

Landowners Willingness to Accept Carbon Payment Programs in Pennsylvania and Virginia

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Forests: Part of Solution to Climate Change

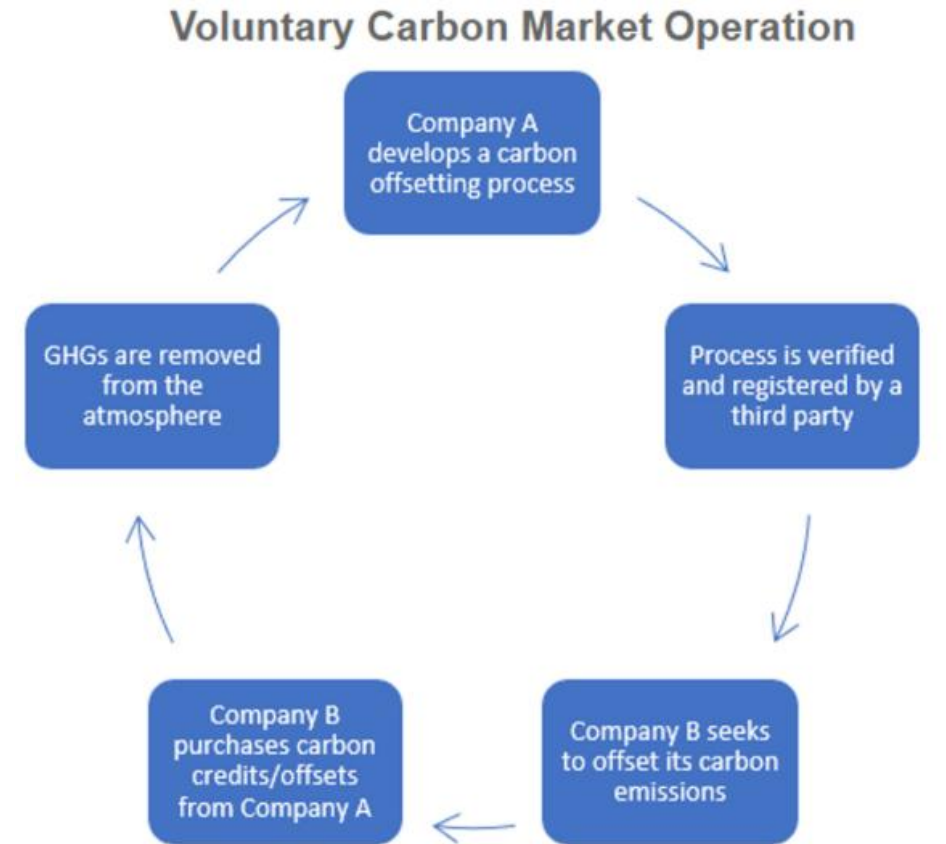
Global scale: Forest store an estimated 861 gigatons of carbon.

Practices that enhance the amount of forest carbon stocks

- Improved forest management
- Afforestation and reforestation
- Avoided forestland conversion

Voluntary Carbon Markets (VCMs)

- VCMs compensates landowners for adopting climate friendly forestry practices
- Limitations of Compliance Based Markets, which often exclude small landowners
- VCM Growth drivers:
 - ✓ Rising corporate pressure to show climate action
 - ✓ Need for flexible, nonregulatory solutions to meet sustainability goals
- Expected to grow significantly



Source: Frost & Sullivan

Forest Carbon Developers and Programs for Small Forest Owners Operating in the U.S.

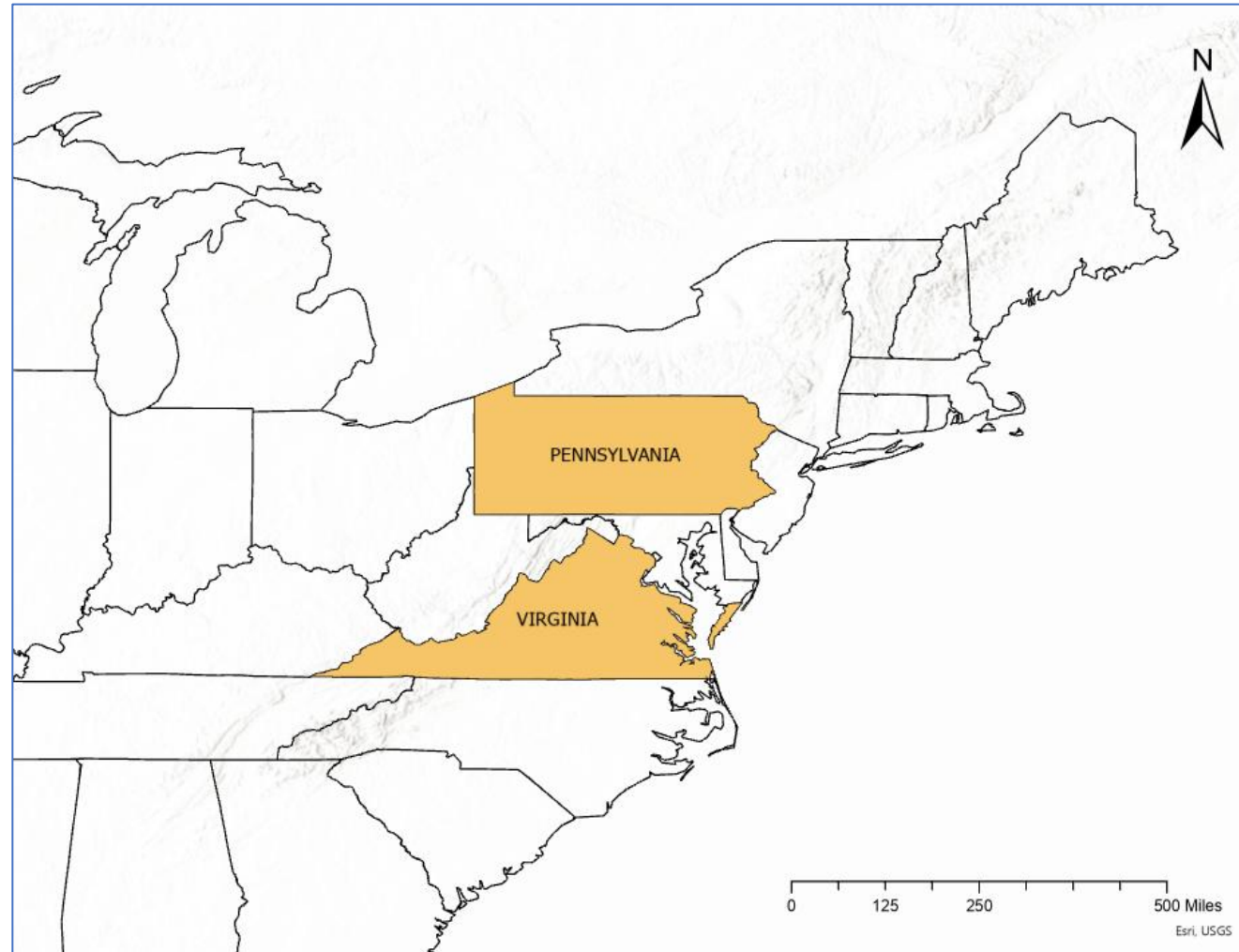
Developer/ Program	Landowner Commitment	Min. Parcel Size	Prior enrollment in other program	Approx. \$ revenue/ ac	Cost to landowner	Practices Allowed	Enroll All Acres	Project stays w/ land	Penalties for reversal	Who buys credits
American Forest Foundation & The Nature Conservancy – Family Forest Carbon Program* https://www.familyforestcarbon.org Limited states: PA, WV, MD, NY, NH, ME, MA & VT Registry standard(s) ¹ VCS	20 year minimum	30-2,400 acres	Yes	\$10-15/ac per year	No out of pocket ²	Increase time between harvest, promote regen, retain more carbon in thinning, reserve	Not Re-quired	Yes	Yes	Buyers screened by the program, does not allow resale of credits
Finite Carbon – Core Carbon Program https://corecarbon.com Registry ACR	40 years	40-5,000 acres	No	New program – projected \$20+/ac per year	No out of pocket	None – must defer harvest (some exceptions)	Not Re-quired	Yes	Yes	anyone
Forest Carbon Works https://forestcarbonworks.org Registry ARB & VCS	40+ years	40+ acres	No	\$10-30/ac per year	Small membership application fee (\$75)	Various – must show additional carbon (cut less than growth)	Must	Yes	Yes	anyone

Source: Securing Northeast Forest Carbon Program

Research Questions

- What are the factors influencing landowner decision to enroll in carbon programs?

Focus area



- Private forestland ownership
- Landowner demographics

Study Area Map showing Pennsylvania and Virginia

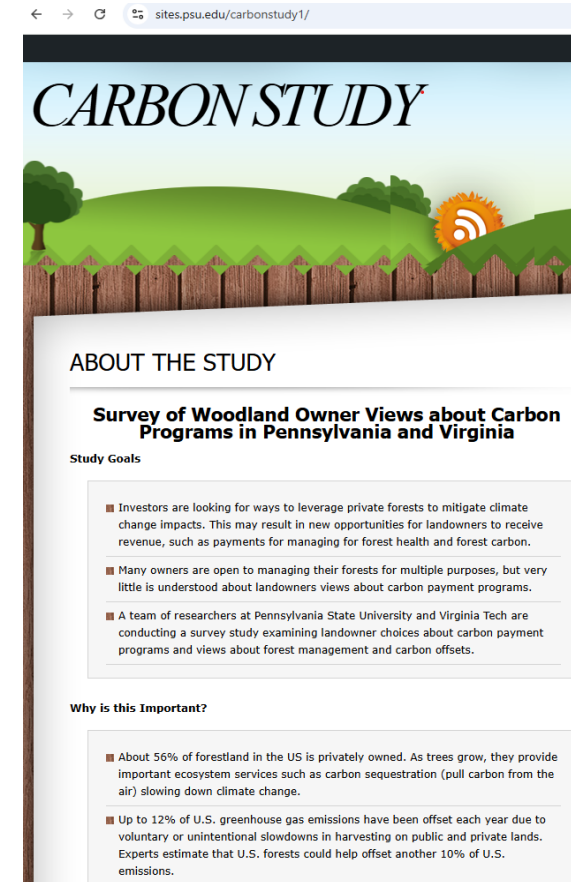
Conjoint experimental design: attributes and levels

Management activity	<ol style="list-style-type: none">1. None required2. Defer timber harvest3. Manage land to enhance carbon stocks
Acres enrolled	<ol style="list-style-type: none">1. <25% of eligible acres2. 25%-50% of eligible acres3. 50%-75% of eligible acres4. >75% of eligible acres
Contract period	<ol style="list-style-type: none">1. 1 year2. 5 years3. 20 years
Payment types	<ol style="list-style-type: none">1. Annual payments2. 20% upfront, annual payments thereafter3. State property tax discount
Financial benefits	<ol style="list-style-type: none">1. \$10 per acre2. \$50 per acre3. \$150 per acre4. \$250 per acre

Approach

Statewide survey

- ✓ Landowner characteristics,
- ✓ Likert scale: knowledge, interest, trust
- ✓ Choice sets for 5 potential carbon programs
- Push-to-Web survey
 - ✓ Contacted private forest organizations and woodland owner associations
 - ✓ Mailed 700 postcards in each state, QR code linked to the study website
- 243 usable responses
- Data Analysis
 - ✓ Probit model



Study website

Sample choice question

Read the following descriptions for programs A and B, select which program you prefer most and rate how likely you would actually enroll in either program.

Attributes	Program A	Program B
Management activity	None required	None required
Acreage	50-75% of eligible acres	50-75% of eligible acres
Contract	5 years	1 year
Payment type	Annual payments	Annual payments
Financial benefit per year	\$50 per acre	\$150 per acre

If you had to choose between programs A and B, which do you prefer? (*Please select one*)

☐ Program A

☐ Program B

How likely would you enroll in Program A? (*1 = Definitely would NOT enroll, 7 = Definitely would enroll*)

Definitely would NOT enroll Definitely would enroll

1 2 3 4 5 6 7

Circle to rate Program (A)



How likely would you enroll in Program B? (*1 = Definitely would NOT enroll, 7 = Definitely would enroll*)

Definitely would NOT enroll Definitely would enroll

1 2 3 4 5 6 7

Circle to rate Program (B)



Reasons for owning forestlands

1. Wildlife
habitat

2. Beauty and
Scenery

3. Nature or
biological
diversity

4. Privacy

5. Water
resources

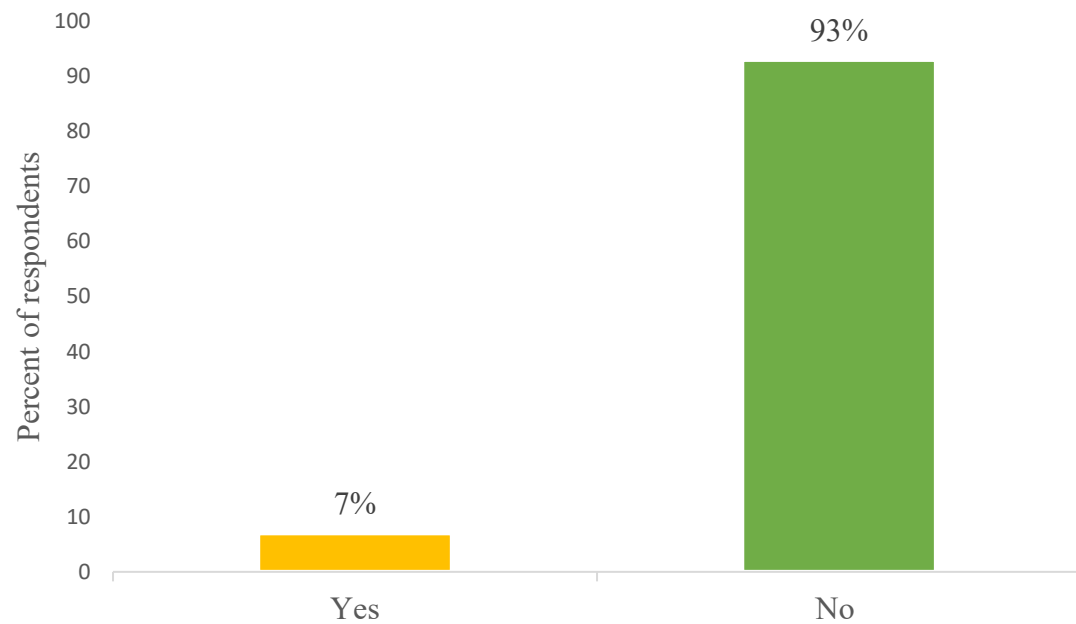
6. Hunting and
Recreation

7. Forest
Legacy

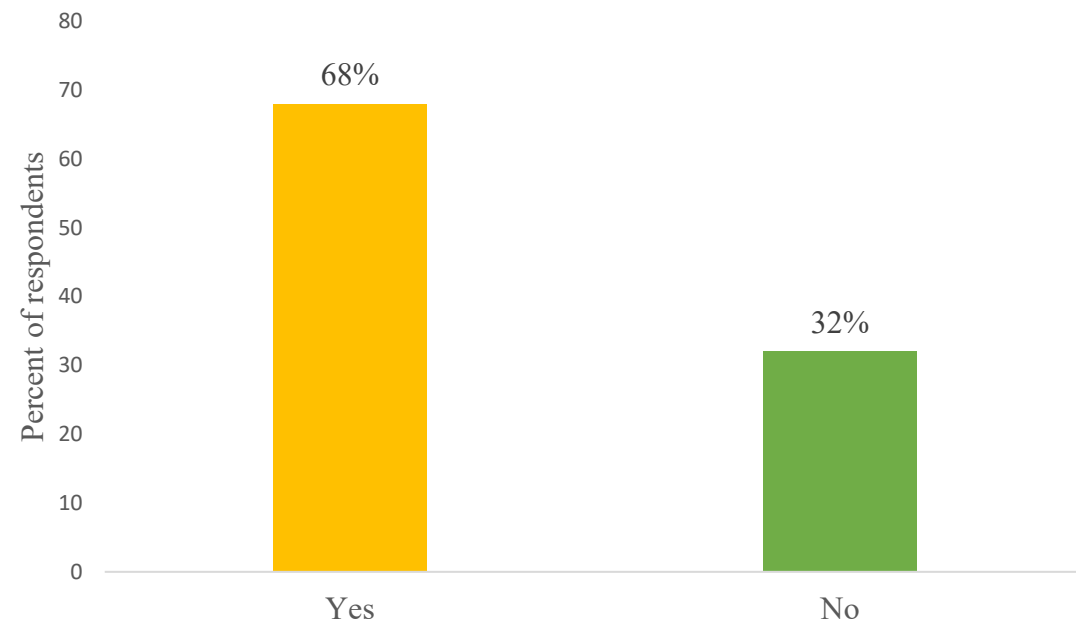
8. Educational
purposes

9. Capture and
Store Carbon

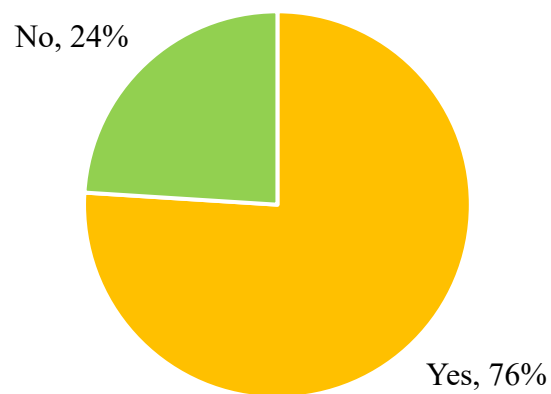
Participation in carbon programs



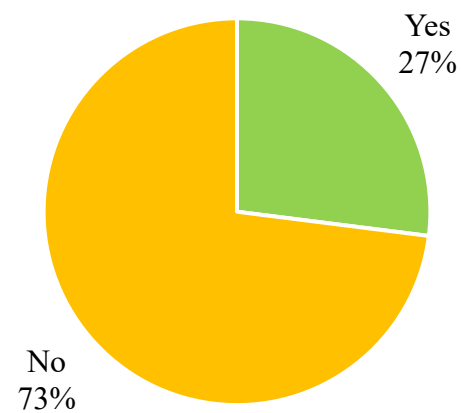
Contacted by forestry professionals



Peer opinions about forest management decisions



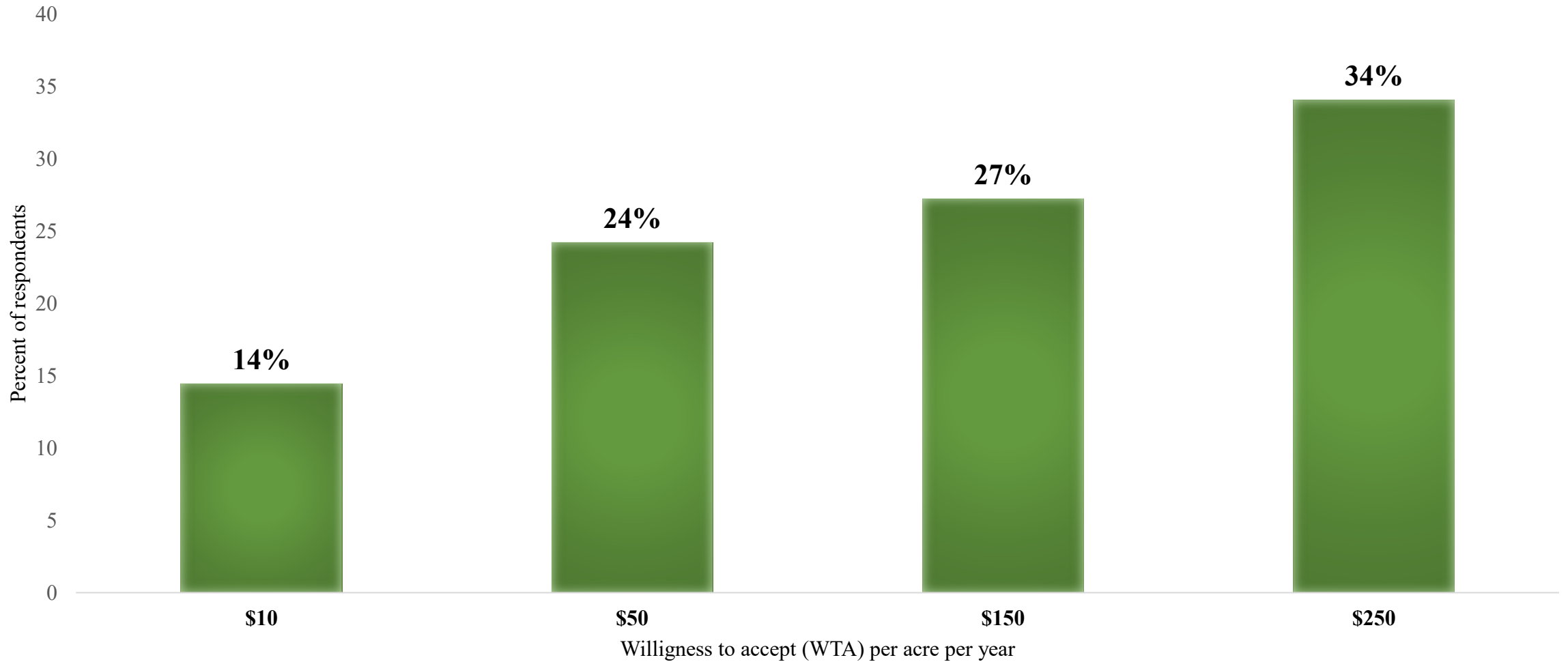
Peer opinions about carbon market opportunities



Knowledge, trust, and interest about carbon programs

Knowledge	Low (mean score: 3.86)
Trust	Low (mean score: 3.72)
Familiarity	High (mean score: 5.00)
Interest	High (mean score: 5.55)
Concern about Climate Change	High (mean score: 5.56)

Percent enrollment of landowners at different payment levels



Factors affecting landowners' decision making

Attribute	Reference level	%Change in Probability	WTA(\$)
Defer timber harvest	None Required	↓ 5.8%	+50
Manage land to enhance carbon stocks	None Required	↓ 8.4%	+72
Enroll 50%-75% of eligible acres	<25% of eligible acres	↑ 6.0%	-52
20-year contract	1 year	↓ 13.2%	+113
State property tax discount	Annual payments	↓ 12.1%	+103

Summary

- Many landowners are interested in participating, only few have participated.
- Build trust, and increase outreach to turn their interest into action
- Requirements such as restrictive management activity, longer contracts lengths and tax discount are less preferred by landowners
- Programs allowing enrollment of 50-75% portions of acres are more preferred, even with fewer incentives.



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