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THE STATE UNIVERSITY OF NEW JERSEY

Evaluating Farmland Preservation in New Jersey

Overview of Recent NJAES Research

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Presented to the

State Agriculture Development Committee

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NJ's response to urbanization and farmland loss

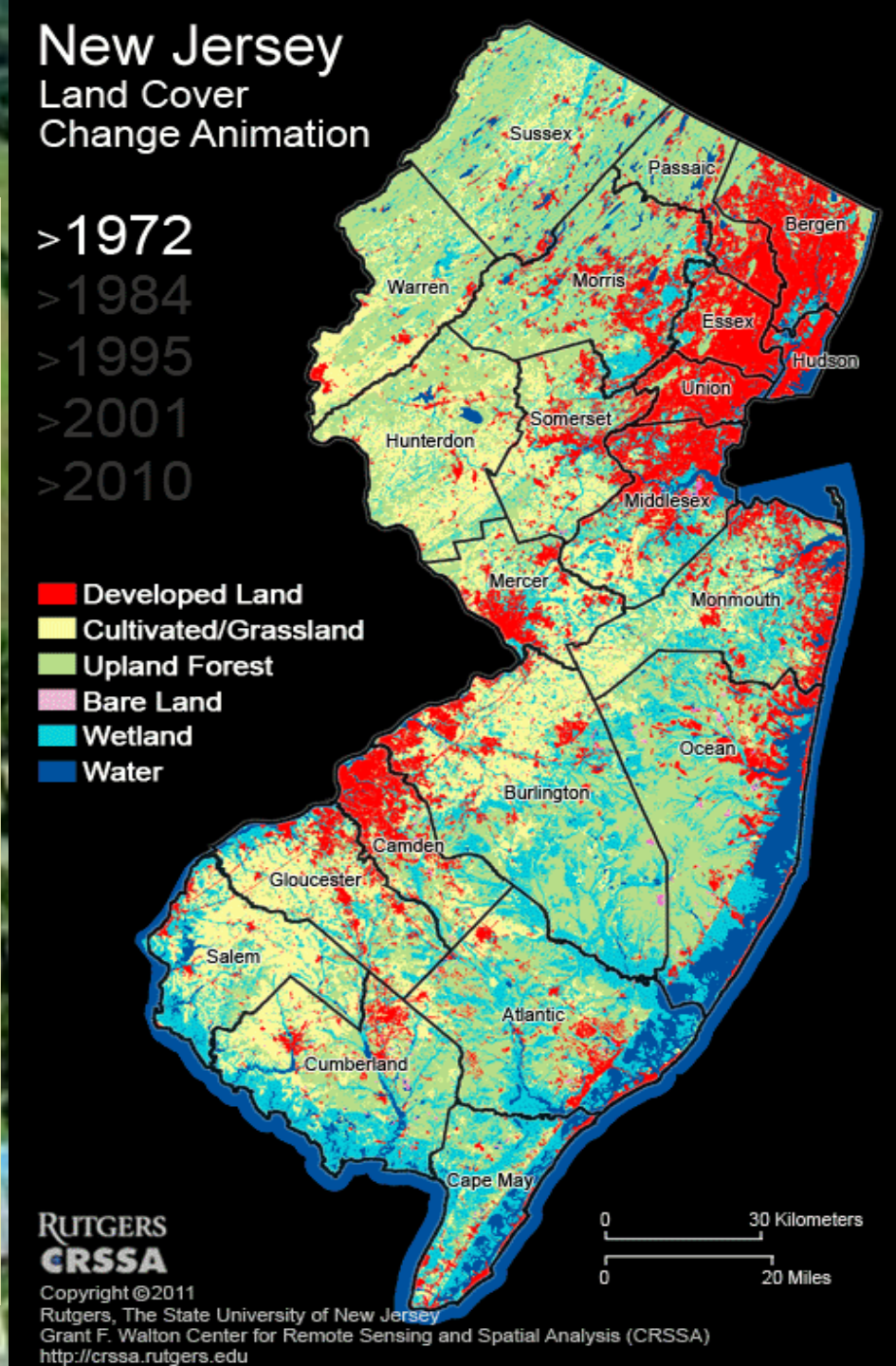
Farmland Assessment Act – 1964

Right to Farm – 1983

Agriculture Retention and Development Act – 1983

...we must use a two-headed spear. One must be pointed at the physical problem of finding a way to make farming and farmland more permanent, and the other, at the economic, social, and political forces which create man-made handicaps which, unlike the natural vicissitudes of soils, insects, diseases, and weather, are quite avoidable.

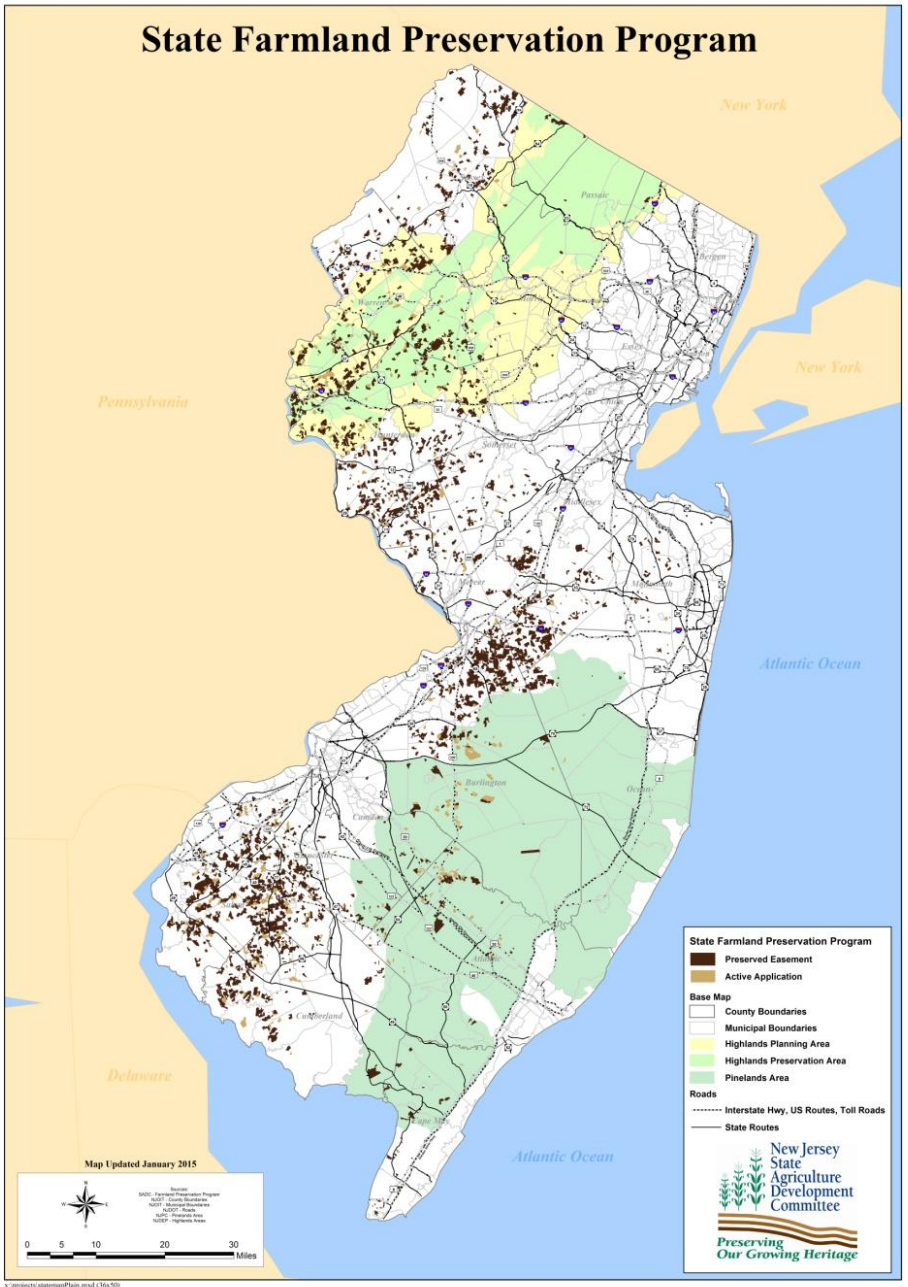
- The Blueprint Commission



Farmland Preservation in NJ

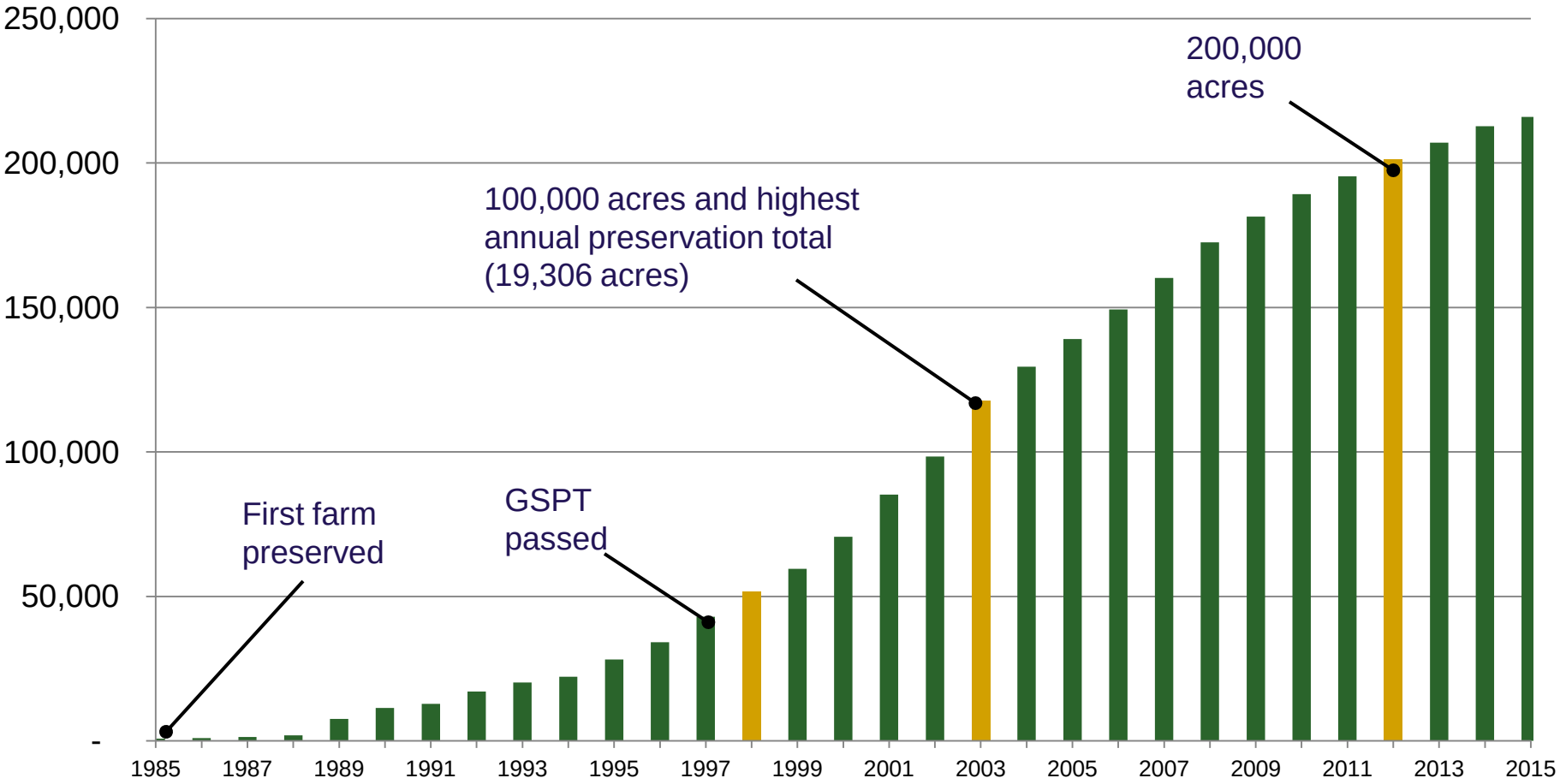
Through May 2015

- 2,341 preservation transactions
- 215,991 acres under easements
- $1.66 billion expended
- Farmland preserved in 18 counties and 181 municipalities



Milestones in New Jersey's Farmland Preservation Program

(acres of farmland preserved)



BACKGROUND AND NATIONAL CONTEXT

Purchase of Development Rights

(aka Purchase of Agricultural Conservation Easements, or PACE)

Advantages

Non-regulatory

(voluntary and compensated)

Non-possessory interest

"Permanent"

Popular with voters

(they love land-based amenities!)

Disadvantages

Costly

(but better than fee simple purchase)

Monitoring & enforcement

Hard to achieve large contiguous "preserves"

(voluntary participation)

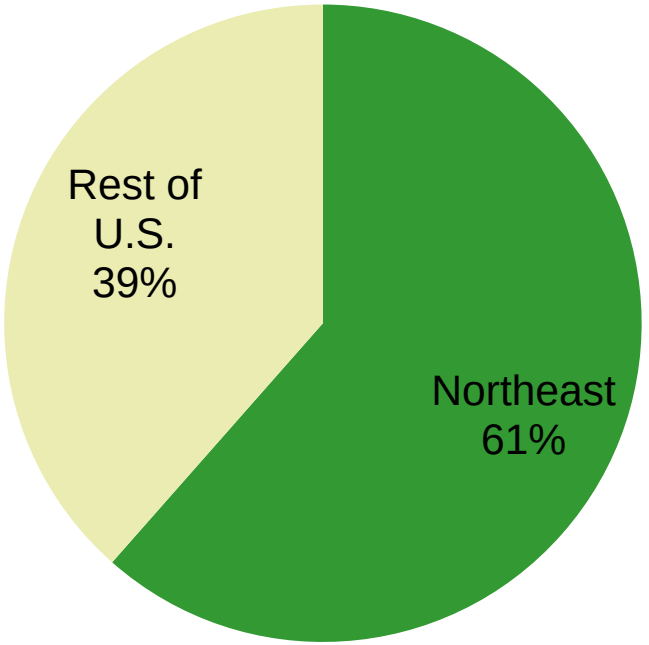
Farmland Preservation (Purchase of Agricultural Conservation Easements)

– State Programs, Current Status –

- 27 active State PACE programs in U.S.*
  - 2.45 million acres of farmland under conservation easements
  - $3.78 billion in program funds spent
  - $2.47 billion in matching funds (local governments, FRPP, non-profits, etc.)

* 1 state had a program, but authorization expired.

Farmland Acreage Under Conservation Easement



Source: American Farmland Trust. 2014. "2014 Status of State PACE Programs"

Farmland Preservation in the Northeast (*through May 2014*)

State	Year Started	Farmland Acres Under Easement	Pct of Farmland Under Easement
Pennsylvania	1988	484,272	6.3%
Maryland	**1977**	**366,806**	**18.1%**
New Jersey	**1983**	**207,081**	**29.0%**
Vermont	1987	145,840	11.7%
Delaware	**1991**	**115,315**	**22.7%**
Massachusetts	1997	70,012	13.4%
New York	1996	52,227	0.7%
Connecticut	1978	39,716	9.1%
New Hampshire	1979	13,590	2.9%
Maine	1999	8,900	0.6%
Rhode Island	1981	6,872	9.9%
United States		2,454,702	0.3%
Northeast		1,510,631	6.8%

(Source: American Farmland Trust, 2014)

Industry Benefits of Farmland Preservation

- Permanently preserve farmland from development into non-farm uses
  - Create geographic blocks of land in which agriculture is a preferred, long-term use
  - Reduce psychological burden of development pressure
  - Limit negative externalities of urbanization
  - Agglomeration economies
- Provide capital influx into farm operation/promote farm economic viability
  - Encourages farm investment/modernization (reverses the “impermanence syndrome”)
  - New business/market development
  - Facilitates estate transfer
  - Retire debt
  - Meets other farm household financial objectives
- Promote affordability of farmland
  - Farm succession/intergenerational transfer
  - Access to land for farm expansion/new industry entrants

Some Questions…

1) What are the effects of ownership succession?
   - Who owns preserved farmland?
   - Is preserved farmland staying in active agriculture?

2) Is farmland preservation helping to support farm viability?
   - Is (how is) farmland preservation affecting land affordability?
   - How are easement monies used?
   - Is farm profitability being affected?
   - Are farm investment behaviors affected?

3) Are landowners happy with their decision to preserve farmland?
   - What factors impact their satisfaction with farmland preservation?

4) What does the future hold?

USDA Study of Preserved Farmland Owners

- Telephone survey of 507 owners of farmland preserved in NJ, DE, MD
  - Three states account for 28% of all state PACE program acres & 44% of expenditures
  - Interviews conducted between July 2011 to January 2012
  - Average interview: 31.7 minutes

Composition of Sampling Frame and Study Sample

	Sampling Frame		Sample	
Easement Program	**No. of Landowners**	**% of Total**	**No. of Landowners**	**% of Total**
Delaware Agricultural Land Preservation Foundation	627	11.8	59	11.6
Maryland Agricultural Land Preservation Foundation	1,754	33.0	155	30.6
Maryland Environmental Trust	630	11.8	73	14.4
Maryland Rural Legacy Program	374	7.0	29	5.7
New Jersey Farmland Preservation Program	**1,934**	**36.4**	**191**	**37.7**
Totals	5,319	100.0	507	100.0

PRESERVED FARMLAND OWNERSHIP SUCCESSION

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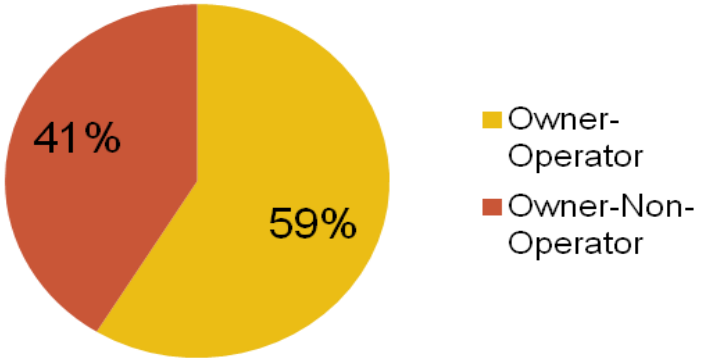
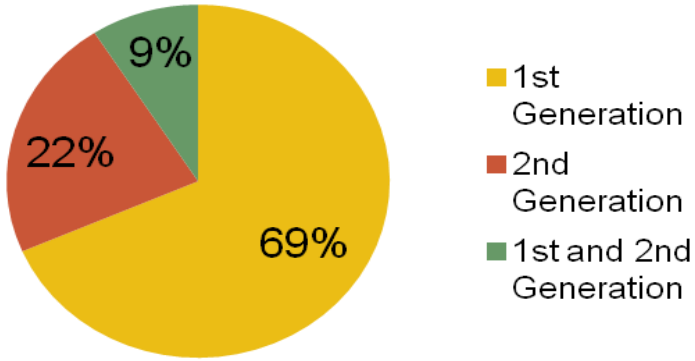
Who owns preserved farmland?

Structure of preserved farmland ownership (NJ, MD, DE)

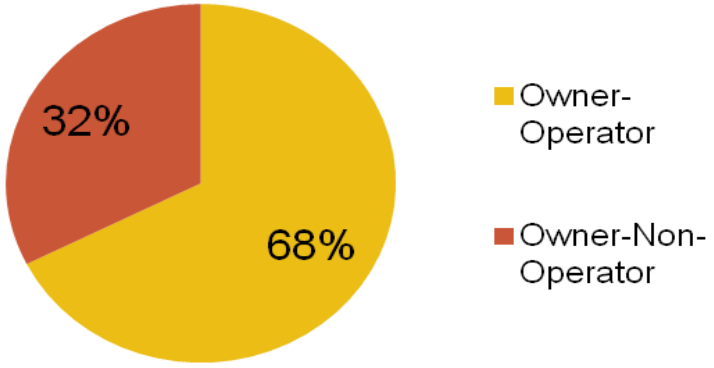
Operator Status
(% of 507 cases)



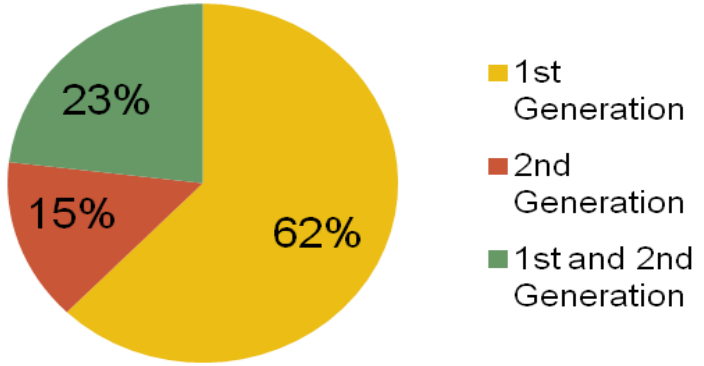
Pathway to Ownership
(% of 507 cases)



Operator Status
(% of 101,674 preserved acres)

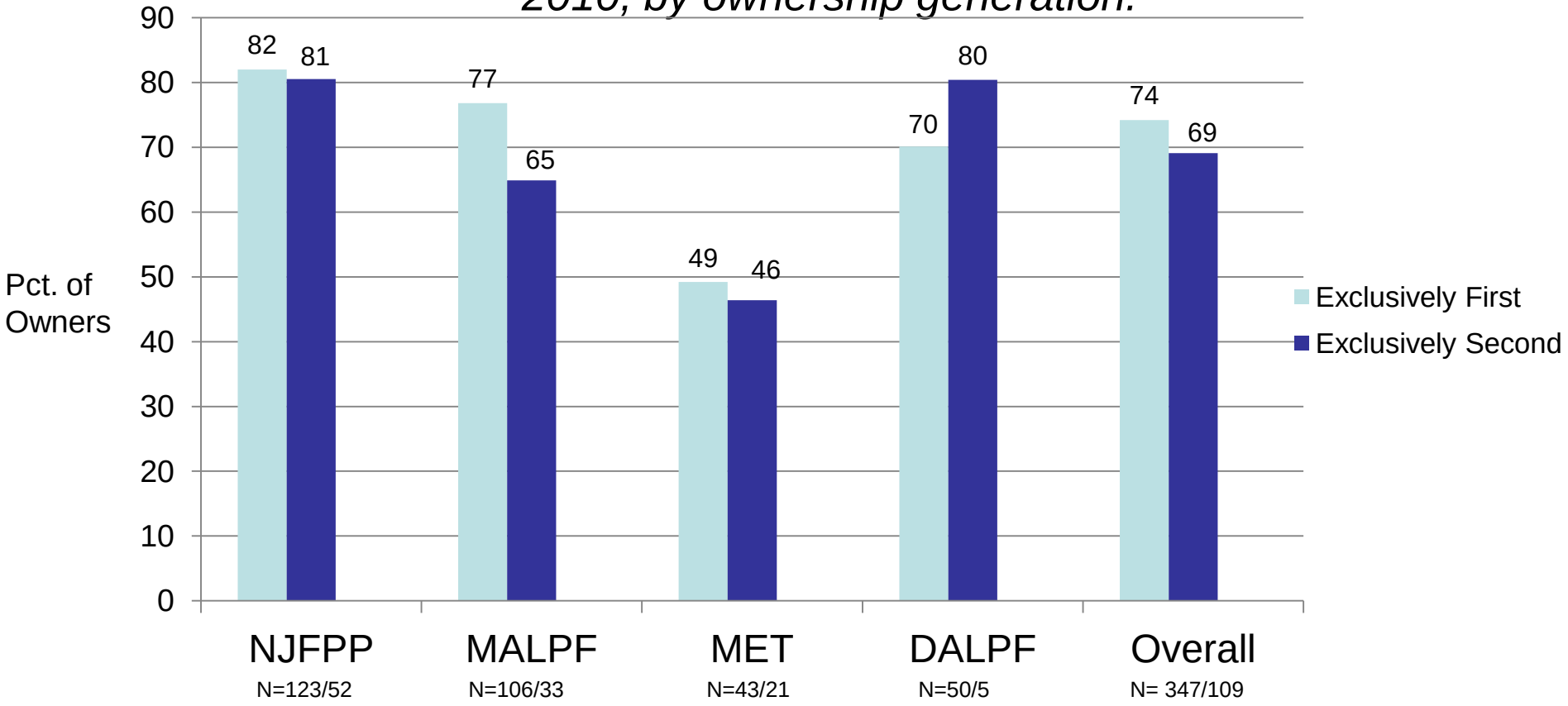


Pathway to Ownership
(% of 101,674 preserved acres)



Is preserved farmland staying in agriculture?

Average percent of total preserved land reported in a farming operation in 2010, by ownership generation.



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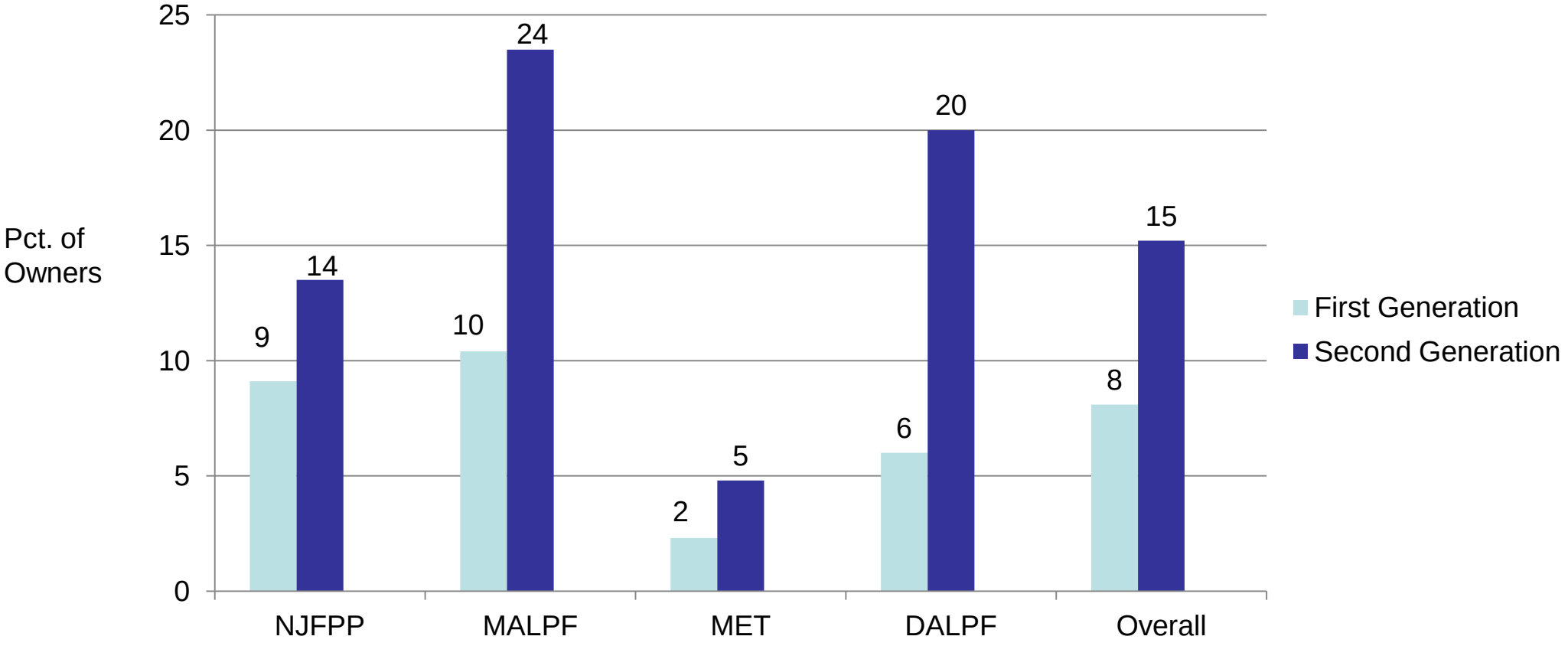
No statistically significant differences between generations were found.

Is farmland preservation helping young farmers?

Percentage of purchasers that were "young farmers" (40 years old or less) when they first acquired preserved land, by ownership generation.



Statistically significant differences for MALPF & Overall.

What plans exist for the future ownership and use of preserved farmland?

- Among (n=175) surveyed owners of preserved land in NJ, written or verbal succession plans were reported by:
  - 59.3% of first generation owners
  - 48.1% of later generation owners

Likelihood that next owner will farm the land	First Gen. Owners	Later Gen. Owners
Definitely/probably yes	38.2%	28.8%
Definitely/probably no	13.8%	11.6%
Don't know/ no plan in place	**48.0%**	59.6%
Total	**100.0%**	**100.0%**

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FARMLAND PRESERVATION AND FARM VIABILITY

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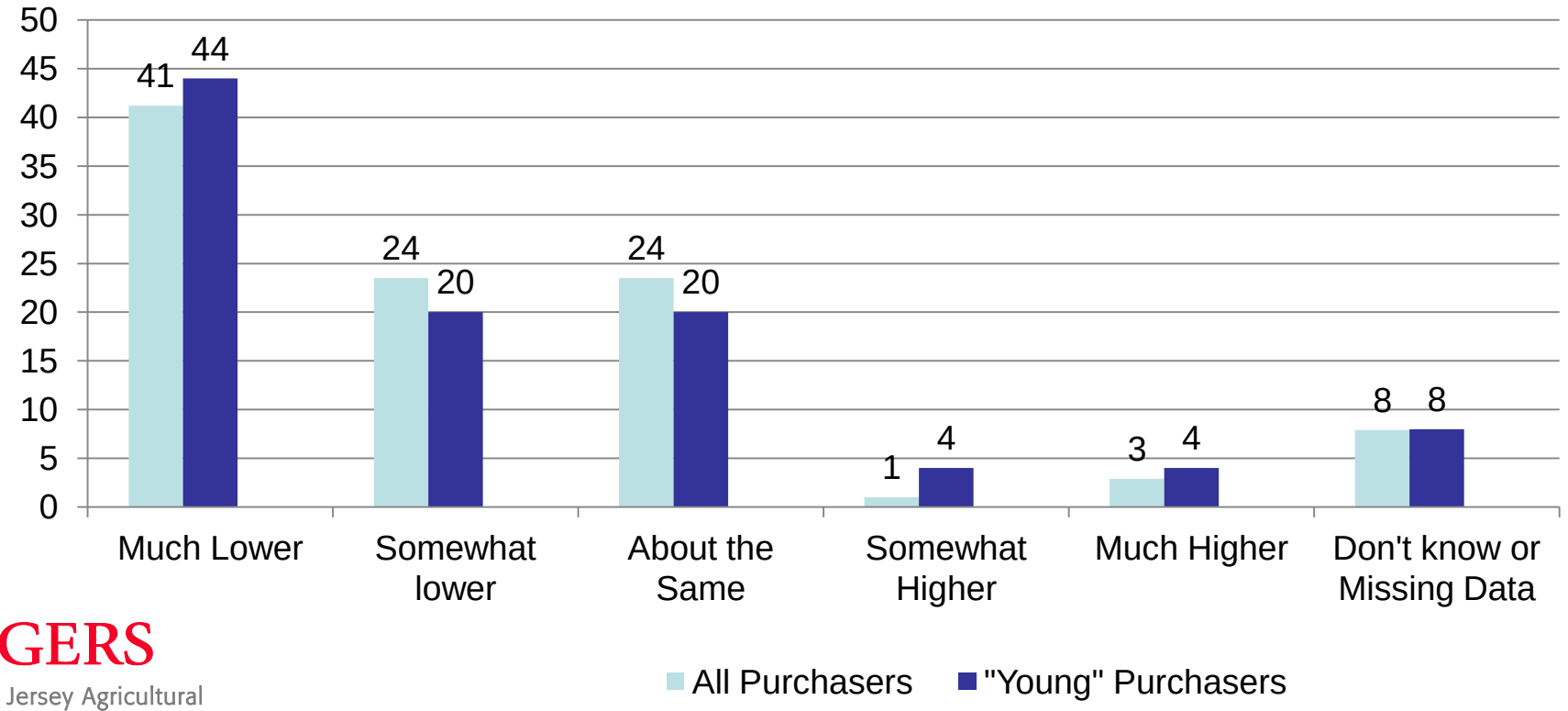
Is preserved farmland less expensive than unpreserved land?

Purchasers' perceptions of the cost of preserved farmland, relative to the cost of "similar land with its development rights intact" (NJ, DE and MD).

All Purchasers (n=102) Versus "Young" Purchasers (n=25)

(Young purchasers are owners who were 40 years old or less at the time of purchase)



Some Policy Questions

- Should the appreciation of preserved land be capped?
- Should there be restrictions on buyers (e.g., limit bids at auctions to "bona fide" farmers)?
  - Related question of keeping land "in" agriculture, versus "available for" agriculture
- Should the state hold more land fee simple (e.g., lease land to new/beginning farmers)?
- Should easement holders limit housing (and other future development) opportunities?
- Should house size limitations be implemented?

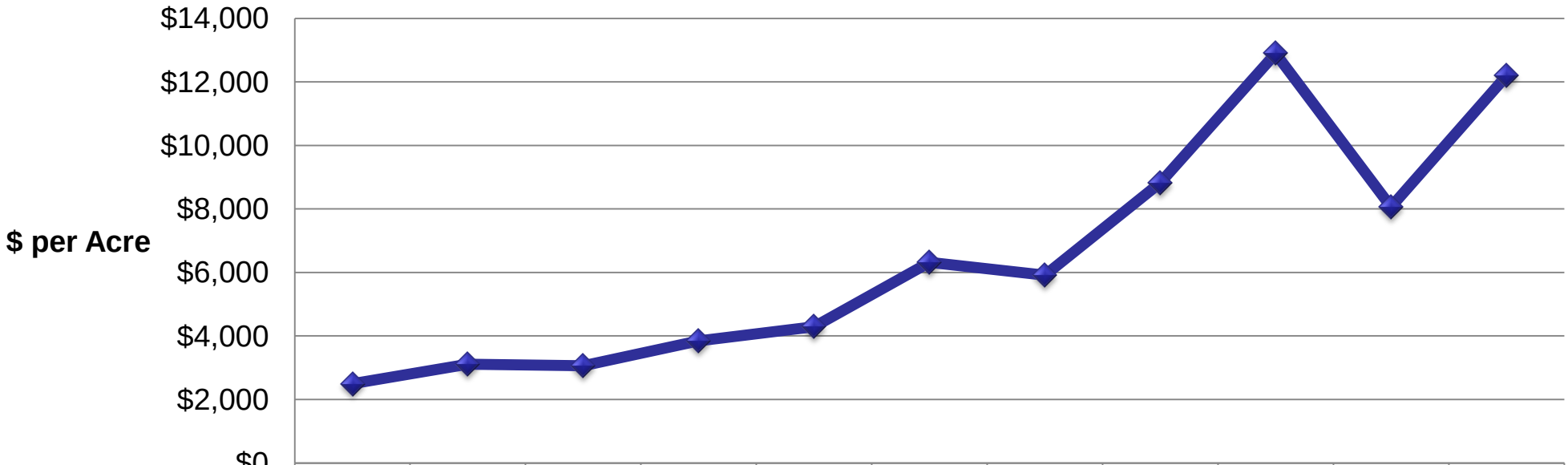
Study 1 – Factors Affecting Preserved Farmland Values

Question: *What are the effects of housing and future development flexibilities (i.e., SADC policies on RDSOs & exceptions) on preserved farm values in NJ?*

- Hedonic pricing study (325 preserved farms sold in NJ between 1985 & early 2007)
- Parcel level data (SADC scoring sheets and appraisal records, local property tax record cards, GIS data layers, Census and other secondary sources

* Schilling, B., Sullivan, K. & Duke, J. (2013). "Do residual development options increase preserved farmland values?" *Journal of Agricultural and Resource Economics* 38(3):327-343.

Preserved Farmland Sales (Avg. Price per Acre) 1985-2007



	1985 to 1989	1990 to 1994	1995 to 1999	2000	2001	2002	2003	2004	2005	2006	2007
Avg. Price/Acre	$2,493	$3,113	$3,064	$3,848	$4,291	$6,316	$5,912	$8,826	$12,895	$8,061	$12,193
No. of Sales	9	22	89	27	28	30	36	33	34	27	29

An Affordability Gap?

Sales of Preserved Farms in New Jersey			
Period	**No. of sales**	**Acres**	**Avg. Price/Acre**
1985-1989[a]	9	1,070	$2,493
1990-1994	22	3,210	$3,113
1995-1999	89	10,891	$3,064
2000-2004	152	15,076	$5,857
2005 to 2/07	52	4,172	**$10,111**
Total	**325**	**34,419**	

[a] Excluded from analysis.

Source: SADC administrative records.

Avg. NJ NFI (2007)* = $342/ac

Assuming 8% discount rate, an average farmer could cash flow land valued at $4,288/ac

Between 2005 and early 2007, preserved farmland sold for nearly 2.5 x more…

* 2007 Census of Agriculture.

Most Significant Findings

Based on sales of preserved New Jersey farms from 1990-2007:

- Preserved farmland appreciated in value by 10.6% annually (all other factors considered)
- The **presence of an existing residence** increased the per acre price of a preserved farm by **31.5%**
  - Each 1,000 sq. ft. of house size, increased the per acre price by 4.9%
- The **existence of an exception or RDSO** increased the per acre price of a preserved farm by **43.5%**

Policy Implications – A Discussion of Tradeoffs

- Require houses to be subdivided off?
  - But….will this limit desirability of preserved farms for certain types of production?
- Limit exceptions?
  - Implications for future flexibility and /or economic viability (e.g., use of barns for non-agricultural businesses)
  - But…exceptions can mitigate uncertainty over future deed of easement provisions interpretations

Study 2 – Farmland Preservation & Farm Profitability

Question: *Does participation in a PDR program improve farm profitability?*

- Comparison of preserved farms with "observationally equivalent" unpreserved farms
  - Control for selection bias (e.g., do only the "best" (or "worst") farms decide to enter farmland preservation?
- Respondent-level Census of Agriculture records & SADC administrative records, other secondary data sources

* Schilling, B., Attavanich, W., Sullivan, K., and Marxen, L. (2014). "Measuring the effect of farmland preservation on farm profitability." *Land Use Policy 41:84-96*.

Farm Type	Profit Impact
Full Sample	Not significant
Rural Residence Farms	
Residential/lifestyle	**Weak positive effects**
Retirement	Not significant
Intermediate	
Low sales	**Positive** ($311-$568 more per acre)
High sales	**Negative**
Large-Scale Family Farms	
Large	Not significant
Very large	Not significant

Not surprising - consistent with expectations

Surprising!

Expectations were ambiguous. Wrong metric??

Observations

- Mixed effects among residential/retirement scale farms?
  - For some, easement payments may dampen an already low profit motive
  - For others, PDR may enable scaling up
    - "Lifestyle" designation under ERS typology does not equate to the absence of a profit motive
- Exit strategy for retirement-age farmers?
  - Implications for planning for succession of preserved farmland
- Positive news regarding small "commercial" farm economic impacts
- Unexpected findings – intermediate "high sales"
  - Wrong unit of analysis for large farms?
  - Expansion vs. intensification

Study 3 – Farmland Preservation & Agricultural Investment

Question: *Are farms in PDR programs investing at the same rate as other farms?* Percentage of sample who invested:

66%

in equipment

57%

in buildings

45%

in conservation

19%

in irrigation

Gottlieb, P.D., B. Schilling, K. Sullivan, J.D. Esseks, L. Lynch, and J. Duke. 2015. Are preserved farms actively engaged in agriculture and conservation? *Land Use Policy* 45: 103-116. http://dx.doi.org/10.1016/j.landusepol.2015.01.013

Question: *Are lifestyle farms or those owned by non-operators a concern with respect to agricultural investment?*

Generally **NO**:

- Lifestyle preserved farmers invest at the same rate as other preserved farms, with the exception of irrigation
- Farms owned by non-operators invest less, but they account for fewer acres than in the general farm population
- Preserved farms are relatively large and relatively professional. This supports investment activity.

Farmland Preservation and Farm Viability

How are Easement Payments Used?

Easements Monies Used to	No. of NJ Owners	Pct. of NJ Owners
Meet personal/household needs	86	65%
Decrease farm debt	51	38%
Purchase farmland in NJ	26	19%
Purchase farmland outside NJ	2	1%
Purchase farm equipment/machinery	63	47%
Construct or renovate farm buildings	57	42%
Purchase/improve irrigation equipment	21	15%
Start/expand an ag-related business	11	8%
Estate planning/transfer	9	7%
Meet other purposes	19	14%

Based on n=138 NJ farmland owners that sold development rights.

FARMLAND PRESERVATION AND LANDOWNER SATISFACTION

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Do the owners of farmland protected by conservation easements tend to be satisfied with owning such land?

Why is this question important?

- The attitudes of current program participants may have important impacts on the future health of land conservation programs.

- Satisfied owners may:
  - enroll more land in the programs,
  - encourage relatives and friends to participate in PDR,
  - report their satisfaction to legislators who vote on re-authorizing programs/program appropriations.

- Dissatisfied clients can bring about opposite effects.

Survey participants were asked to provide an **overall evaluation** of their experiences as an owner of preserved land…

		Satisfaction Level with PDR Participation (% of respondents)			
State	Sample Size	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied
DALPF	59	64.4%	30.5%	1.7%	3.4%
MALPF	154	51.9	39.6	3.9	4.5
MET	73	**75.3**	17.8	6.8	0.0
MRLP	29	62.1	34.5	3.4	0.0
NJFPP	190	**49.5**	41.6	6.3	2.6
All Respondents	505	56.4	**35.8**	5.0	2.8

Differences across programs are statistically significant (p=.016).

92% indicated being satisfied with their experiences.

But, roughly 1/3 were only "satisfied."

What Explains Landowner Satisfaction?

Ordered Logit Model Results

Variable	Effect on Being Very Satisfied
A new house was built since preserving property	24% more likely
Farm preserved under MET	27% more likely
Respondent is “second” generation owner	**25% less likely**
Years that the preserved farm was owned	Slight negative effect/year
Owner’s age	Slight negative effect/year
A family heir interested in farming has been identified	10% more likely
A business restriction was encountered due to DoE provisions	**34% less likely**

From a paper by Schilling et al. currently under academic review.

What Explains Landowner Satisfaction?

Ordered Logit Model Results (continued)

Variable	Effect on Being Very Satisfied
Owner reported a significant benefit from PDR in the form of:	
…personal/household financial impacts	11% more likely
…meeting conservation objectives	14% more likely
…business improvements (from easement monies)	12% more likely
Owner reported discontent with the administrative process of preserving farm	**33% less likely**

An alternative line of questioning focused on whether landowners felt the "right decision" was made when they (or a previous owner) preserved their farmland.

New Jersey data

Pathway to Ownership	No. of Owners	Was the Right Decision Made to Preserve Farmland/Acquire Preserved Farmland? (% of respondents) Definitely Yes	Probably Yes	Probably No	Definitely No
Sold development rights	137	66%	27%	3%	4%
Donated development rights	5	80	20	0	0
Purchased preserved farmland	46	74	20	4	2
Inherited preserved farmland	27	**56**	15	11	**19**

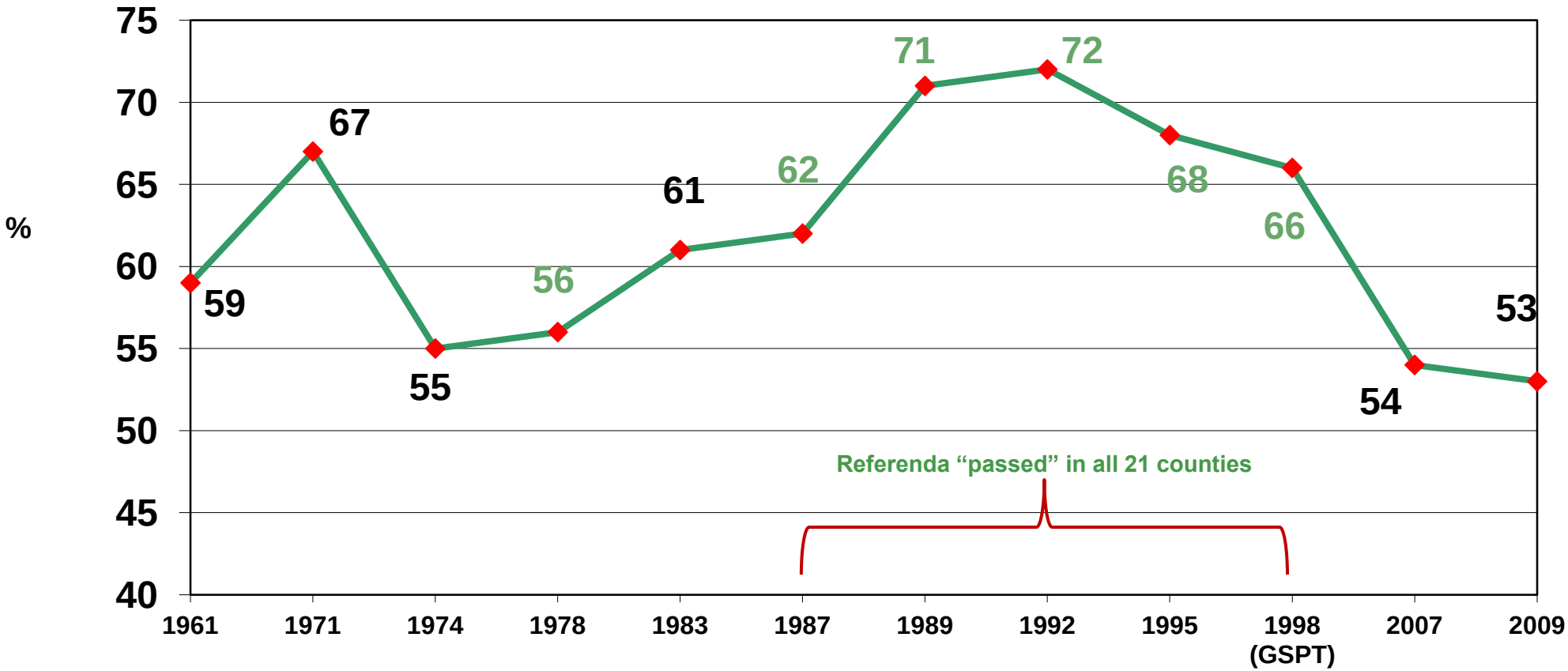
(No statistically significant differences in landowner sentiments are observed across programs or states.)

A LOOK AHEAD

A Strong Public Appetite for Farmland Preservation

NJ Voter Approval of Ballot Questions Allocating State Funds to Land Preservation

(*Statewide Approval Ratings*)



Source: Schilling, B. 2009.

A job unfinished…

18 **county** farmland preservation plans:

Targeted farms: 5,145

Targeted acreage: 253,333 acres

Estimated cost: $2.28 billion (avg. of $9,004/ac)

Smaller farms being preserved = increased administrative effort & cost

	Avg. Size of Farm Preserved
1985 - 1994:	148 acres
1995 - 2004:	86 acres
2005 – present:	77 acres
Targeted farms:	**~49 acres**

Views of the Nation's PACE Program Managers

Top 5 Program Challenges:

- Sustained funding for continued preservation
- Stewardship/post-preservation monitoring
  - Information asymmetry (later generation owners)
- Deed of easement interpretation / allowing busines
  - Are deed of easement provisions "keeping up" with the dynamics of the industry?
  - What is an agricultural use?
  - Controlled environment production; equine facilities; energy facilities; agritourism & direct marketing
- Promoting the economic viability of preserved farms
- Coordinated planning for land preservation

Views of the Nation's PACE Program Managers

Other Issues:

- Succession of preserved farms/estate planning
- Maintaining farmers' interest in farmland preservation
- Affordability of preserved farmland
- Implications of climate change
- Valuation of easements
- Leasing arrangements for preserved farmland

Help Guide Future NJAES Research

What would you like to know?

Findings drawn from the following sources

- Schilling, B., Esseks, J.D., Duke, J., Gottlieb, P. & Lynch, L. (2015). The future of preserved farmland: ownership succession in three Mid-Atlantic states. *Journal of Agriculture, Food Systems and Community Development* 5(2): 129-153.
- Gottlieb, P., Schilling, B., Esseks, J.D., Lynch, L. & Duke, J. (2015). Are preserved farms actively engaged in agriculture and conservation? *Land Use Policy* 45: 103-116.
- Schilling, B., Attavanich, W.*, Sullivan, K., and Marxen, L. (2014). Measuring the effect of farmland preservation on farm profitability. *Land Use Policy* 41:84-96.
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- Esseks. J.D. & Schilling, B. (2013). *Impacts of the Farm and Ranch Lands Protection Program: an assessment based on interviews with participating landowners*. Lincoln, NE: Center for Great Plains Studies, University of Nebraska-Lincoln. (Revised in 2014)

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