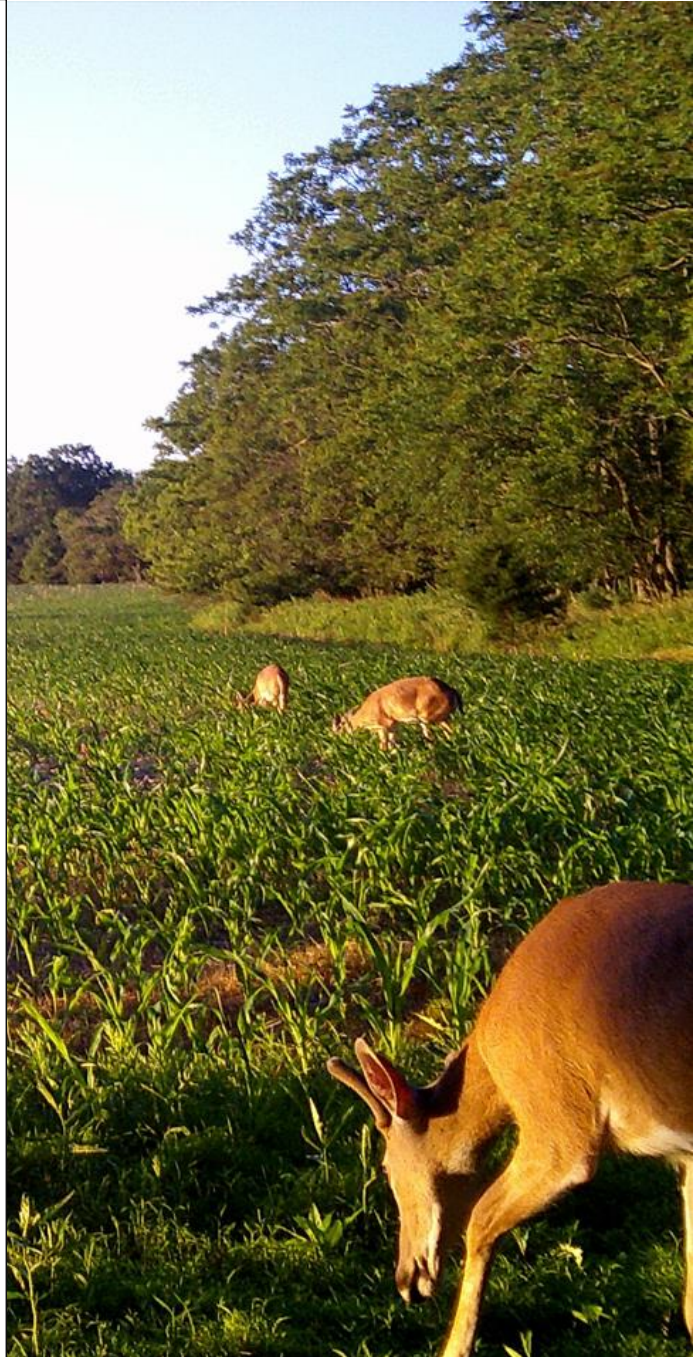


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**White Tailed Deer and  
the Costs to Farmers'  
Livelihoods: A Case  
Study of New Jersey  
Stories**

## EXECUTIVE SUMMARY

Joseph B. Paulin  
Nazia N. Arbab  
Brian J. Schilling



**RUTGERS**

New Jersey Agricultural  
Experiment Station

## Executive Summary

White-tailed deer (*Odocoileus virginianus*) damage to agricultural crops is often associated with direct impacts from feeding and financial losses associated with reduced yields. However, there are many other costs associated with deer damage that are not as obvious. These other costs include having to abandon fields (field abandonment), not being able to grow preferred crops that would increase profits (crop abandonment), having to change crop rotations, the need for increased use of fertilizers and herbicides, time and money spent on deer management, and the emotional toll it can take. We use the term “**hidden costs**” to describe these additional negative impacts that farmers experience relating to damage from white-tailed deer. The current study builds on the findings of previous New Jersey Agricultural Experiment Station (NJAES) research that estimated costs associated with direct deer damage to crops (Fritzell, 1998; Drake, 2005).

The following pages contain information from a collection of case studies conducted by the Rutgers University, NJAES between October 2020 and March 2021. A group of 27 New Jersey farmers shared their stories of struggling with increasing numbers of white-tailed deer and how it has impacted their farms and livelihoods.

### ***Purpose of this study:***

- (1) Gain a deeper understanding of “hidden costs” and the extent to which deer are impacting farms and livelihoods throughout New Jersey.
- (2) Identify opportunities to enhance partnerships, management, and outreach efforts.
- (3) Increase awareness of these issues to inform future conversations relating to white-tailed deer policy and management.

Case study farms were selected from the membership of the New Jersey Farm Bureau in areas documented as having high deer numbers (New Jersey Farm Bureau and Steward Green, 2019; NJAES 2020). Deer density estimates for participating farms ranged from 60 to 239 deer per square mile. For better context, densities of 10 deer per square mile are recommended to maintain benefits for social, economic, and ecosystem integrity (Kelly, 2019).

Counties represented in the case study include Atlantic, Burlington, Cape May, Cumberland, Salem, Hunterdon, Mercer, Monmouth, Passaic, Somerset, and Warren. The sample of farmers was constructed to provide a cross section by region (North, Central, and South), farm type (cash grains and oil seeds, vegetable, fruits or berries, and nursery/Christmas tree/ornamental), and farm size (6 acres to > 2,000 acres), where deer damage to agricultural crops is known to occur. Although not every county was directly represented in this study, similar experiences to those captured in the current research were reported in a previous NJAES survey of over 2,000 farmers throughout the state (Fritzell, 1998).

Case studies were originally planned as face-to-face interviews. However, due to the COVID-19 pandemic, the research team adapted the study to include a mixed-method approach that involved mail-back questionnaires, structured interviews, and follow-up telephone conversations to address the research objectives. The mail-back questionnaire posed a series of questions regarding the extent to which deer are impacting farms in New Jersey and the level of effectiveness of available deer management options. Questions for the case study were informed by (Fritzell, 1998), and consultation with agricultural leaders, New Jersey Farm Bureau (NJFB), and the New Jersey Division of Fish and Wildlife (NJDFW).

Through follow-up telephone conversations and structured interviews, farmers shared stories dating back as far as the 1960s. For some, seeing a deer as a child was a rare and thrilling experience. As deer numbers increased dramatically over time, farmers describe the increase in damage to their crops, challenges to keep farming, emotional toll, and impacts to their families and livelihoods. Some even question if they can continue farming.

*Responses from questionnaires and the stories farmers shared during follow-up telephone conversations were used to prepare:*

- **Farmers' Recommendations to Enhance Deer Management**
- **APPENDIX I: What Farmers Want You to Know: Key Topics and Messages from Case Study Stories**
- **APPENDIX II: Complete Farmer Case Studies**

In the current study, participating farmers collectively owned 4,185 acres and rented 8,769 acres. In 2019, of the 12,052 acres in production, 3,844 acres of crops were directly damaged by deer. An additional 661 acres were abandoned because of deer. On another 2,620 acres, farmers did not plant their preferred crops that could have generated higher profits because of high deer pressure. Nearly 3,000 hours were spent on deer management activities.

Results revealed that the conservative estimate associated with damage from deer and other wildlife in crop year 2019 was nearly \$1.4 million for the 27 participating farmers. These costs include direct deer damage to crops and reduced yields (\$520,940), deer-related hidden costs that can be assigned a dollar value (\$755,200), and crop damage from other wildlife species (\$97,749).

It should be noted that not all "hidden costs," can be assigned a dollar value. The emotional tolls of struggling to grow crops with high deer numbers and constant damage is one example. Additionally, the \$755,200 estimate mentioned earlier does not represent the true extent of all losses from deer-related "hidden costs" that were experienced by participants. Some farmers did not provide estimates for acres lost to crop and field abandonment. Estimates that were provided include \$36,500 for 211 of 661 acres that were completely abandoned. Losses from crop abandonment were \$383,800 for 1,685 of 2,620 acres. Deer fencing costs reported for 398 acres by 10 farmers totaled \$220,500. Reported costs to implement deer management options, primarily labor, were \$51,400. Costs associated with increased use of fertilizers, herbicides, and pesticides because of changing crop rotations and soil damage due to deer pressure were estimated at \$63,000.

This study provides a better understanding of the complex variety of situations and livelihood impacts that New Jersey farmers are encountering as a result of high deer numbers around the state. Results provide New Jersey's policymakers, communities, landowners and managers, and educators with a more complete understanding of the extent to which deer are currently impacting farm operations and identify opportunities to enhance partnerships, management and outreach efforts. Such knowledge is essential for expanding and enhancing deer management and future policy development.

Based on their experiences, participating farmers offered recommendations to policymakers for enhancing deer management in the state. The following is an overview of farmers' recommendations. Additional information on recommendations is provided later in the *Discussion and Management Recommendations* section.

### **Overview of farmers' recommendations to policymakers to enhance deer management in New Jersey:**

#### *1) General Deer Management*

- Promote opportunities for consultation between state agencies and stakeholders impacted by deer damage to coordinate efforts, identify challenges, and pool resources to increase the overall effectiveness of deer management programs throughout New Jersey. Participants should include, among others, the agricultural community, public and private land managers, developers, wildlife managers, researchers and educators, and state and local decision-makers.
- Expand coordinated regional deer management programs where municipal and county representatives can work together with state partners to enhance the effectiveness of deer management activities on public lands.
- Promote the expansion of doe-focused hunting programs on public and private lands wherever possible and raise awareness of the importance of harvesting does in reducing overall deer numbers.

#### *2) Venison Donation Programs and Helping Those in Need*

- Provide funding to expand opportunities for venison donation programs, such as Hunters Helping the Hungry, that can benefit from deer taken through farmer depredation permits, and suburban community-based deer management programs.

#### *3) Residential Development and Deer Refuge Areas*

- Encourage suburban communities with high deer densities that serve as refuge areas, and where hunting is not possible, to apply for New Jersey Division of Fish and Wildlife, Community-Based Deer Management Permits (<https://www.nj.gov/dep/fgw/cbdmp.htm>).

#### *4) Private Leased Farmland and Wildlife Management Plans*

- Require landowners receiving Farmland Assessment, or who rent land to farmers for crop production, to allow deer management activities or develop wildlife management plans to reduce deer causing damage.

#### *5) Public Lands and Wildlife Management Plans*

- Establish wildlife management plans on public lands to reduce negative impacts to neighboring farms, forests, and residential areas and decrease deer-vehicle collisions.

*6) Education and Outreach for Policymakers and Communities*

- Facilitate education and outreach programs, especially for policymakers and the general public, to raise awareness of deer impacts to food production and farmers' livelihoods, environmental impacts, and safety concerns.

*7) Deer Fencing*

- Provide programs and funding for deer fencing for farmers. Fencing is an effective management option for reducing crop damage.

*8) Enhancing Deer Management through Hunting*

- Create more opportunities for doe-focused hunting to reduce overall deer numbers such as unlimited antlerless harvest in all Deer Management Zones and require that a doe be harvested before a buck can be taken.
- Expand hunting opportunities by lengthening seasons and allowing hunting on Sundays.
- Streamline the processes for obtaining hunting permits (possibly regional or county permits).

*9) Farmer Depredation Permits*

- Amend the current regulation for farmer depredation permits to include archery for compatibility near residential areas where shotgun is not permitted.