

## Center for Wildlife Damage Control

# How are white-tailed deer affecting agriculture in New Jersey?

Survey Findings Briefing Report & Maps. October 7, 1998

### *Purpose*

In the 1990's New Jersey's agricultural community identified rising losses from crop depredation due to deer as a major problem. Deer damage is a concern of both the agricultural community and the NJDEP Division of Fish, Game and Wildlife (the Division). Yet, incomplete data was available on the extent of farmers' deer-related damage problems.

Rutgers' NJ Agricultural Experiment Station (NJAES) Center for Wildlife Damage Control designed and conducted a 65 question survey of NJ's farmers in 1998 to contribute to a better understanding how deer, and current deer management practices, impact agriculture. This comprehensive opinion survey determines farmers' perceptions of deer and identifies and quantifies how current deer management practices impact their farming. Survey results should lead to improved deer management programs that are more responsive to the needs of farmers seeking solutions to crop damage.

### *Who was surveyed?*

The confidential survey sampled 4,403 New Jersey farm operators on the USDA/NJ National Agricultural Statistics Service's 'Composite Operator List' whose farm sales were reported greater than \$10,000 annually. A 51% response rate (2,142 questionnaires returned) was achieved through multiple mailings and telephone follow-up.

### *Results*

Results are presented as proportions of farmers responding to the survey. No effort has been made to project results presented in this summary to all farmers in NJ as they may not be representative of farmers whose farm sales are less than \$10,000 annually or of farmers who did not respond to the survey questionnaire.

### ***1997 crop losses attributed to deer***

- Responding farmers reported deer were responsible for 70% of their wildlife caused crop losses.
- The majority of responding farmers were very confident in their abilities to distinguish deer losses from losses caused by other species and confidence appeared to increase with experience.
- Deer densities and crop losses have exceeded the tolerance of producers in most areas of the state.
- 39% of farmers responding reported 1997 losses were intolerable to the point of taking additional action to resolve the issue.
- Between \$5 and \$10 million in crop losses for 1997 were reported by farmers responding to this survey.

**Table 1.** Total reported cultivated acres, deer affected acres, and minimum and maximum loss estimates by Division region for 1997.

Division Region	Sample size answering questions	Sum of cultivated acres	Sum of deer 'affected' acres	Percent of cultivated acres 'affected' by deer	Sum of minimum \$ loss estimates	Sum of maximum \$ loss estimates
Northern region	662	66,361	28,808	43 %	\$ 1,760,599	\$ 2,866,503
Central region	539	61,960	20,573	33 %	2,210,652	3,432,243
Southern region	636	68,721	18,664	27 %	1,761,700	3,814,582
<b>Statewide</b>	<b>1837</b>	<b>197,043</b>	<b>68,046</b>	<b>34 %</b>	<b>\$ 5,732,951</b>	<b>\$ 10,113,328</b>

**'Affected' acres does not mean that 100% of a crop was destroyed on those acres.** For example, on 100 acres perhaps 10 were 'affected' by deer with a 50% yield loss - resulting in a 5% overall loss.

### ***Effects of deer damage on field abandonment and crop selection***

- 25% of responding farmers reported abandoning a parcel of tillable ground because of excessive deer damage.
- 36% of responding farmers have ceased growing their preferred crops as a result of excessive damage.

**Table 2.** Average and total acreage abandoned as a result of excessive deer damage by respondents in Division regions.

Division Region	Sample size answering questions	Average acreage abandoned	Sum of acres reported abandoned
Northern region	185	30.8	5,709
Central region	130	26.9	3,498
Southern region	112	29.7	3,333
<b>Total</b>	<b>427</b>	<b>29.3</b>	<b>12,542</b>

**Table 3.** Average and total acreage where respondents' crop selection is restricted as a result of excessive deer damage in Division regions.

Division Region	Sample size answering questions	Average acreage where crop selection is restricted	Sum of acres reported affected
Northern region	237	56.1	13,305
Central region	165	44.1	7,292
Southern region	182	38.4	6,998
<b>Total</b>	<b>584</b>	<b>47.2</b>	<b>27,596</b>

### ***Annual labor and equipment employed in combating deer depredation***

- In total, responding farmers expended an estimated 67,855 paid labor hours and spent \$620,073 annually on attempting to control losses due to deer.
- Full-time farmers and those rating their 1997 losses as intolerable reported investing significantly more in labor and materials to fight deer depredation than did part-time farmers and those with more tolerable levels of loss in 1997.
- Fencing and repellents appear more widely used than other control techniques, which may reflect the Division program distributing fencing and repellents to farmers.

### ***Producer control of lands***

- 50% of responding farmers owned less than 8 acres of deer cover and, as an average, rented or leased one quarter of their farmlands from other landowners, which appears to be affecting their ability to control losses.
- Responding farmers reported approximately 20% of their rented farmlands were closed to all hunting.
- Farmers controlled hunting activity on one half of farmlands they rented or leased. Those producers whose losses were least tolerable appeared to have less control over deer hunting on rented ground than did producers without a deer damage problem.
- Responding farmers who used Permits to Shoot (PTS) indicated they were unable to use them on 40% of the lands they rented or leased from other landowners.

### ***Problems with opposition to Permits to Shoot (PTS)***

- 45% of responding farmers who used PTS at some point reported experiencing opposition to their use.
- Responding farmers most frequently reported opposition from adjacent homeowners and local hunters.
- Opposition to PTS did not apparently cause many producers to cease using them. Yet, many producers appeared to have stopped using this useful damage control tool.

### ***Factors that reportedly impact deer harvest***

- 32% of respondents perceived that discharge ordinances were impacting their ability to reduce deer numbers.
- 33% of the respondents perceived hunter preferences for bucks were not aiding their efforts to reduce deer damage.
- 56% of respondents indicated their abilities to control deer numbers were limited by the close proximity of their fields to small residential properties.

### ***Deer refuges***

- 43% of respondents indicated the presence of a 100 acre or greater parcel of land serving as a deer refuge within one mile of the area of their most severe crop losses.
- 50% of the respondents with intolerable 1997 losses indicated there was such a refuge within a mile of their most severely affected field.
- Most refuges were reported to be under private ownership.
- Publicly owned parcels serving as deer refuges were more common in Monmouth, Mercer, Hunterdon, and Burlington Counties.

### ***Deer hunting access on lands where respondents have authority to control access.***

- Deer hunting is a recreational activity pursued by slightly more than half of farmers responding to this survey.
- 77% of the responding farmers indicated allowing deer hunting on lands they owned, while 17% allowed no deer hunting whatsoever.
- Responding farmers believing the deer herd needs reducing generally behave consistently with that belief by allowing access to greater numbers of hunters and for yielding a greater proportion of antlerless deer in the harvest.
- 20% of farmers desiring herd reduction were unaware of the number of hunters on their farm.
- Responding farmers appear more willing to allow deer hunting access to non-acquaintances as their crop losses become more intolerable.

### ***Number of days deer hunters were afield***

- More than half of the responding farmers indicated they did not know approximately how many days their farm was being hunted.
- Producers who were able to estimate the amount of deer hunting on their farms reported their properties were being hunted approximately 50% of the available days.

### ***Harvest of bucks and does***

- 42% of producers desiring herd reduction were unaware of the number and sex of deer harvested on their farms.
- 42% of producers desiring herd reduction reported a buck-oriented harvest.
- Strategies that encouraged antlerless harvest resulted in greater numbers of deer being harvested and more favorable buck to doe harvest ratios.
- Only 5% of producers required that hunters shoot antlerless deer.

### ***Producers' use of the Division's wildlife damage control unit (WDCU)***

- 41% of responding farmers with intolerable losses did not contact the WDCU.
- 19% of responding farmers with intolerable losses, who did not contact the WDCU, did not know whom or where to call for assistance.
- Service provided by the WDCU was rated relatively well by those farmers utilizing it.
- Credibility of the Division was generally positive. However, farmers do not believe their interests are fairly considered by the Division when deer management decisions are made.

### ***Management recommendations emerging from survey results***

The increased abundance of deer and crop damage in NJ is the result of complex issues. These include land use, demographics of suburbanization, management of recreational hunting, access to private and public lands, and public policies. Solutions to reduce crop damage from deer must consider public policy **and** wildlife biology. While practical solutions in the field must be customized to each landowner, some recommendations from this study require policy changes.

- Just as record keeping is important for the Division's deer managers it is also important for farmers to maintain a record of the number and sex of deer harvested on their farms if they wish to manage their deer numbers and associated crop losses.
- Simply shooting some antlerless deer will not necessarily result in a herd reduction. The Division can make location-specific recommendations for the appropriate number of males and females to be removed to achieve the desired herd reductions.
- Where farmers control access to the land, they need to regulate the activity of the hunters to bring about the desired herd reduction.
- Where applicable, farmers need to inform landowners of the need to reduce deer numbers in order to continue farming the land.
- Communicating deer damage problems with landowners of adjacent properties may increase the likelihood of achieving deer management goals.
- Current legislative efforts have potential to expand Green Acres or open space programs and may inadvertently increase the number of parcels serving as unhuntable deer refuges. Therefore it may be beneficial for the State of New Jersey to ensure deer management plans are incorporated into open space protection programs.
- The Division has experience implementing managed hunts at some state parks and reserves and it might be beneficial to establish protocols for managing deer in state parks that do not currently have deer management plans.
- Farmers should promptly report damage to the Division Hotline (908.735.6938) or call Rutgers Cooperative Extension locally for advice and assistance with wildlife damage problems.

#### ***For additional information or assistance programs:***

- NJAES Center for Wildlife Damage. 908.730.9419  
Survey Findings Executive Summary. An expanded summary with maps (Approx. 14 pp.)  
Complete Survey Findings. All data, results, charts, tables, analyses, & maps. (Approx. 85 pp.)  
Opinion Survey Questionnaire. (65 questions. 14 pp.)
- Rutgers Cooperative Extension Fact Sheets. 908.730.9419  
Who to Call Regarding Wildlife Damage. (2 pp.)  
Portable Electric Fencing for Preventing Wildlife Damage. FS888. (2 pp.)  
High-Tensile Woven Wire Fences for Reducing Wildlife Damage. (4 pp.)
- NJDEP Division of Fish, Game and Wildlife. 609.292.2965  
Deer Hunting & the Farmer. A Landowner's Guide to Use & Mgt. of Hunters and Hunting Seasons to Control Deer. (7 pp.)  
Community-Based Program for the Management of Suburban Deer Populations - Policy and Procedures. (19 pp. or 4 pp. summary: Suburban Deer Mgt. A Realistic Approach.)
- NJ Dept. of Agriculture. 609.292.5532  
Deer Fencing Application/Agreement, Supplemental Deer Fence Program. (5 pp.)
- NJ Farm Bureau. 609.393.7163. There's nothing like the taste of "Jersey Fresh." (Brochure)

### ***Rutgers Center for Wildlife Damage Control & interagency cooperation***

Who and what is the Center? The Rutgers, NJAES Center for Wildlife Damage Control seeks to reduce conflicts between humans and wildlife. It's outreach activities are located at the Rutgers, NJAES Snyder Research and Extension Farm.

The Center formed an interagency Advisory Group open to professionals with interests in reducing the conflicts between humans and wildlife. The Advisory Group reviewed and approved this survey. The NJAES wishes to thank representatives from the following organizations for review and/or supporting this survey: NJ Dept. of Agriculture; NJDEP, Division of Fish, Game and Wildlife; NJ Farm Bureau; USDA/NJ National Agricultural Statistics Service; and USDA APHIS Wildlife Services.

Special thanks to Peter Fritzell, MS, NJAES Center Research Consultant, for his many hours designing, conducting, and analyzing the survey.

**RUTGERS COOPERATIVE EXTENSION, NJ AGRICULTURAL EXPERIMENT STATION, RUTGERS – THE STATE UNIVERSITY OF NEW JERSEY, NEW  
BRUNSWICK**

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## Total Number of Farmers Who Responded to Survey by County

### Number of Respondents

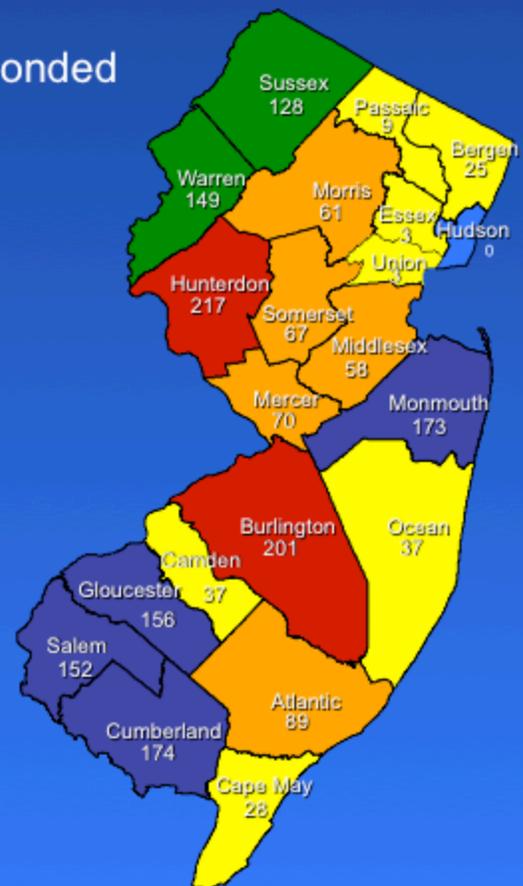


Total = 1837

\*There are no farms in Hudson County

Data Source:  
Center for Wildlife Damage Control  
Rutgers-Snyder Research and Extension Farm

Results pictured here only reflect  
the answers of survey respondents



## Producer Tolerance to 1997's Total Crop Losses to Deer

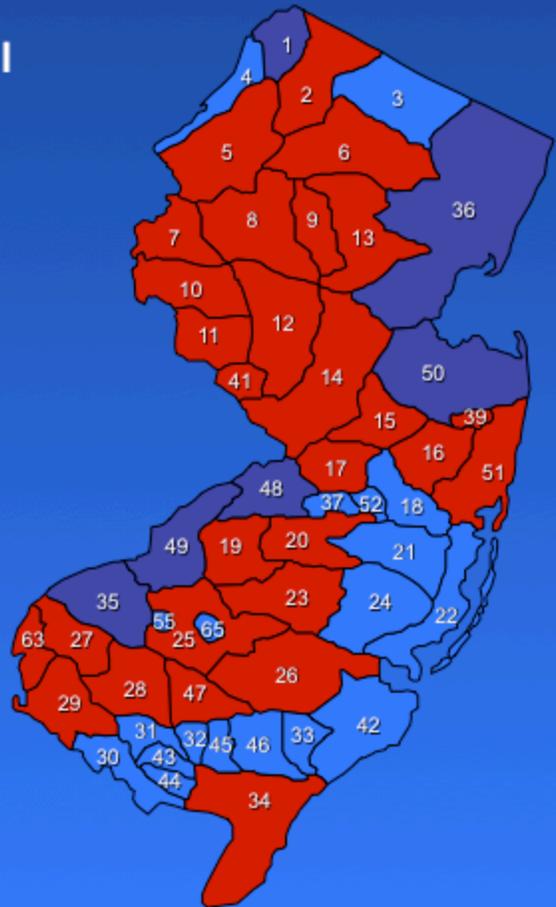
Mean Tolerance

- Not a Problem
- Tolerable Problem
- Intolerable Problem
- Sample size too small to report

\*NOTE: Polygon labels represent the Deer Management Zone Number.

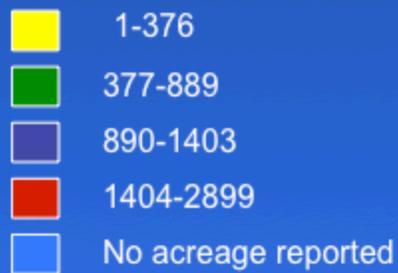
Data Source:  
Center for Wildlife Damage Control  
Rutgers-Snyder Research and Extension Farm  
Based on 1274 responses

Results pictured here only reflect  
the answers of survey respondents



## Number of Acres Where Producers Have Stopped Farming due to Excessive Deer Damage

Total Acreage Abandoned



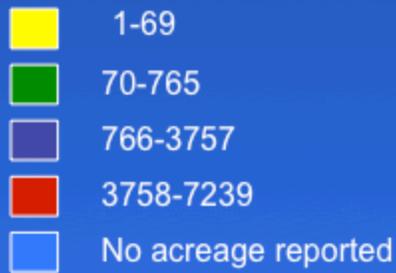
Data Source:  
Center for Wildlife Damage Control  
Rutgers-Snyder Research and Extension Farm  
Based on 441 responses

Results pictured here only reflect  
the answers of survey respondents



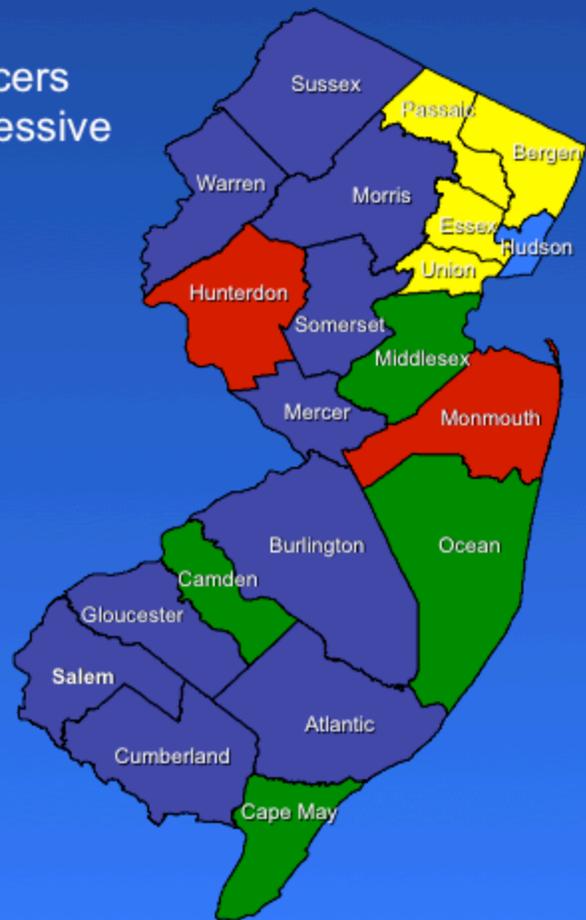
## Number of Acres Where Producers Have Changed Crops due to Excessive Deer Damage

Total Acreage Changed



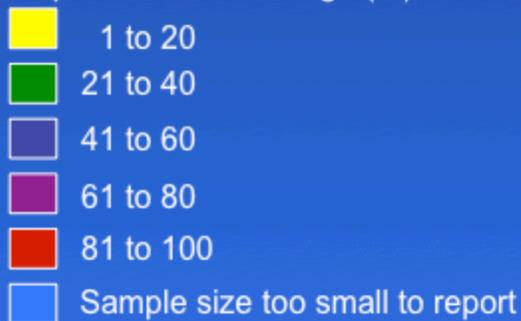
Data Source:  
Center for Wildlife Damage Control  
Rutgers-Snyder Research and Extension  
Farm  
Based on 616 responses

Results pictured here only reflect  
the answers of survey respondents



## Producers Whose Most Severe Crop Losses Were Near a Refuge Where Hunting is Prohibited

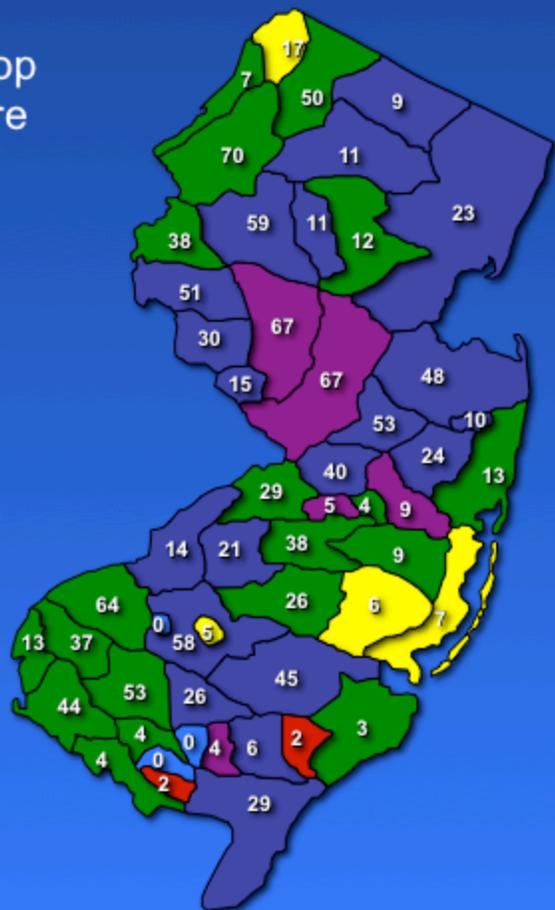
Respondents near refuge (%)



\*NOTE: Polygon labels represent the number of respondents per DMU. (Total=551)

**Data Source:**  
 Center for Wildlife Damage Control  
 Rutgers-Snyder Research and Extension Farm  
 Based on 1292 responses

Results pictured here only reflect  
 the answers of survey respondents



## Sum of the Maximum Crop Loss Estimates Provided by Survey Respondents

Maximum Estimated Value of Losses (\$)



Data Source:  
Center for Wildlife Damage Control  
Rutgers-Snyder Research and Extension Farm  
Based on 1064 responses

Results pictured here only reflect  
the answers of survey respondents

