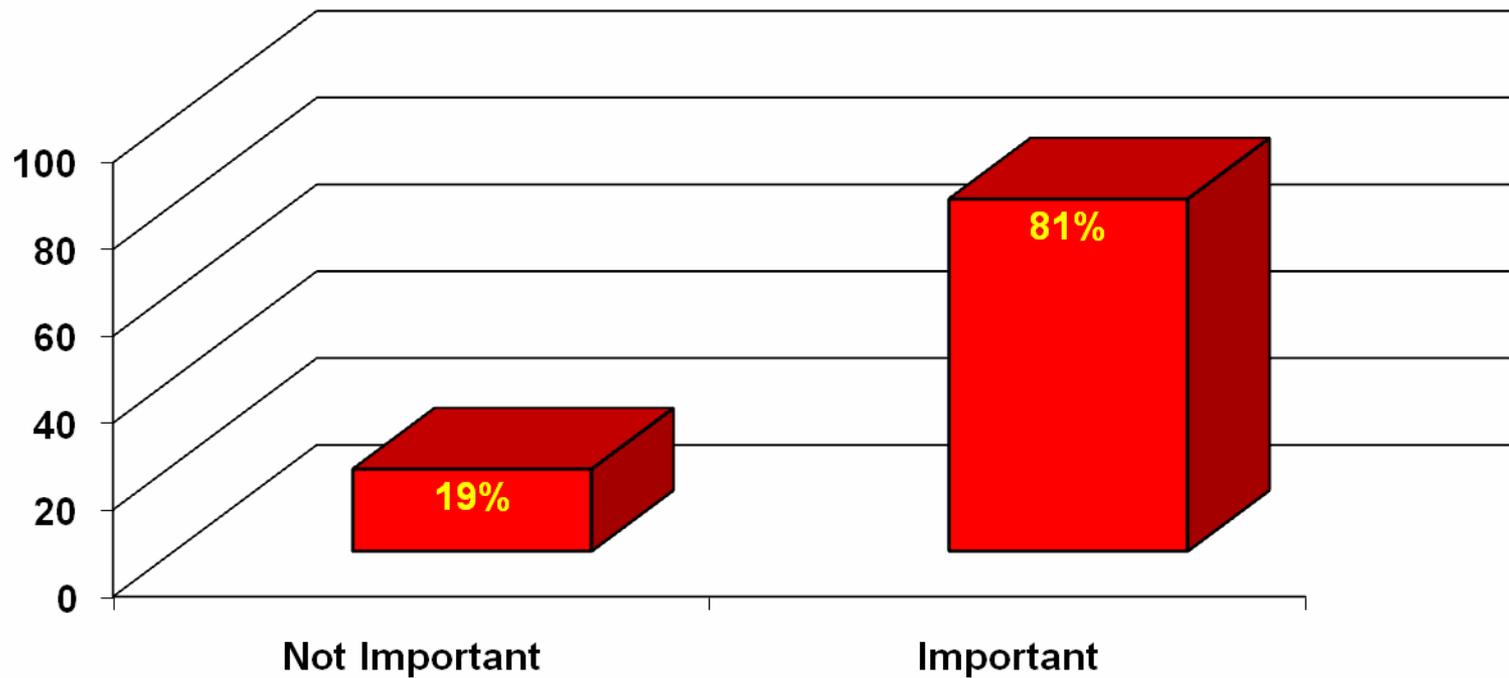
Regulatory Requirements Make Installation Not Worth Possible Benefits



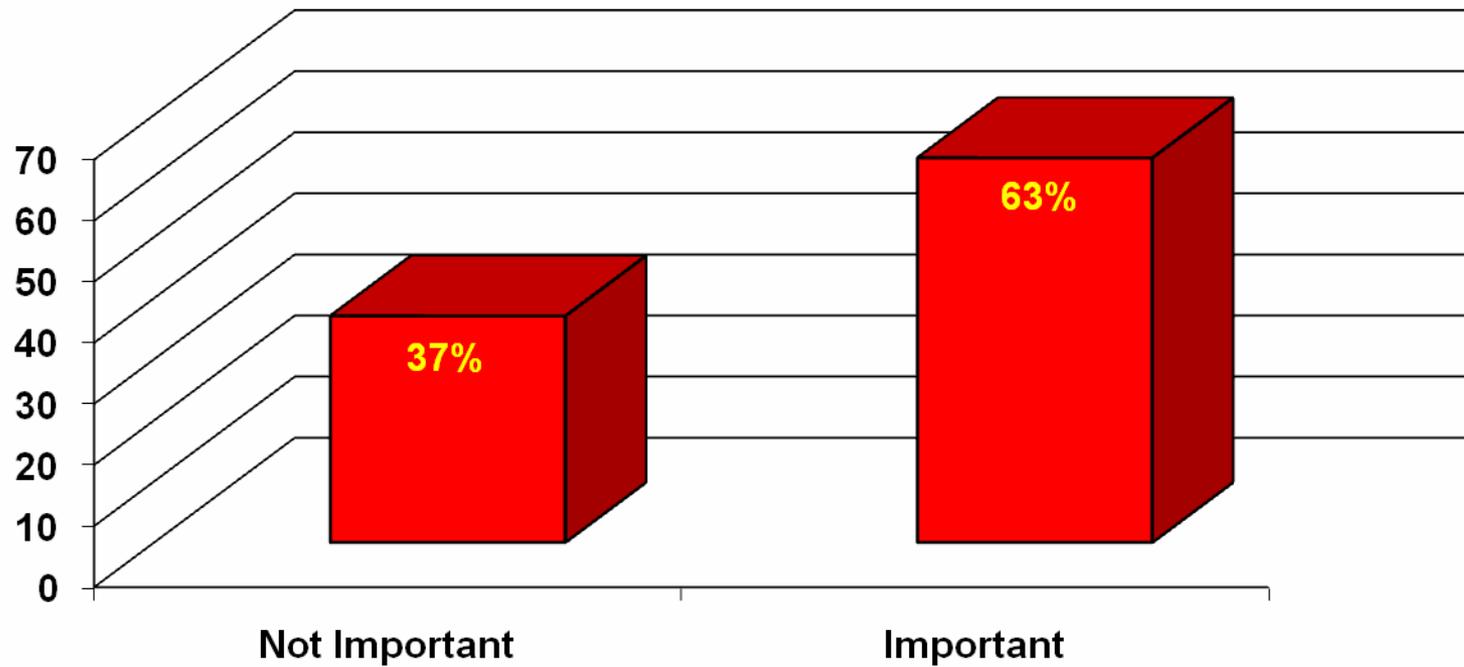
Importance of “Cost of Implementation” in Conservation Decisions



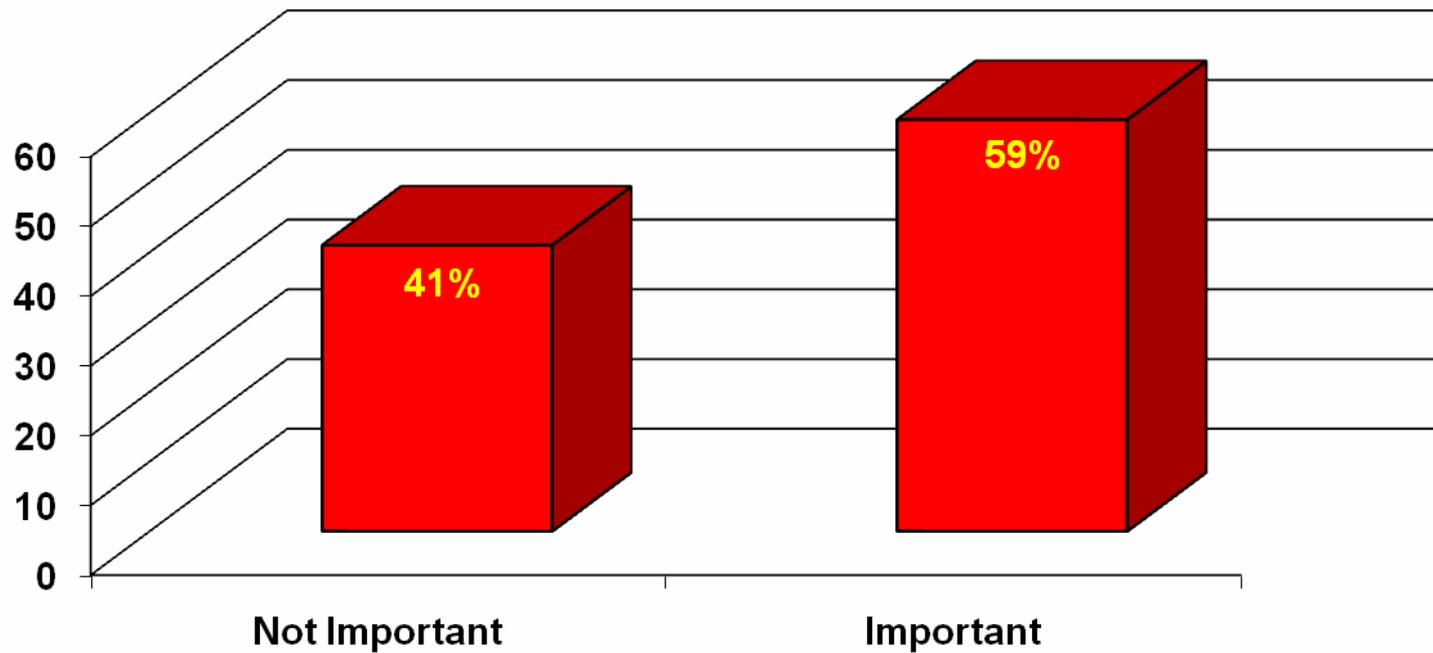
Importance of “Cost of Maintenance” in Conservation Decisions



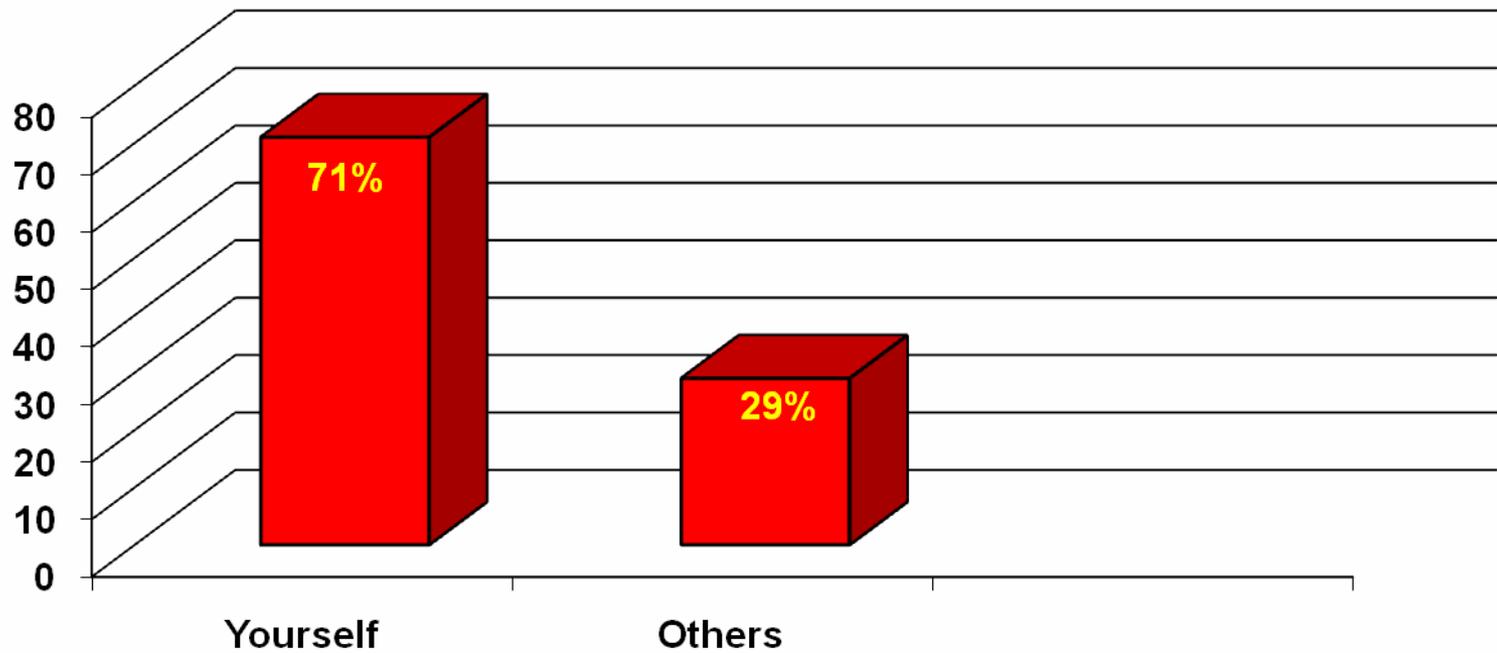
Importance of “Risk of Loosing Lease” in Conservation Decisions



Importance of “Landowner Willingness to Invest” in Conservation Decisions



Who is the Primary Decision-Maker Regarding Conservation Practices



Percent of Operators That Use This Practice “Often” (and Perceive Effectiveness as “High”)

	Slope 0-5%	Slope 6-15%	Slope > 15%
Gully Plugs	4% (19%)	9% (25%)	9% (31%)
Strip Cropping	10% (17%)	14% (24%)	21% (36%)
Buffer Strip	15% (33%)	19% (36%)	20% (45%)
Contour Tillage	67% (51%)	74% (55%)	80% (63%)

Results

BMP Usage	Effect Low	Effect High	% Slope	% Leased	Total Acres	Years Managing
GP None	-	+	-	+	+	+
GP Some	-	+	+	+	+	+
GP Often	-	+	+	+	+	+
SC None	-	+	-	+	-	+
SC Some	-	+	-	-	-	+
SC Often	-	+	+	-	-	+
BS None	-	+	-	-	+	-
BS Some	-	+	+	-	+	-
BS Often	-	+	+	-	+	-
CT None	-	+	-	+	-	+
CT Some	-	+	-	+	+	+
CT Often	-	+	+	+	-	+

Variables in Red are significant at 0 – 5% level.

Variables in Green are significant at 5 - 10% level.

Variables in Purple are significant around 10 - 11% level

Results

BMP Usage	Full Time	Education	Finstress	Structural Regulations	Cost of Implement	Cost of Maintain
GP None	-	-	-	-	-	-
GP Some	-	-	-	-	-	-
GP Often	-	+	-	-	+	-
SC None	+	+	+	-	-	+
SC Some	+	+	+	-	-	-
SC Often	-	+	+	-	-	+
BS None	-	+	+	-	+	-
BS Some	-	+	+	-	+	-
BS Often	-	+	-	-	-	-
CT None	-	+	+	-	+	+
CT Some	-	+	-	+	+	+
CT Often	-	+	-	-	+	+

Variables in **Red** are significant at 0 – 5% level.
 Variables in **Green** are significant at 5 - 10% level.

Variables in **Purple** are significant around 10 - 11% level

Results

BMP Usage	Lease Risk	Lease Risk X %Lease	Landlord Share	Share X % Lease	DecisionM
GP None	-	+	+	-	+
GP Some	-	+	+	-	+
GP Often	-	+	+	-	+
SC None	-	+	+	-	-
SC Some	-	+	+	-	-
SC Often	-	+	+	-	-
BS None	-	+	-	-	+
BS Some	-	+	+	-	-
BS Often	-	+	+	-	+
CT None	+	-	-	+	-
CT Some	-	+	+	-	-
CT Often	-	+	+	-	-

Variables in Red are significant at 0 – 5% level.
Variables in Green are significant at 5 - 10% level.

Variables in Purple are significant around 10 - 11% level

Conclusions

- Slope of land
- Perceived effectiveness of the BMP
- Education
- Perceived regulatory requirements
- Perceived expense and cost of maintenance
- Willingness of land owner to invest

Implications

- The study once again stress the importance of site specific target approach for adoption.
- Financial assistance from governmental agencies has a desirable effect on adoption behavior.
- NRCS should target landowners.

QUESTIONS ??

