

Economic Impact of Wildlife on Tennessee Agriculture

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Executive Summary

This report evaluates the economic effects of deer and other wildlife damage on Tennessee agriculture using data from a 2026 survey of Tennessee farmers, with 617 usable responses representing 85 counties. The findings indicate that wildlife damage is widespread, materially affects crop production and farm infrastructure, and creates substantial direct and broader economic losses for the state. Deer were identified as the primary source of damage, particularly to crops, fences and roads, while rodents were also frequently reported as a significant source of damage to buildings and machinery. We used these survey data to extrapolate an estimated total economic impact for Tennessee using USDA acreage data, with additional downstream effects on household spending and tax revenues.

Key Findings:

- 81 percent of producers surveyed reported wildlife damage to crops or farm infrastructure within the last three years.
- 74 percent of producers surveyed reported crop damage was moderate, severe or completely destroyed.
- Respondents indicated deer caused the highest number of damage reports.
- Soybeans and hay/pasture accounted for the largest losses.
- Combining the survey data with USDA NASS data:
 - A total state-wide estimated direct income loss from deer damage in 2025\$ was \$40.6 million.
 - An additional estimated loss of \$34.7 million in household spending (induced impacts).
 - Combined, the report estimates a total economic impact of \$75.3 million.
 - Estimated tax revenue losses associated with reduced income total \$4.7 million.
- Results also indicate a lack of clarity on the best source of information and support to manage deer, suggesting an opportunity for additional research and stronger Extension education.
- As noted in the conclusions, these are data-informed estimates of economic losses due to wildlife, but this study is not without limitations. We believe the estimates in this report are likely conservative.

Purpose

The objective of this report is to better understand the extent of the economic impact of deer and other wildlife-related damage on Tennessee agriculture, including damage to crops, farm infrastructure and other agricultural resources. The information was collected to provide science-based evidence for organizations to support efforts to reduce wildlife damage.

Methodology

Data were collected from a 2026 survey of Tennessee farmers administered through the Qualtrics online survey platform. The survey was designed in collaboration with stakeholders and researchers with the University of Tennessee Institute of Agriculture. A link to the survey was posted on the UTCrops blog, emailed out through UT county Extension agents, Tennessee Farm Bureau Federation, commodity boards and the Tennessee Department of Agriculture from early February to mid-March 2026. During that period there were a total of 622 respondents to the survey. Due to incomplete information, we ended up with 617 total responses to analyze, covering 85 counties. Figure 1 shows the responses by county.

The survey could be categorized into questions seeking to understand the size and scope of farming operations, trends in wildlife damage to crops and infrastructure and the extent of wildlife economic damage on each crop. We present summary statistics for each of the questions below.

To estimate the total economic impact of wildlife damage to Tennessee agriculture, we asked respondents to indicate the total acres they planted for each crop, the percentage of acres damaged by deer and total loss of income due to deer damage by crop. We first aggregated responses by county and crop. Then, we found the ratio of reported damaged acres by dividing the total acres reported as damaged by the total reported planted acres for corn, soybeans, cotton, wheat, hay/pasture and nursery. Then, we calculated the average loss per acre by dividing the estimated economic losses due to deer divided by total damaged acres. Next, we downloaded the 2025 county level United States Department of Agriculture (USDA) National Agricultural Statistical Service (NASS) (2025) data and multiplied our ratio of damaged acres by the USDA reported acres by crop and county. Finally, we multiplied the estimated total acres damaged by the average per acre dollar loss due to get estimated economic damage by crops and county due to deer. Table 1 shows the total acres represented in this survey data and the USDA data.

Table 1. Planted Acres from Survey Respondents and USDA NASS reports in Tennessee by Crop

Planted Acres in Survey		
Commodity	Data	USDA NASS Planted Acres
Corn	130,336	862,195
Soybeans	209,529	1,487,488
Cotton	10,640	188,910
Wheat	34,517	278,880
Hay / Pasture	29,524	1,395,576
Nursery	1,507	27,810

These estimates were used in IMPLAN software to model the economic impacts. The total economic damage due to deer negatively impacts the total labor income of producers. Because of this negative direct effect, it subsequently decreases household consumption, which directly reduces the size of the induced effect. In other words, because induced effects stem from the spending of labor income (Employee Compensation + Proprietor Income [PI]), a negative PI acts as a deduction, lessening the total income available to drive local spending.

Results and Discussion

Trends in Deer and Wildlife Damage

Of the survey respondents, 81 percent indicated they experienced wildlife damage to their farm in the last three years (Figure 2). The respondents who experienced wildlife damage were then asked a series of questions regarding the changes over this time period.

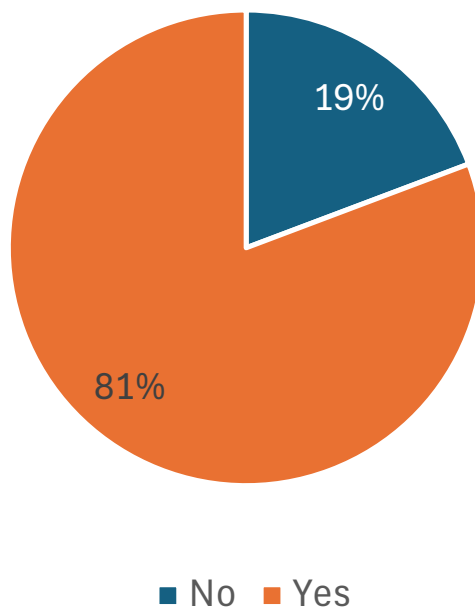


Figure 2. Response to question asking if wildlife has damaged their farm infrastructure and crops in the last three years

Figure 3 shows the impact wildlife has had on crop yields compared to three years ago. Crop yields were stated to be severely impacted by 41 percent of the respondents and moderately impacted by 38 percent of the respondents (Figure 3). Only 4 percent of the respondents indicated wildlife has not impacted their yields, which indicates there were losses to infrastructure and not yields. Conversely, 96 percent of respondents indicated losses to their yields.

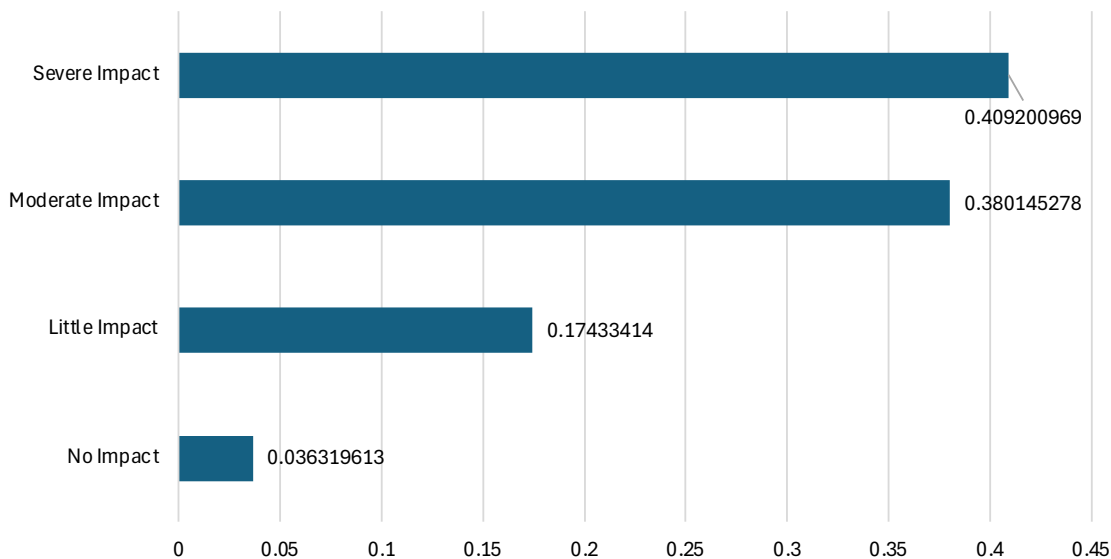


Figure 3. Count of respondents who indicated change in deer and wildlife impact on crops yields compared to three years ago.

Figure 4 shows the response to the question asking respondents to indicate the wildlife that caused damage to crops and farm infrastructure (buildings, fences, machinery, etc.) in the last three years. The majority indicated deer have caused the most damage (931 responses) followed by rodents (522 responses). Deer caused the most reported damage to crops, fences and roads. Rodents were reported to cause the most damage to buildings and machinery. Interestingly, wild hogs were reported to cause the least damage to Tennessee farms, which might be explained by the success of the Tennessee Wildlife Resource Agency Wild Hog Eradication Action Team. In terms of what is damaged on farms, crops reported to be the most impacted, followed closely by buildings, machinery and fences.

Figure 5 shows the responses to sev
fences were the two categories
that were reported to have the
most moderate, severe or
complete damage. An interesting
note is that several respondents
indicated that stored hay and
feed for livestock were severely
and completely damaged. Of the
non-crop damages, we asked
producers how much they have
annually spent over the last three
years to prevent deer and other
wildlife damage. Machinery
damage was reported the
highest at \$665,070 annually
over the last three years, followed
by “other infrastructure (farm
vehicles and stored livestock
feed) at \$422,450 and fences at
\$365,855 (Figure 6).

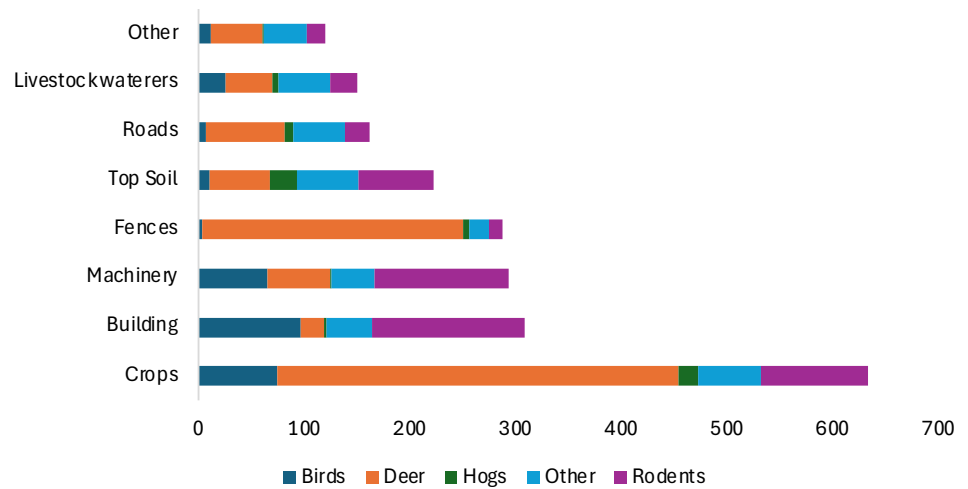


Figure 4. Please indicate the wildlife that caused damage to your crops and farm infrastructure (buildings, fences, machinery, etc.) in the last three years

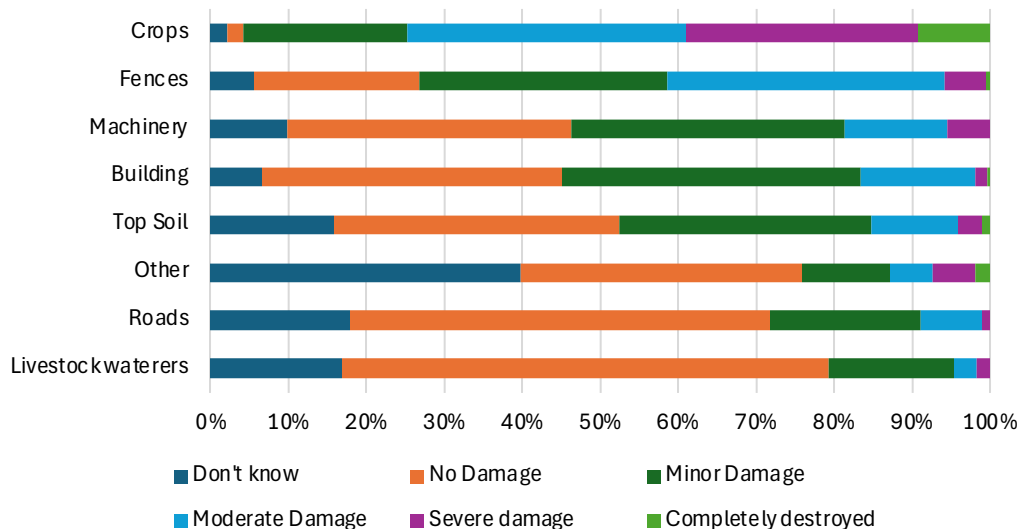


Figure 5. Responses to the degree to which wildlife damaged your crops and farm infrastructure (buildings, fences, machinery, etc.) in the last three years.

Figure 6. Please estimate the total costs of damage to your operations from wildlife

Income Impact

We asked producers a series of questions to measure the estimated loss of income from wildlife damage. We asked producers to indicate in 2025 the total number of acres by crop planted, followed by acreage damage because of deer and the producers' estimated loss of income as a result. These

estimates were used to calculate the total economic loss for the state. Soybeans had the highest income loss at \$20,545,863, followed by hay and pasture at \$12,249,942 (Table 2). Summed across all crops from the survey, the direct estimated economic impact totaled -\$40.6 million. Accounting for multiplier effects (-\$34.6 million), the total estimated economic impact is -\$75.3 million (Table 2)¹. The reduced spending from lower incomes also reduces taxes paid such as sales and income taxes. The estimated impact on local, state, and federal taxes is -\$0.7 million, -\$1.3 million, and -\$2.7 million, respectively. The sum for all taxes (local, state, and federal) is -\$4.7 million (Table 3).

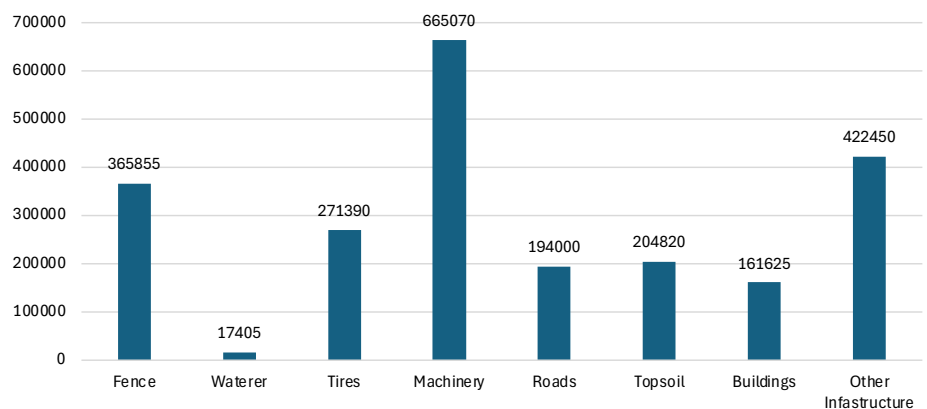


Table 2. Direct and Induced Losses due to Deer Damage on Tennessee Crops, 2025\$

	Direct	Induced	Total
Corn	(\$5,872,326)	(\$5,872,326)	(\$10,884,192)
Soybeans	(\$20,545,863)	(\$20,545,863)	(\$38,081,184)
Cotton	(\$93,176)	(\$93,176)	(\$172,699)
Wheat	(\$394,343)	(\$394,343)	(\$730,904)
Hay/ Pasture	(\$12,249,942)	(\$12,249,942)	(\$22,704,926)
Nursey	(\$1,456,395)	(\$1,456,395)	(\$2,699,388)
Total	(\$40,612,045)	(\$40,612,045)	(\$75,273,293)

Table 3. County, State and Federal Losses in Taxes from Reduced Income, 2025\$

	County	State	Federal	Total
Corn	(\$99,994)	(\$189,675)	(\$394,827)	(\$684,496)
Soybeans	(\$349,855)	(\$663,628)	(\$1,381,405)	(\$2,394,888)
Cotton	(\$1,587)	(\$3,010)	(\$6,265)	(\$10,861)
Wheat	(\$6,715)	(\$12,737)	(\$26,514)	(\$45,966)
Hay/ Pasture	(\$208,592)	(\$395,671)	(\$823,627)	(\$1,427,890)
Nursey	(\$24,799)	(\$47,041)	(\$97,921)	(\$169,762)
Total	(\$691,541)	(\$1,311,762)	(\$2,730,559)	(\$4,733,862)

¹IMPLAN was used to estimate the negative proprietors' income shocks using 2024 data. The induced effects reflect the additional economic losses caused by reduced household spending resulting from the producers' direct income loss from deer damaged crops.

Preventative Actions

Finally, we asked producers, over the last three years, to indicate how much they have spent annually to prevent deer and other wildlife damage. They stated they have spent \$1,711,850 to prevent deer damage and \$400,266 to prevent other wildlife damage. In terms of management changes, Figure 6 shows 52 percent of respondents indicated they have not harvested a crop due to deer damage, 38 percent indicated they have switched to a less desirable crop to reduce losses and 36 percent turned to TWRA to help manage deer damage losses. UT Extension was the second place they turned for information (20 percent) (Figure 7). The distribution of responses to this question might indicate a lack of clarity on who is the best source of information to help managing deer damage on a farm. This appears to indicate a need for educational content on helping farmers reduce wildlife damage on a farm.

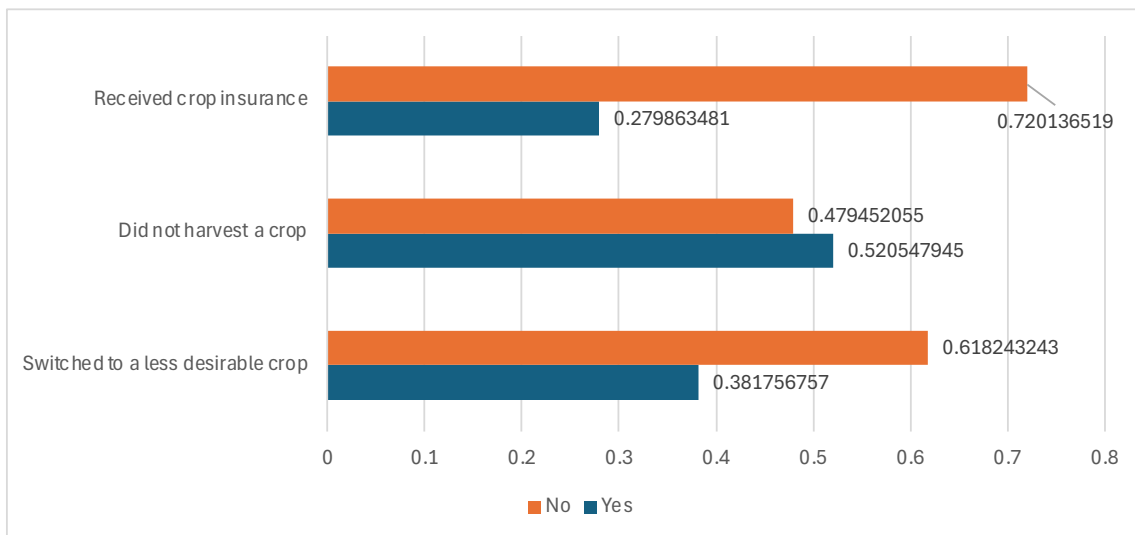


Figure 7. Changes or management implications of having deer damage to your crop

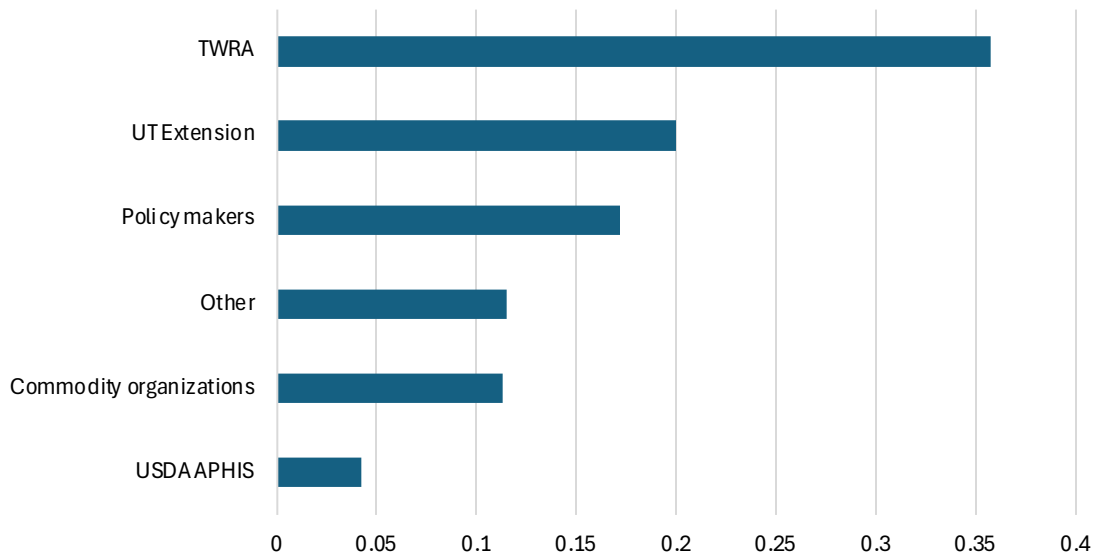


Figure 8. Who have you contacted within the past three years for information about controlling deer damage?

Conclusion and Limitations

This study provides evidence that deer and other wildlife damage impose meaningful economic costs on Tennessee agriculture through crop losses, damage to farm infrastructure, producer mitigation expenses and broader downstream effects on income and tax revenues. Survey responses indicate that wildlife damage is both widespread and consequential across the state, with deer identified as the primary source of damage for many producers. The estimated losses reported here suggest that wildlife damage is not only a farm-level management issue but also an issue with broader implications for the agricultural economy and rural communities.

At the same time, several limitations should be considered when interpreting these findings. First, the study is based on a voluntary survey and did not capture a complete or random sample of Tennessee producers. We only had 617 usable responses to the survey. Although responses were obtained from 85 out of 95 Tennessee counties, participation levels varied by county and commodity, which may limit how fully the sample represents all Tennessee farms. As a result, the findings are likely to reflect some degree of sampling bias, particularly if producers experiencing wildlife damage were more likely to respond.

Second, the analysis relies on self-reported producer estimates of acreage damaged, yield losses, infrastructure damage and prevention expenditures. These responses are valuable for understanding producer experiences, but they may also include recall errors, differences in how producers interpret damage severity or inconsistent accounting of financial losses across operations.

Third, the statewide loss estimates were developed by combining survey responses with USDA NASS acreage data and modeling assumptions to scale survey-reported damage to the state level. While this approach provides a practical method for estimating statewide impacts, the results are sensitive to the assumptions used regarding damage rates, loss per acre and the representativeness of respondents within each crop and county. Consequently, the reported economic losses should be interpreted as estimates rather than precise point values.

Fourth, this report focuses primarily on deer-related damage in economic modeling, even though respondents identified other wildlife species, such as rodents and wild hogs, as sources of agricultural damage. Therefore, the total burden of wildlife damage to Tennessee agriculture may be larger than the deer-focused economic estimates presented here.

Finally, some types of impacts are difficult to fully quantify and may not be fully captured in this study. These include long-term production changes, management adjustments, delayed investments, stress on farm households and localized effects on small or specialty producers. For these reasons, the estimates in this report should likely be viewed as conservative.

Overall, despite these limitations, the study provides useful baseline evidence that wildlife damage is a substantial issue for Tennessee agriculture and highlights the need for continued monitoring, producer outreach and targeted strategies to reduce losses.



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