Landowner Behaviour in the Upper Thames and Grand River Watersheds

A Study of Factors Which May Explain the Conservation Behaviour Farmers

UPPER THAMES RIVER
CONSERVATION AUTHORITY

A.D. Latornell Conference

Jeff Brick, Upper Thames River CA

Outline

- Study Area
- Trends in Agriculture
- Research Question
- Survey Implementation
- Descriptive Statistics
- Study Findings
- Implications and Next Steps

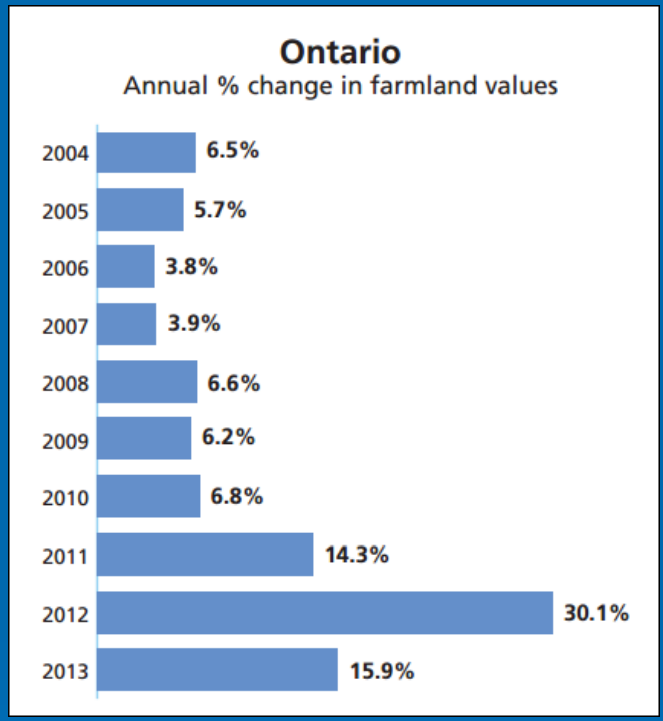
Study Area in Lake Erie Basin

Study Area

- Upper Thames Watershed
  - Area = 3,421 km^2
  - Population = 516,000
  - Agriculture = 75% of land area
- Grand River Watershed
  - Area = 6,800 km^2
  - Population = 925,000
  - Agriculture = 70% of land area

Agriculture Trends

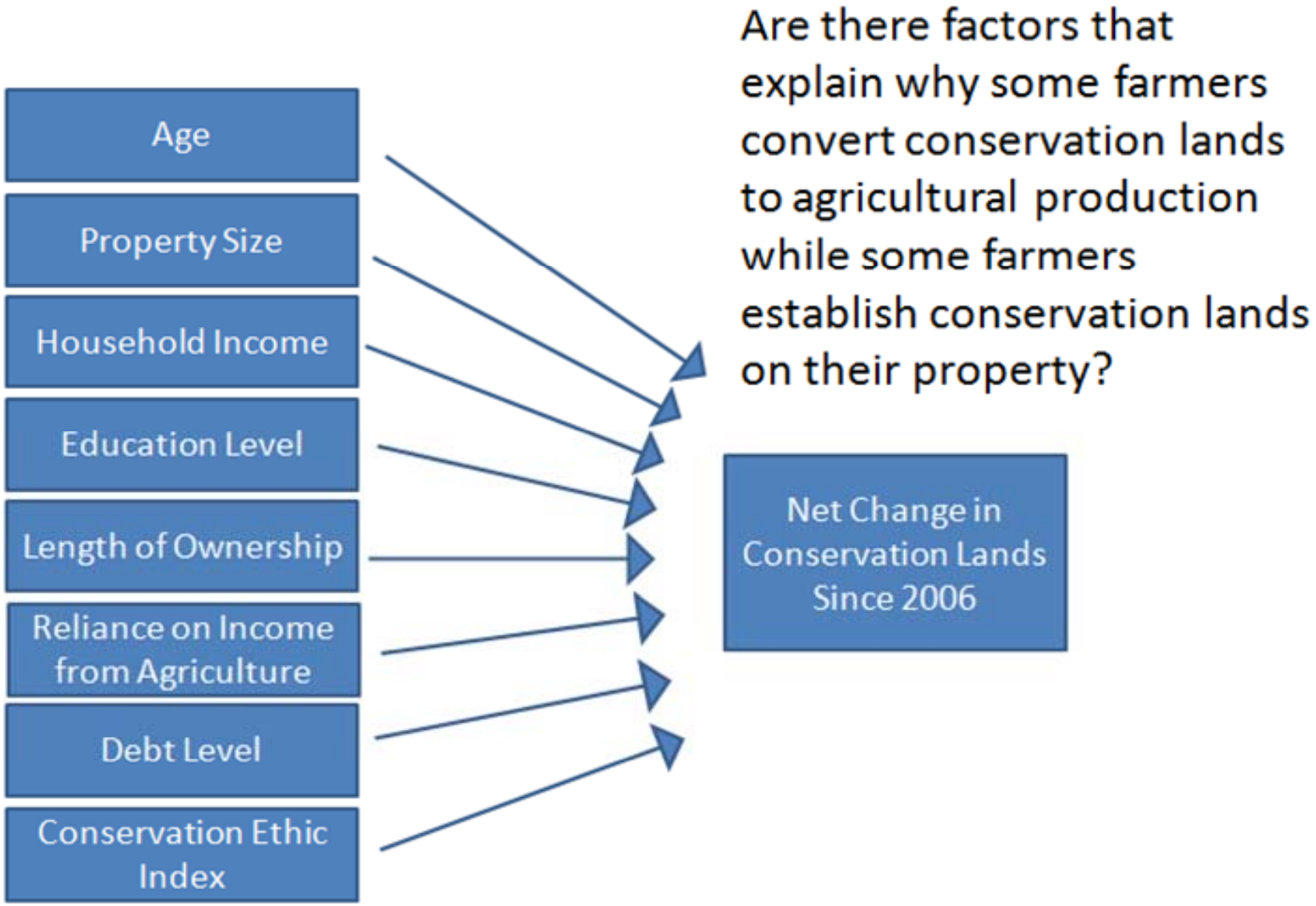
- Commodity prices are generally up since 2008
- Land prices have increased significantly in recent years
- Farm consolidations seem to be on the rise
- Pressure on woodlands, removal of windbreaks etc.)
- Great Lakes water quality (Lake Erie)



Farm Credit Canada
Advancing the business of agriculture

https://www.fcc-fac.ca/fcc/about-fcc/corporate-profile/reports/farmland-values/farmland-values-report-2013.pdf

Research Design



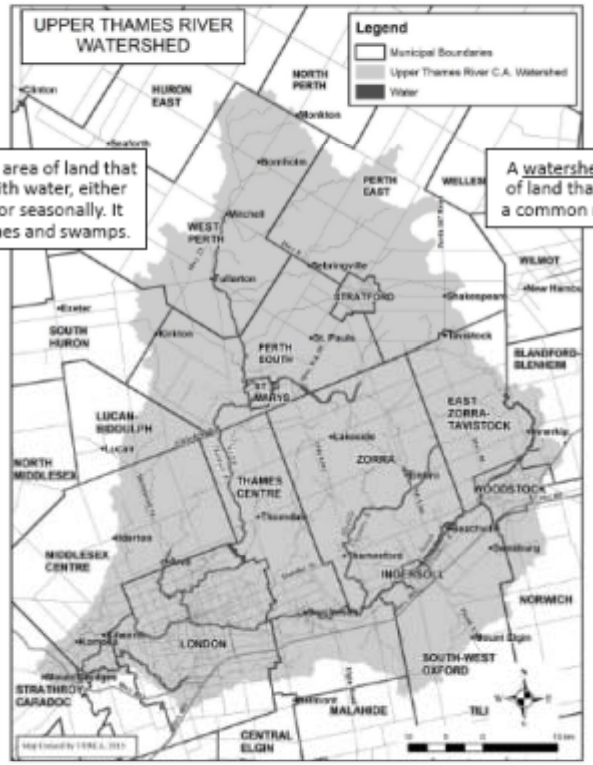
Survey Logistics

- Survey methodology was set by the Research Team (UNB, Simon Fraser and U of T)
- Overall project funding came from Social Sciences and Humanities Research Council
- Questions added to allow me to pursue my research interest
- UTRCA and GRCA coordinated local implementation
- 18 % response rate
- 3,227 usable surveys (n = 3,227)

Survey Details

- Survey finalized in March and mailed in late April, 2013
- Survey sent to every rural route address touching on the Upper Thames watershed and approximately 80 % of rural route addresses in the Grand Watershed

Survey of Landowner Views on Wetland Enhancement and Restoration in & near the Upper Thames River Watershed



A wetland is an area of land that is saturated with water, either permanently or seasonally. It includes marshes and swamps.

A watershed is an area of land that drains into a common river system.

When you have completed this survey, please place it in the postage-paid envelope provided in your survey package and drop it off in the mail. Thank you!

Section 1: Your Land

1. Which county do you live in? *Please check **one** box only.*

   ☐ Huron County ☐ Middlesex County
   ☐ Oxford County ☐ Perth County
   ☐ Elgin County ☐ Other (Please specify): _____

2. What is the total area of land that you own inside and outside the Upper Thames River watershed (if needed, consult the map on the back of the cover letter)?
   Please indicate the number of acres in the spaces provided.

   Inside: _____ Acres
   Outside: _____ Acres

3. When did you first obtain land in the region? *Please check **one** box only.*

   ☐ Before 1970 ☐ 1981-1990 ☐ 2001-2006 ☐ Not Applicable
   ☐ 1970-1980 ☐ 1991-2000 ☐ 2007-2013

4. What is the primary use of the land you own? *Please check **one** box only.*

   ☐ Agriculture ☐ Residence
   ☐ Forestry ☐ Other: _____

5. If you generated income from your land over the past 5 years, is it from any of the following? *Please check **all** boxes that apply.*

   ☐ Farming ☐ Leasing land for recreation ☐ Not applicable
   ☐ Forestry ☐ Leasing land for farming or forestry ☐ Other: _____
   ☐ Leasing land for hunting ☐ Development/sale of your land _____

6. What will likely happen to your land after you retire? *Please check **one** box only.*

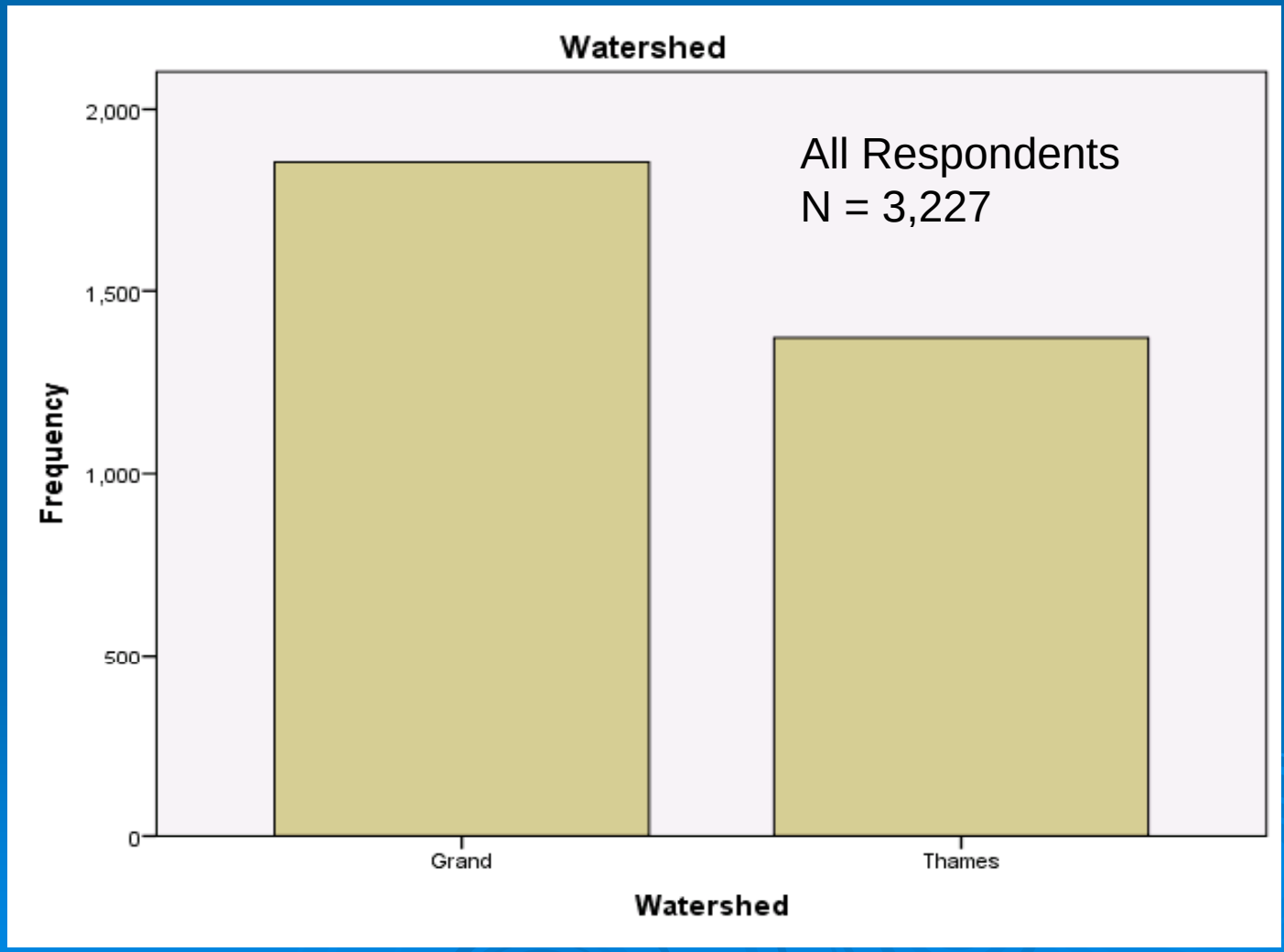
   ☐ Sell ☐ Give to land trust ☐ Have not started planning for retirement
   ☐ Give to family ☐ Don't know ☐ Other: _____

1

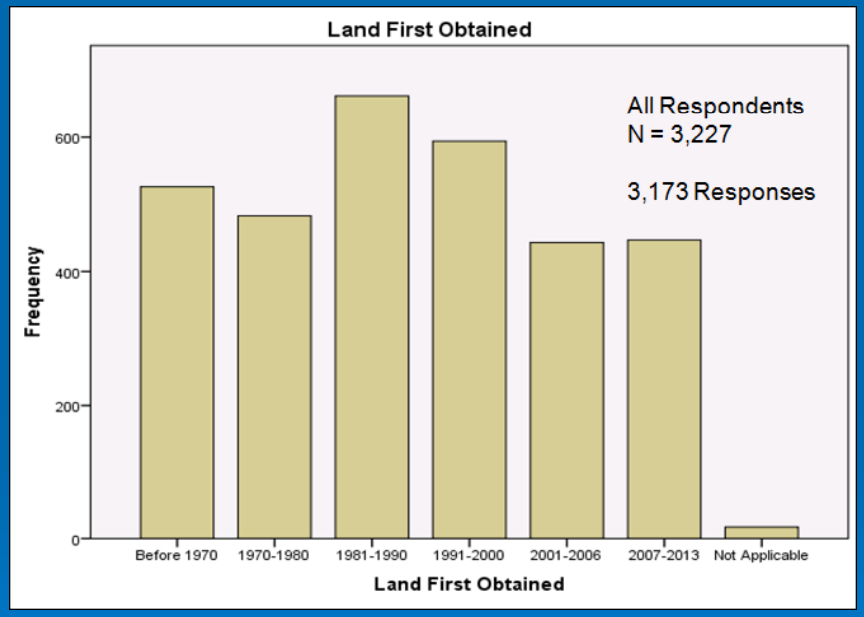
Focus on Farmers

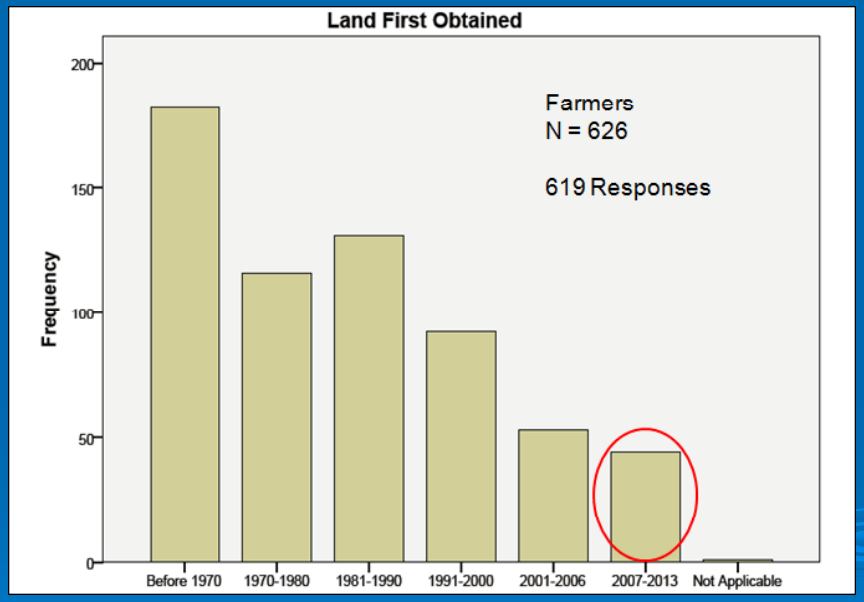
- "Farmers" are respondents that:
  - Own 100 acres or more of land **AND**
  - Report that 50 % or more of their income comes from farm receipts
- Of the 3,227 survey respondents, 626 met the "farmer" definition

Some Descriptive Statistics

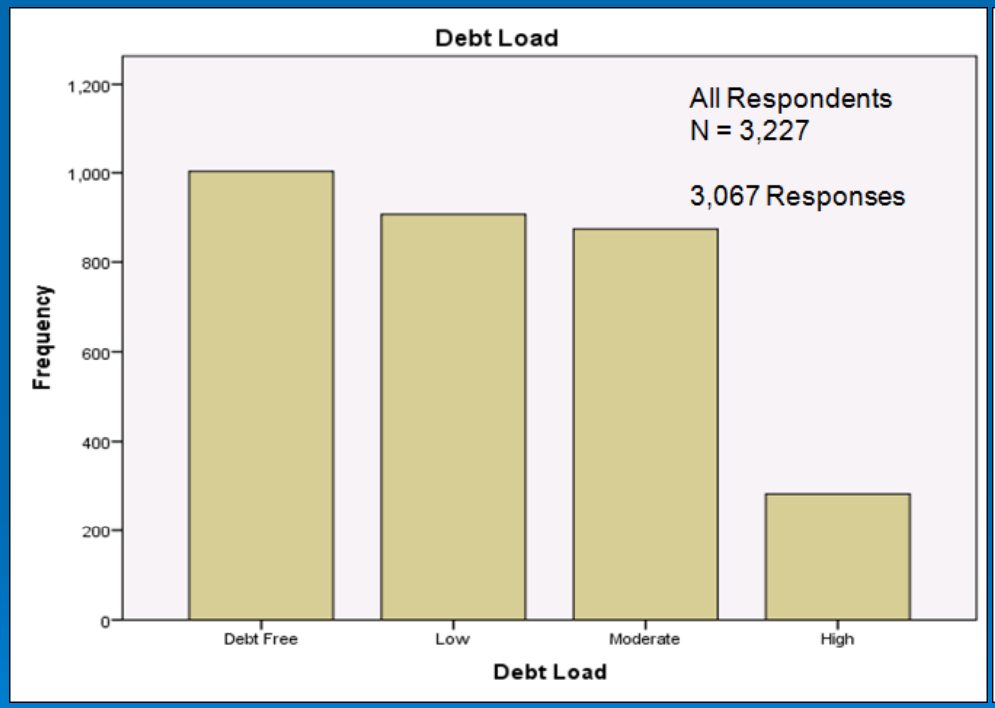


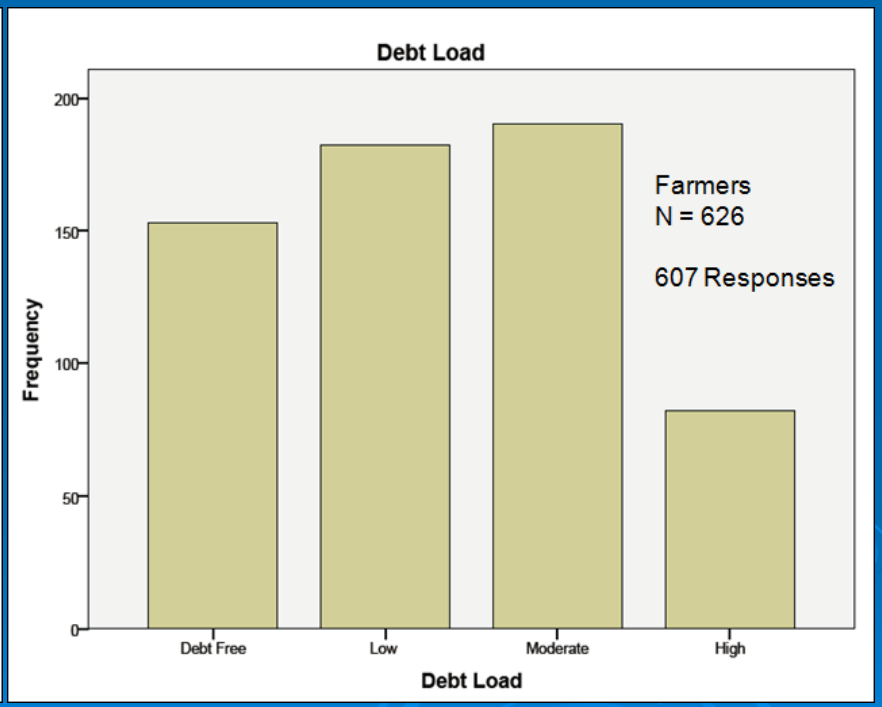
Land First Obtained





Debt Load


Debt Load
All Respondents
N = 3,227
3,067 Responses
Frequency
1,200
1,000
800
600
400
200
0
Debt Free
Low
Moderate
High
Debt Load


Debt Load
Farmers
N = 626
607 Responses
Frequency
200
150
100
50
0
Debt Free
Low
Moderate
High
Debt Load

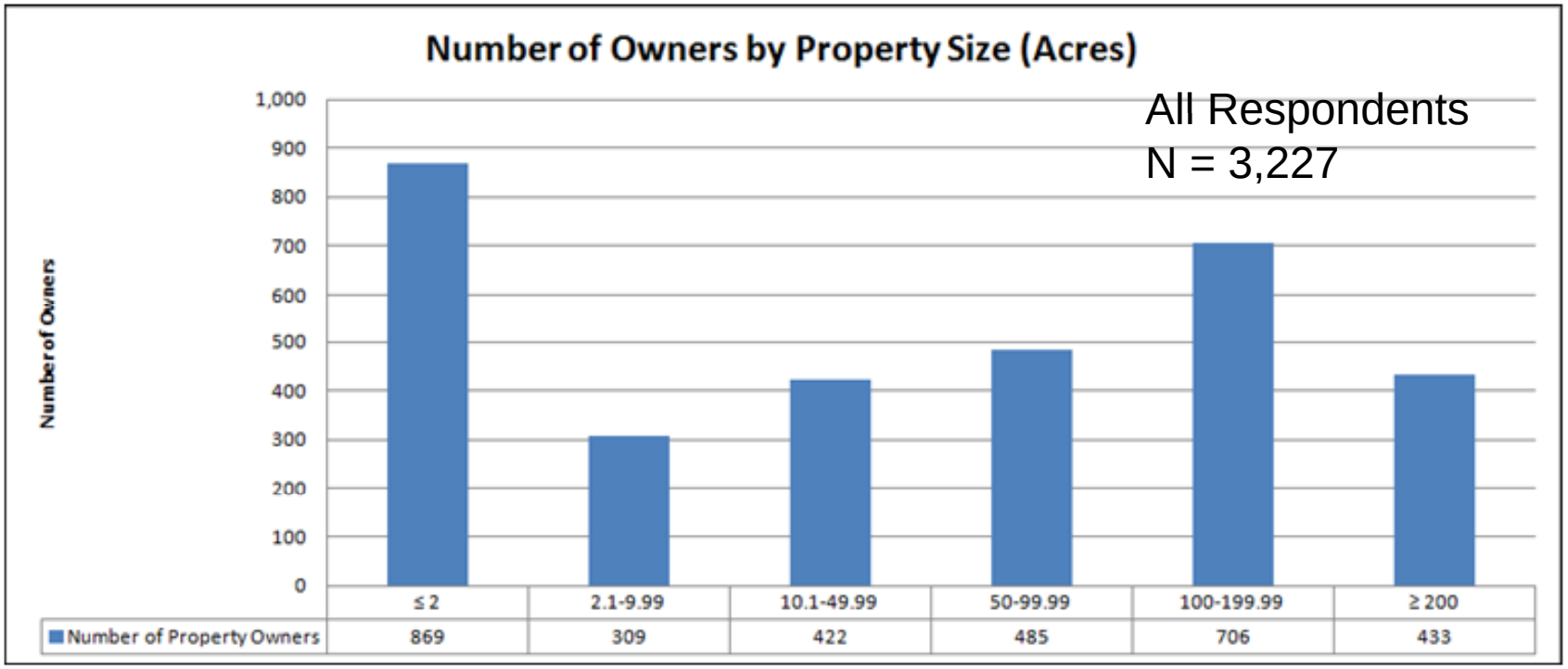


Figure 8: Total Number of Owners by Property Size for All Respondents

- Land represented by all survey respondents from the Grand survey represents 9.6 % of the Grand Watershed
- The total area of land represented by all survey respondents from the Upper Thames survey represents 17.5 % of the land area of the Upper Thames watershed.

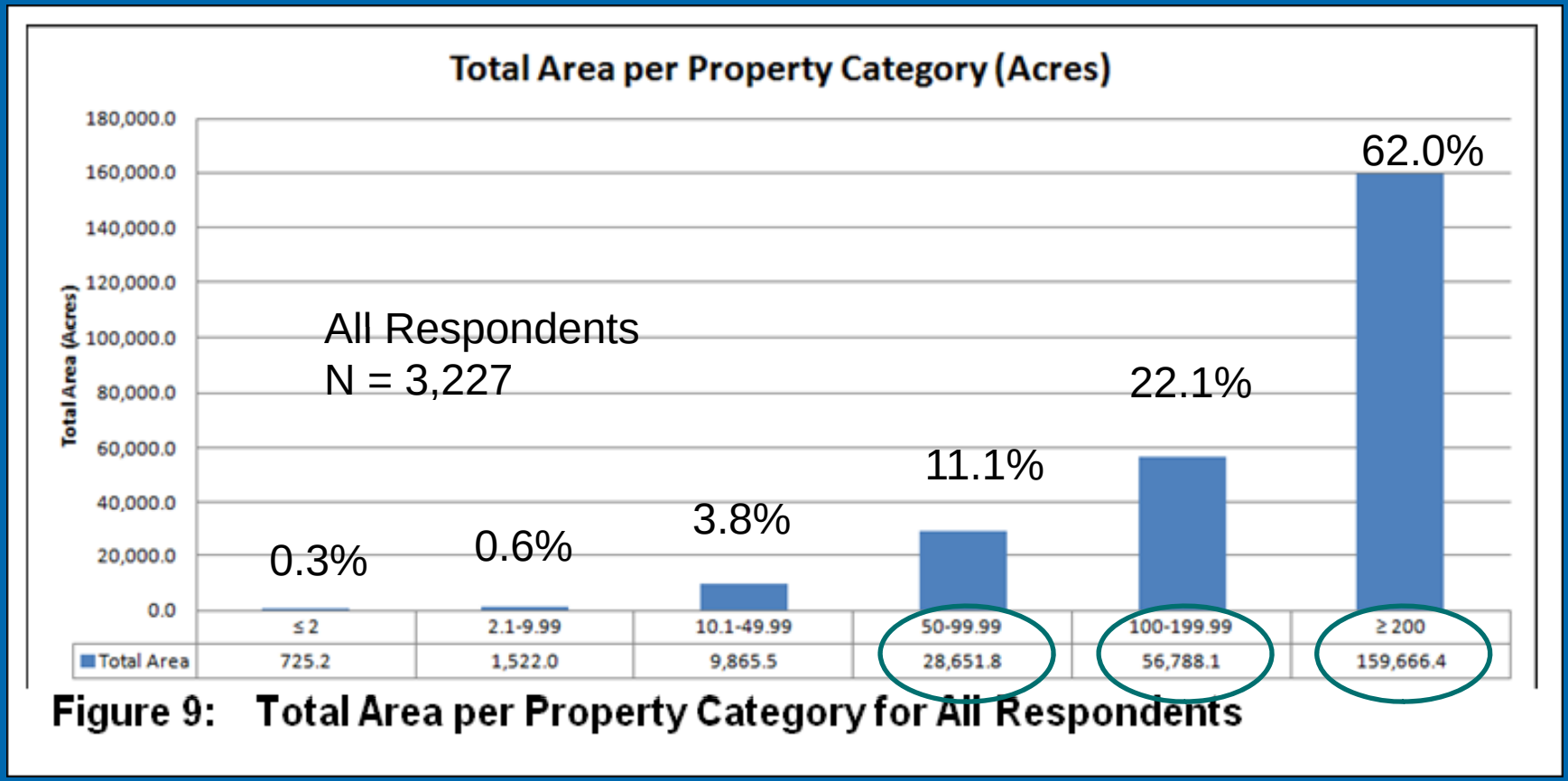
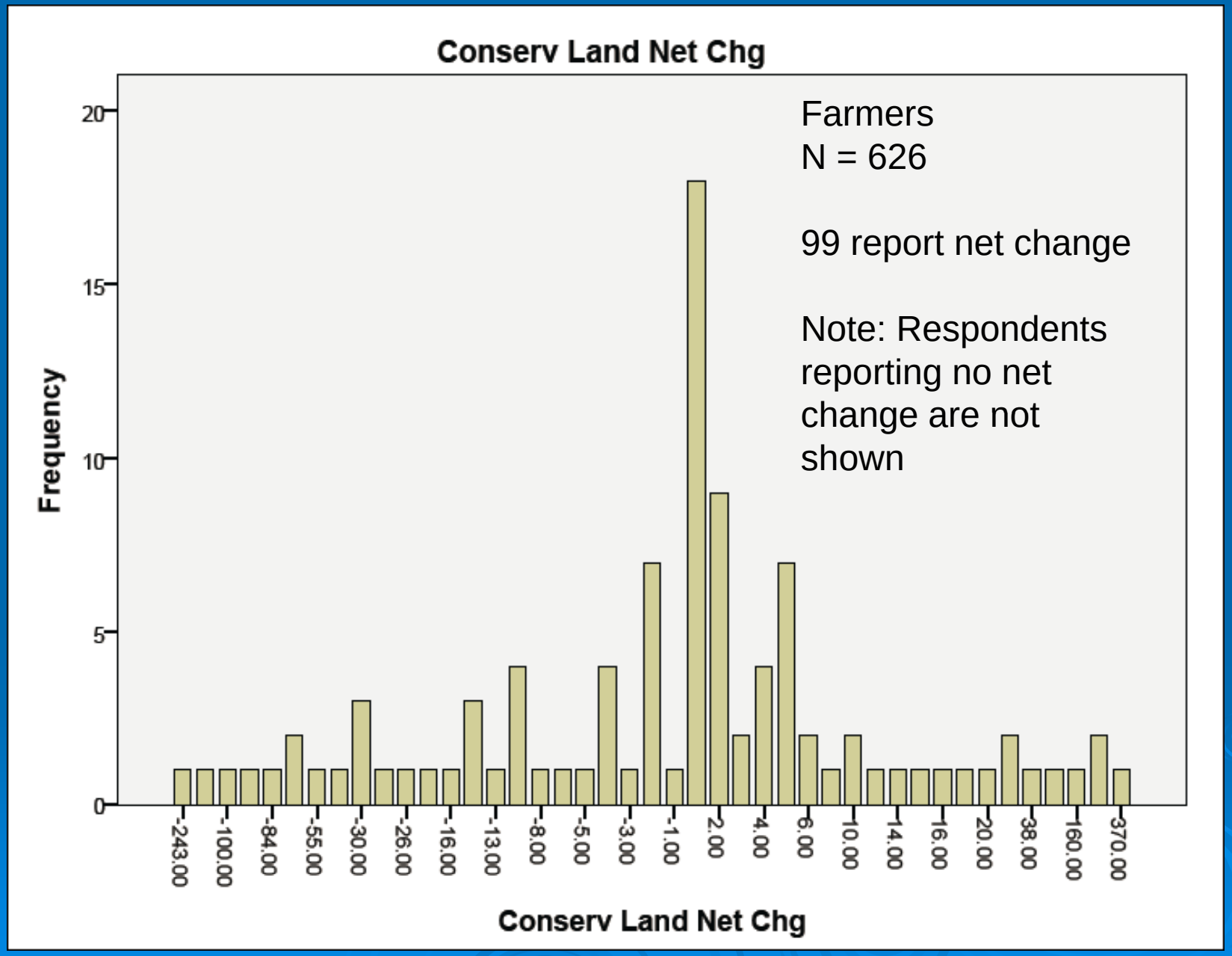


Figure 9: Total Area per Property Category for All Respondents

- A relatively low number of people own a large area of the land represented in the survey

Behaviour vs. Attitudes

- Conservation behaviour measured by the addition or removal of “conservation lands” from 2006 to survey implementation (April 2013)
- Conservation attitude determined based on a Conservation Ethic Index constructed from answers to various questions in the survey


Conserv Land Net Chg
Frequency
20
15
10
5
0
-243.00
-100.00
-84.00
-55.00
-30.00
-26.00
-16.00
-13.00
-8.00
-5.00
-3.00
-1.00
2.00
4.00
6.00
10.00
14.00
16.00
20.00
38.00
160.00
370.00
Conserv Land Net Chg
Farmers
N = 626
99 report net change
Note: Respondents reporting no net change are not shown

Section 2: Your Land Management

10. How many acres of your land are currently left untilled or dedicated to other land cover types, and how have these areas changed since 2006?

Please indicate your answers using the spaces provided below. For any specific land cover type that does not apply to your situation, please leave the associated space blank.

Land cover type	# of acres now	Change since 2006	
		Increase (acres)	Decrease (acres)
Land left untilled	_____	_____	_____
Fence line	_____	_____	_____
Wind break	_____	_____	_____
Trees	_____	_____	_____
Shrub land meadow	_____	_____	_____
Ditch	_____	_____	_____
Wet area / Wetland	_____	_____	_____
Other conservation measure: _____	_____	_____	_____

Table 8: Information Used to Construct Conservation Ethic Index

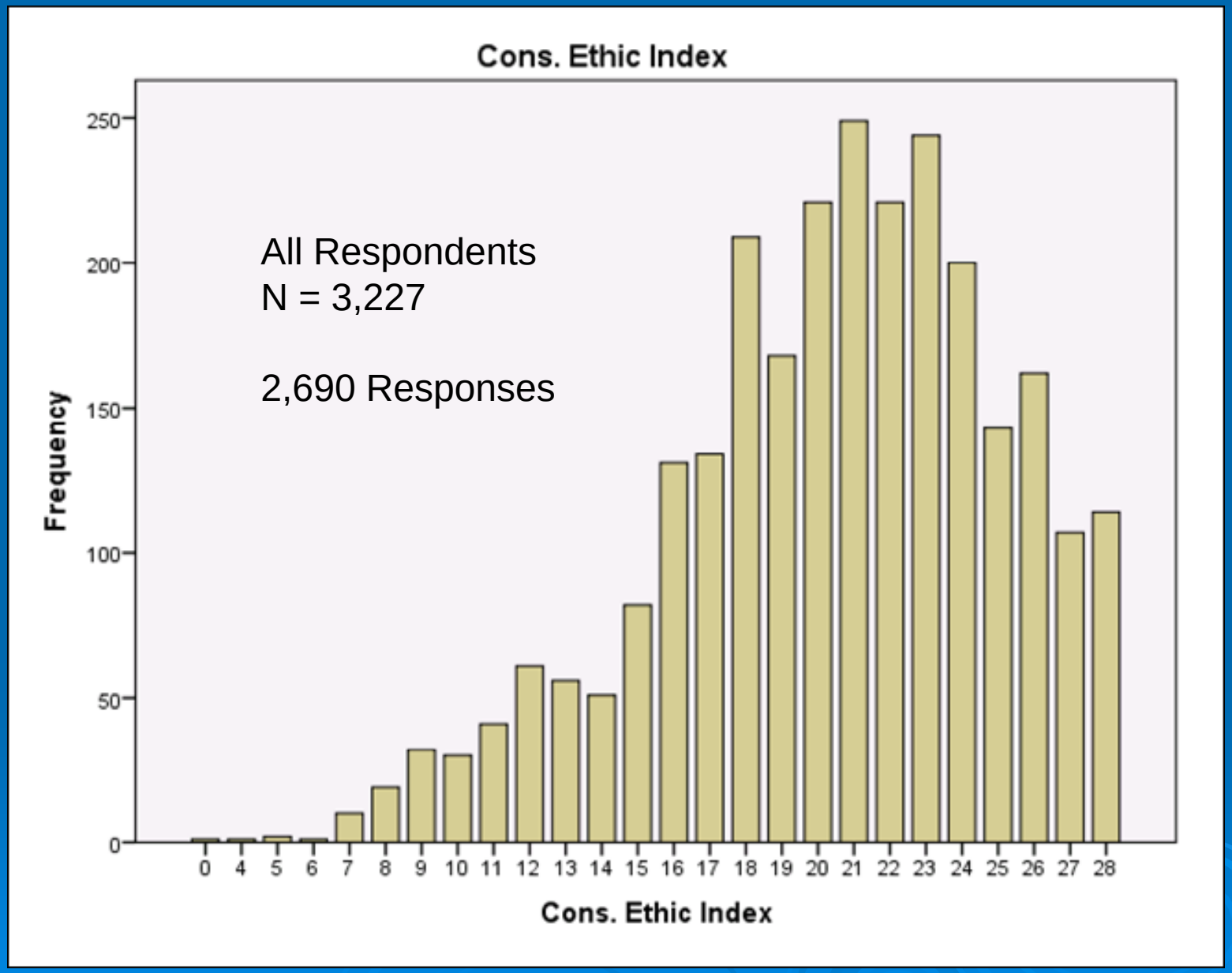
Q #	Content of Question	Value Applied				
	Response	1	2	3	4	5
7	People own land for many different reasons. How important are each of the following reasons to you?					
7-5	For recreation (hunting, fishing, walking etc.)	4	3	2	1	0
7-7	For the sake of our future generations	4	3	2	1	0
7-8	To preserve ecosystems	8	6	4	2	0
13	As a landowner, I have the responsibility to:					
13-1	Be a good steward of my land and to maintain it in good condition for future generations	4	3	2	1	0
13-2	Leave the land in a better condition than when I acquired it	4	3	2	1	0
13-3	Take into account the values of society at large when making decisions about my land	4	3	2	1	0

Responses for Question 7

1. Very Important
2. Important
3. Neither Important or Unimportant
4. Of Little Important
5. Un-important

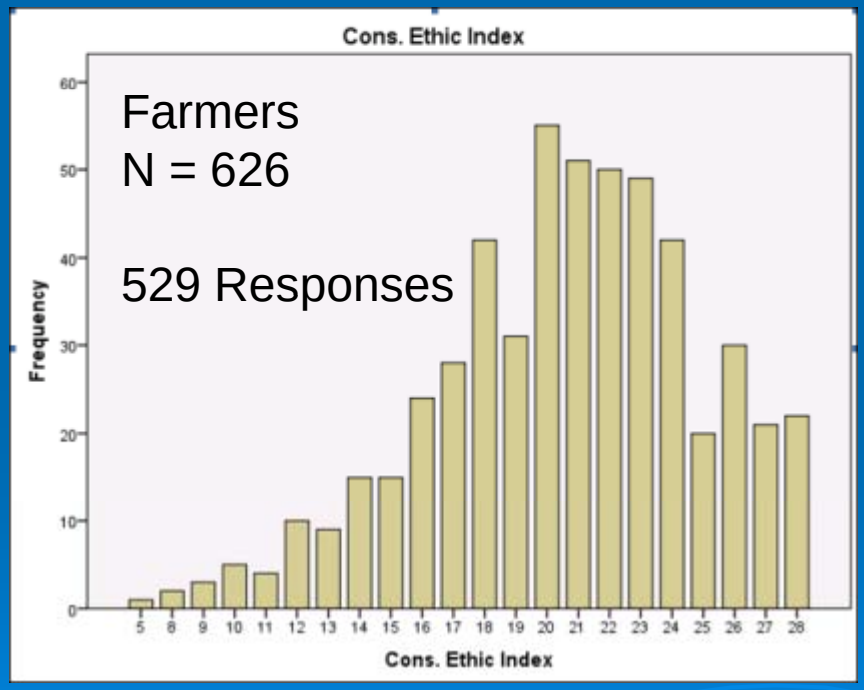
Responses for Question 13

1. Strongly agree
2. Agree
3. Neither agree or disagree
4. Disagree
5. Strongly Disagree

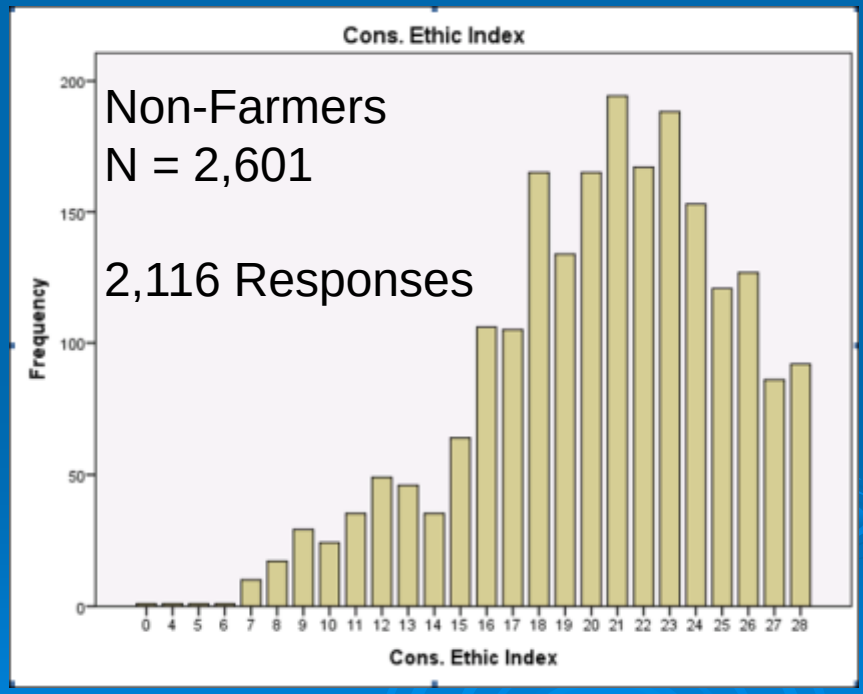

Cons. Ethic Index
All Respondents
N = 3,227
2,690 Responses
Frequency
250
200
150
100
50
0
0 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
Cons. Ethic Index

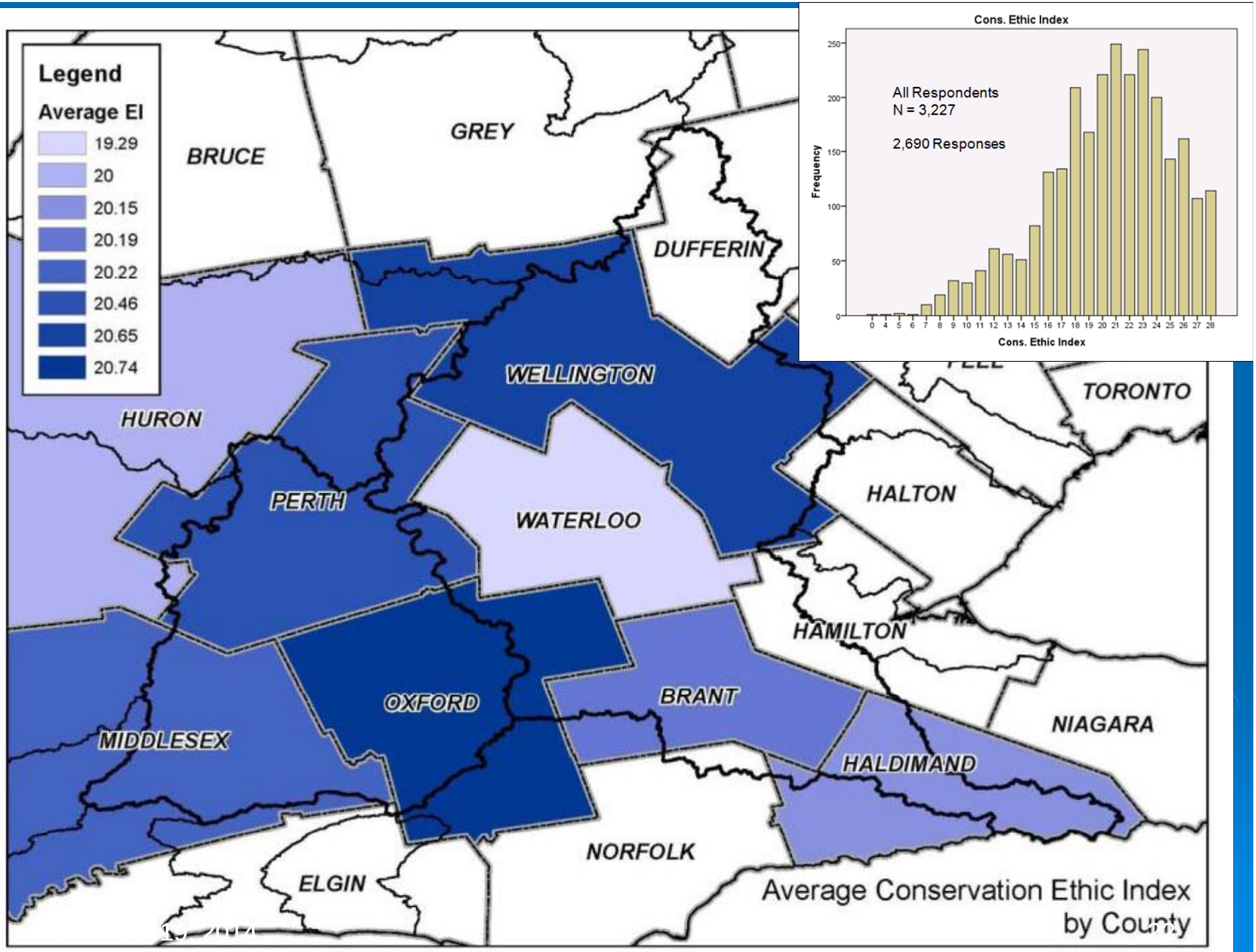
Conservation Ethic Scores

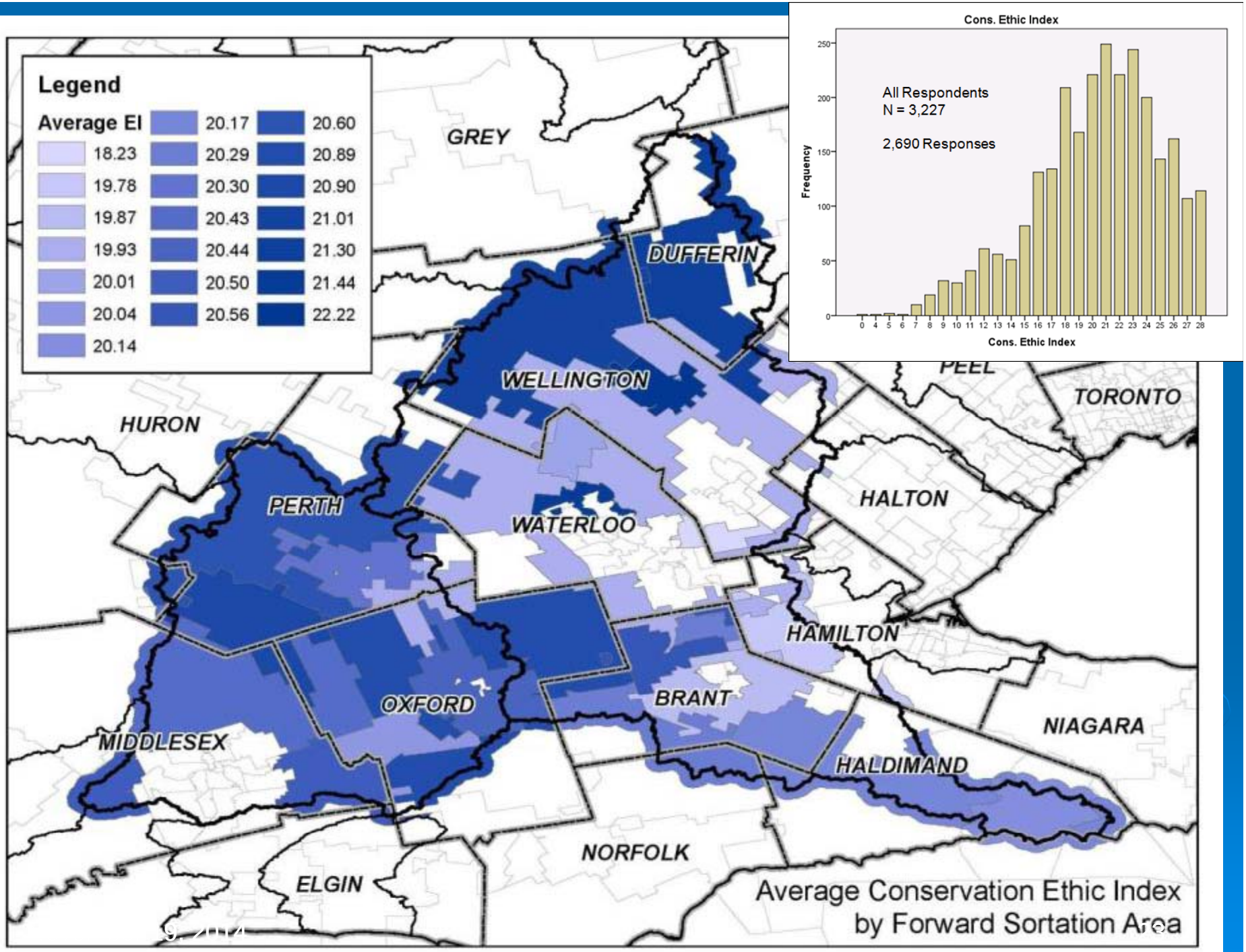
Farmers



Non-Farmers




Legend
Average EI
19.29
20
20.15
20.19
20.22
20.46
20.65
20.74
BRUCE
GREY
DUFFERIN
WELLINGTON
HURON
PERTH
WATERLOO
TORONTO
HALTON
HAMILTON
OXFORD
BRANT
NIAGARA
MIDDLESEX
HALDIMAND
NORFOLK
ELGIN
Cons. Ethic Index
All Respondents
N = 3,227
2,690 Responses
Frequency
Cons. Ethic Index
Average Conservation Ethic Index
by County


Legend
Average EI
18.23
19.78
19.87
19.93
20.01
20.04
20.14
20.17
20.29
20.30
20.43
20.44
20.50
20.56
20.60
20.89
20.90
21.01
21.30
21.44
22.22
GREY
DUFFERIN
WELLINGTON
HURON
PERTH
WATERLOO
PEEL
TORONTO
HALTON
HAMILTON
OXFORD
BRANT
NIAGARA
MIDDLESEX
HALDIMAND
NORFOLK
ELGIN
Average Conservation Ethic Index
by Forward Sortation Area
Cons. Ethic Index
All Respondents
N = 3,227
2,690 Responses
Frequency
Cons. Ethic Index

Findings for Farmers (Statistical)

- Farmers with larger properties tend to exhibit more conservation oriented behaviour. No relationship for conservation ethic score.
- Farmers that have owned their land for a longer period of time exhibit more conservation oriented behaviour and have higher conservation ethic index scores.

Findings for Farmers (Continued)

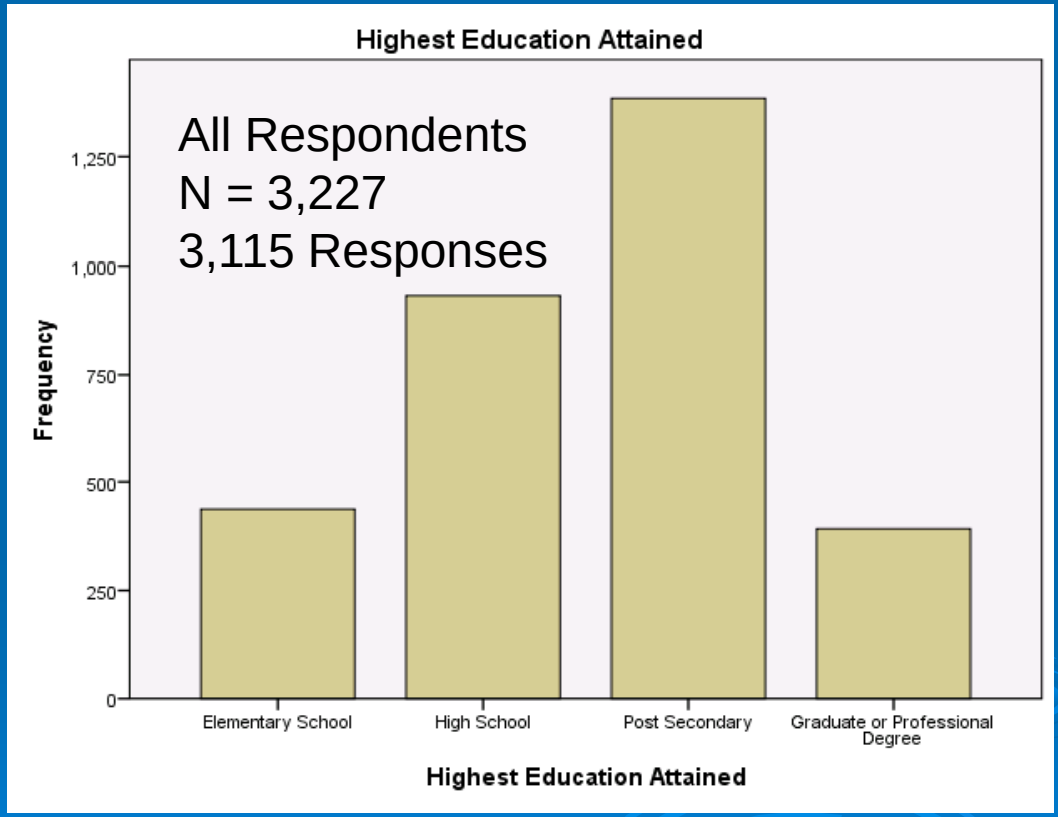
- Farmers with higher debt loads tend to have lower conservation ethic scores (slightly lower standard)
- Older farmers exhibit more conservation oriented behaviour than younger farmers (slightly lower standard)

Findings for Farmers (Continued)

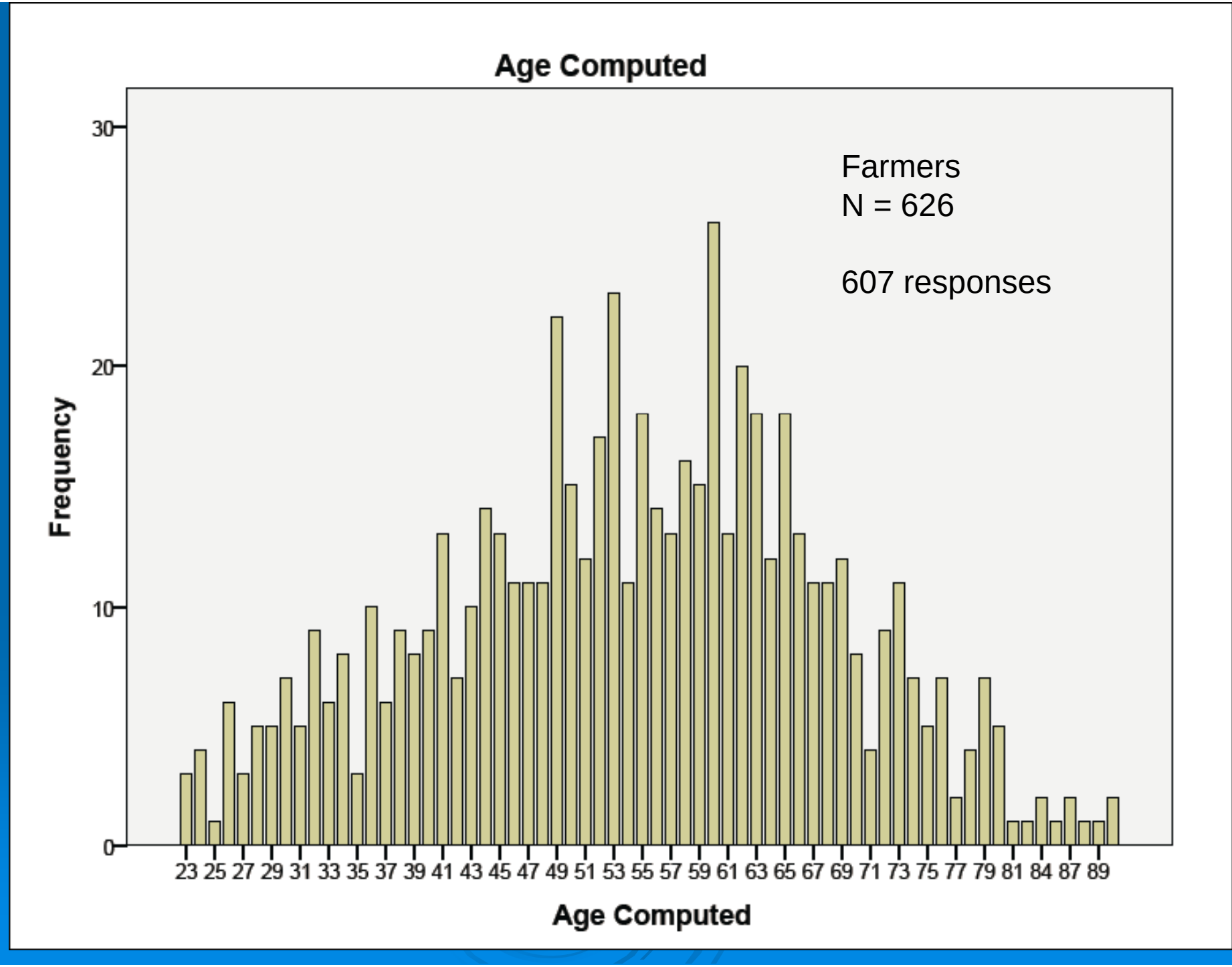
- Weak relationship (lower standard) between highest education attained and conservation attitude
- No relationship between household income and conservation behaviour or conservation attitude
- No relationship between reliance on farm income and conservation behaviour or conservation attitude

Age and Education (Descriptive)

- Farmers under 40 years old report a lower level of education attained than farmers 40 – 59 years old and farmers 60 years and older.



Education level for all respondents


Age Computed
Frequency
30
20
10
0
Farmers
N = 626
607 responses
23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55 57 59 61 63 65 67 69 71 73 75 77 79 81 84 87 89
Age Computed

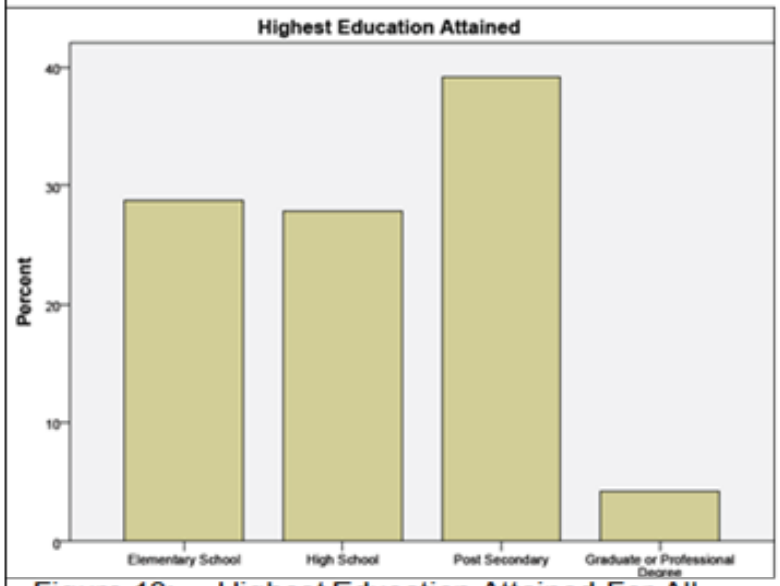


Figure 13: Highest Education Attained For All Farm Respondents

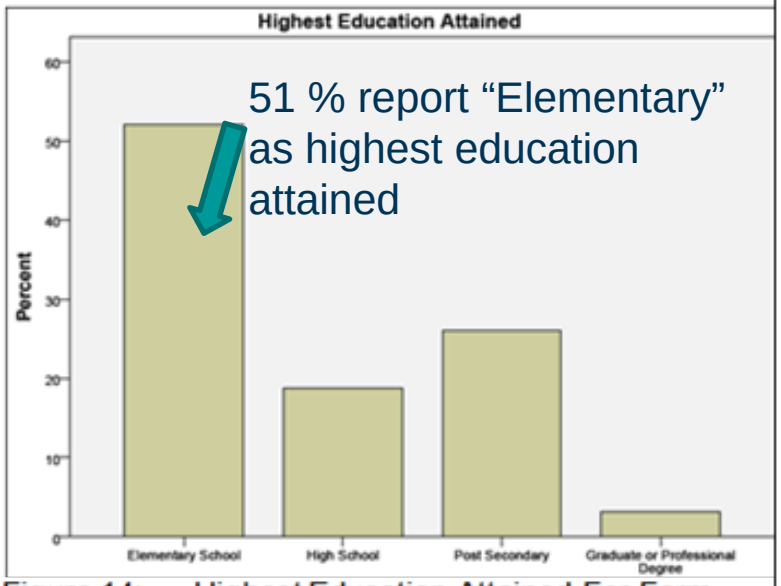


Figure 14: Highest Education Attained For Farm Respondents Less Than 40 Yrs (N = 96)

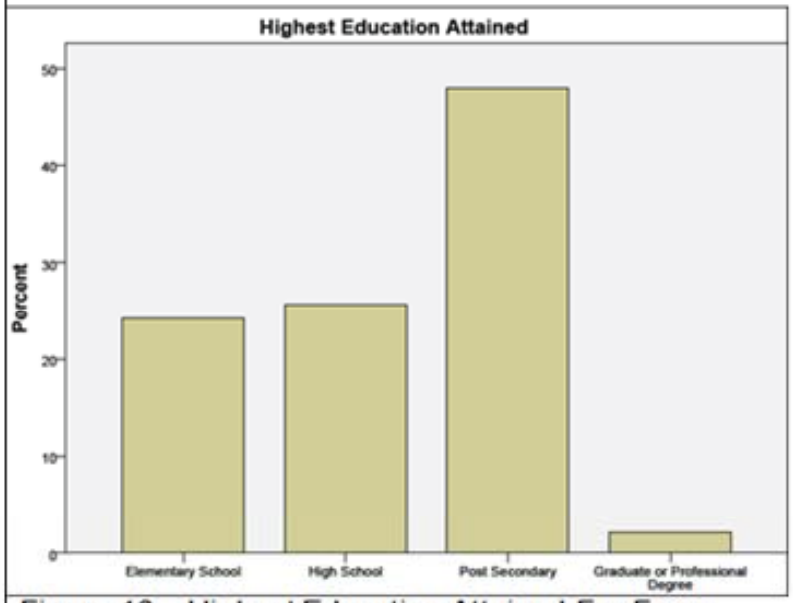


Figure 16: Highest Education Attained For Farm Respondents 40 – 59 Yrs (N= 273)

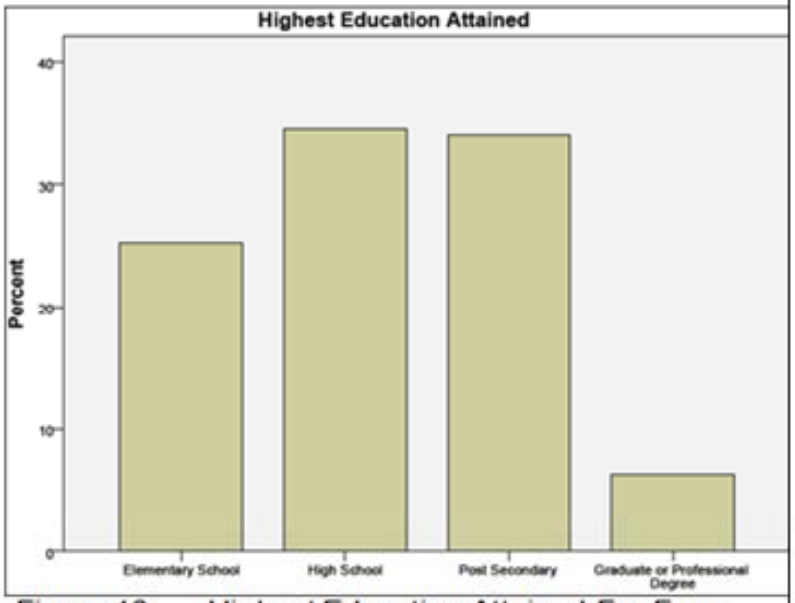


Figure 16: Highest Education Attained For Farm Respondents 60 + Yrs Old (N = 206)

Secondary Analysis

(Kirsten Grant, OMAF / U of G)

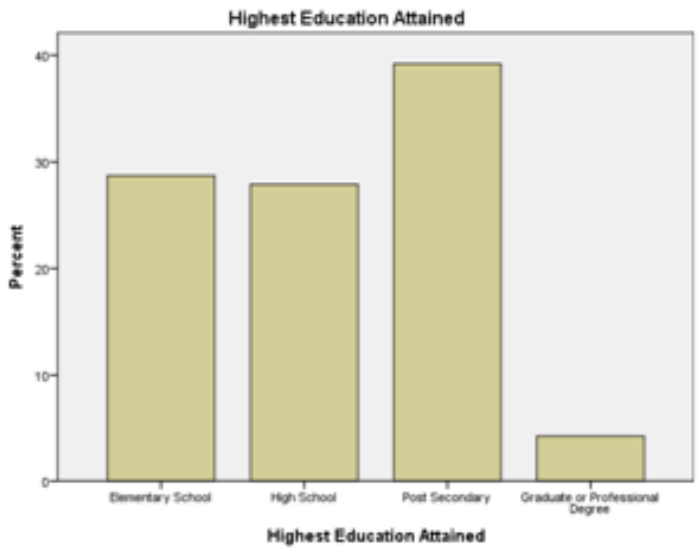


Figure 9: Highest education attained for all large scale farmers (N=620).

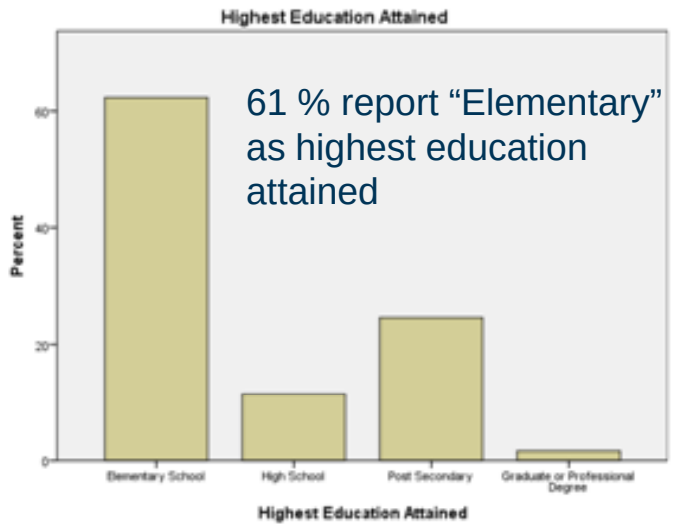


Figure 10: Highest education attained for large scale farmers less than 35 years of age (N=61).

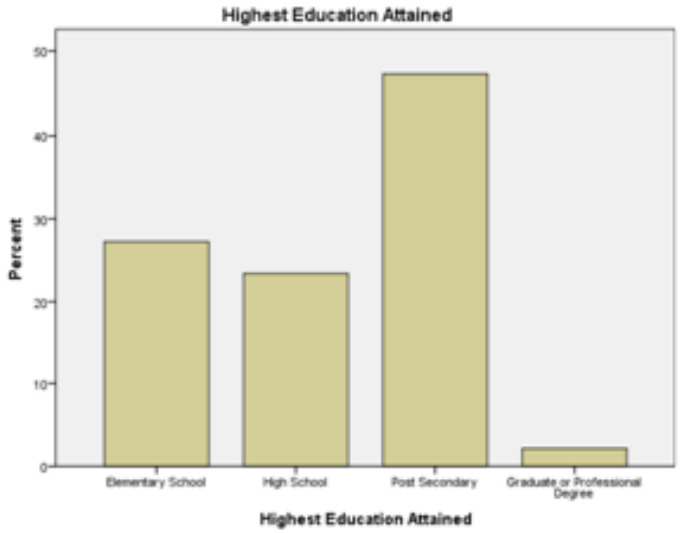


Figure 11: Highest education attained for large scale farmers between 35 and 55 years of age (N=235).

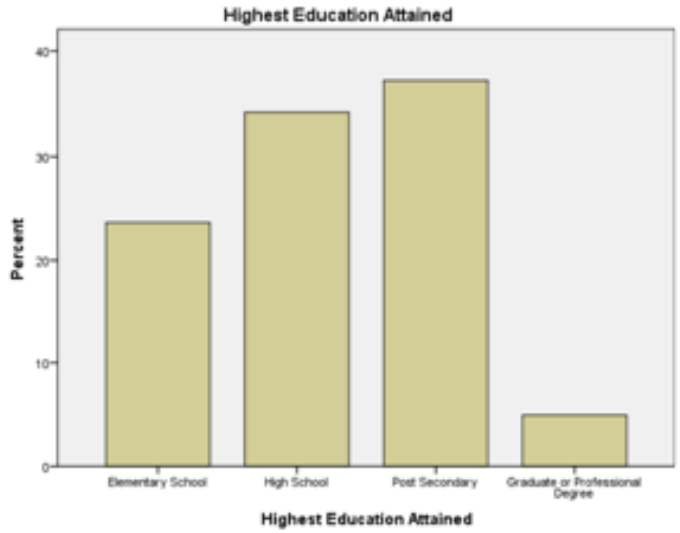


Figure 12: Highest education attained for large scale farmers over 55 years of age (N= 385).

What does it all mean??

- Perhaps should put more effort into targeting large property owners for our conservation services.
- Modify services to appeal to younger operators
- Distribution of ethic index scores provides some indication on where we might want to focus marketing/promotion efforts

New Questions!

- Why are younger farmers less conservation oriented? Concern as these younger farmers are our future
- Why are younger farmers not pursing formal education? Does it matter?
- Is the shifting economics of agriculture having a greater impact on the conservation behaviour of younger farmers?

Limitations and Cautions

- Non-response bias
  - 82 % non-response rate
  - More likely to hear from “conservation oriented” people
  - Removal of conservation lands likely under reported

Limitations and Cautions

- Snapshot in time
  - Commodity prices have retreated
  - Land prices remain high
- Net change in conservation lands is only one measure of conservation behaviour. For example, did not explore conservation tillage.

What's Next?

- More in-depth consideration of what the results mean to UTRCA/GRCA services
- Clean up the final draft report – publish?
- Encourage further research on the data set that has been collected and on the questions that have been raised
- Challenge – to use this information about our rural community to refine existing services and guide development of new programs

Acknowledgements

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