Estimated
AGRICULTURAL LOSSES
Resulting from
HURRICANE MILTON

Image courtesy of NASA Earth Observatory

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INTRODUCTION

The tropical system that would eventually become Hurricane Milton originated in the western Caribbean Sea and consolidated in the Bay of Campeche (Mexico) on October 5, 2024. Gradual intensification occurred as it slowly moved eastward, becoming a hurricane early on October 7 and undergoing explosive intensification to become a Category 5 hurricane with winds of 180 mph (285 km/h). Increasing wind shear caused the hurricane to weaken as it turned northeast towards Florida, weakening to Category 3 status before making landfall near Siesta Key late on October 9. Afterwards, Milton rapidly weakened as it moved across the state into the Atlantic Ocean. Hurricane Milton was associated with a significant tornado outbreak, heavy rainfall, and flooding.

Agricultural producers in Florida experienced both losses (changes in economic flows) and damages (changes in economic stocks) as a result of the weather conditions associated with Hurricane Milton. The University of Florida Institute of Food and Agricultural Sciences (UF/IFAS) Economic Impact Analysis Program (EIAP) distributed a survey (UFIRB ET00041674) titled "Assessment of Losses and Damages to Florida Agriculture from Hurricane Milton" on October 10, 2024 to begin assessing losses and damages associated with Hurricane Milton. A report was released by the UF/IFAS EIAP on December 20, 2024 summarizing preliminary findings on statewide agricultural production losses in Florida for the calendar year 2024 (or marketing year 2024–2025) due to Hurricane Milton (Court et al., 2024a). Within the preliminary report, estimated losses ranged from $190.4 million to $642.7 million, with the most significant impacts observed in the Greenhouse/Nursery, Animals and Animal Products, and Vegetables, Melons, and Potatoes sectors. Survey respondents also reported damage to infrastructure (e.g., barns, fences, irrigation and water systems, tools, and equipment), stored inputs (e.g., feed, fertilizer, and medicine), and harvested products (e.g., eggs, honey, meat, and food fishes). In the following weeks and months, the UF/IFAS EIAP also published state and county-level summaries of preliminary findings on their website (Court et al., 2024b, 2025).

Following continued efforts on data collection and refined analysis, this final report presents a comprehensive assessment of agricultural production losses in Florida at both the state and county levels for specific agricultural commodity groups due to Hurricane Milton. It updates the preliminary estimates with finalized loss values, offering a more accurate and complete picture of Hurricane Milton's impact on Florida's agricultural sector. While this will be the final report associated with rapid assessment for this event, data will continue to be collected via the Assessment of Losses and Damages to Florida Agriculture from Hazard/Disaster Events tool through marketing season 2024–2025 to be used in broader studies of the agricultural impacts of these types of events as well as to inform assessments of future events.

UPDATED EVENT DATA

The wind swath of Hurricane Milton, shown as Figure 1, has been updated using the latest data from the National Oceanic and Atmospheric Administration (NOAA) National Hurricane Center (NHC), which was revised after the release of UF/IFAS EIAP preliminary report on Hurricane Milton (Court et al., 2024a). While the updated wind swath does not differ significantly from the version previously presented, it reflects the most current data available. Hurricane conditions impacted fourteen counties in Florida: Brevard, Charlotte, DeSoto, Hardee, Highlands, Hillsborough, Indian River, Manatee, Okeechobee, Orange, Osceola, Pinellas, Polk, and Sarasota. A larger swath of the Florida peninsula experienced tropical storm force winds, which extended across 43 additional counties. Event-specific data for the tornado outbreak between October 6 and October 12, 2024, 7-day cumulative precipitation (October 6–12, 2024) from NOAA's National Weather Service (NWS), and estimated flood inundation depths from the Pacific Northwest National Laboratory's Rapid Infrastructure Flooding Tool, have not changed since the preliminary report. To avoid redundancy, these maps and analyses are not repeated here.

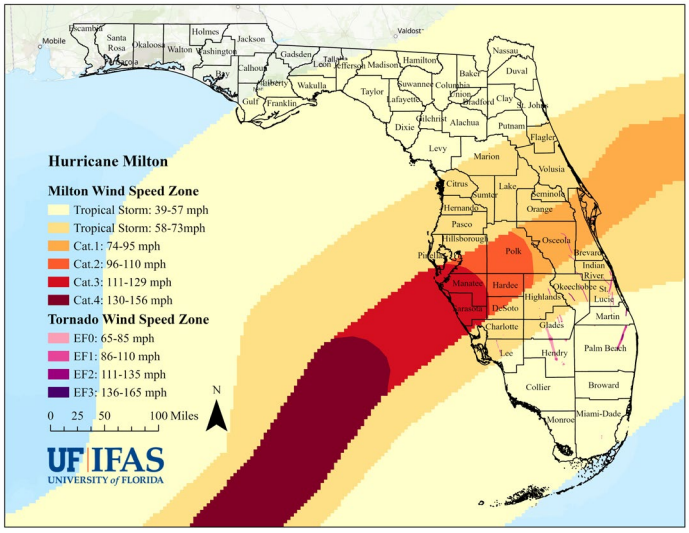

Figure 1. *Wind swath pattern of Hurricane Milton as it impacted Florida.*

Source: Geospatial data on the wind swath of Hurricane Milton are derived from NOAA National Hurricane Center (www.nhc.noaa.gov/gis/). Geospatial data on the wind swaths of tornadoes are derived from NOAA NWS Damage Assessment Toolkit (apps.dat.noaa.gov/StormDamage/DamageViewer/).

AFFECTED AGRICULTURAL LANDS

Using geographic information systems (GIS) software (Esri ArcGIS Pro), the shapefiles of wind swath, tornadoes, cumulative precipitation, and flood inundation depth were overlaid on a geospatial database of agricultural lands in Florida to determine the wind, rainfall, and flooding intensity experienced by each affected agricultural parcel. The geospatial database of agricultural lands in Florida is the Florida Statewide Agricultural Irrigation Demand (FSAID) Agricultural Lands Geodatabase (ALG) developed by the Florida Department of Agriculture and Consumer Services (FDACS). The Hurricane Composite Intensity Index (HCII), calculated as the sum of the intensity indices of wind, rainfall, and flooding, was computed for each affected agricultural parcel, as shown in Figure 2. The methodology used to quantify the HCII is the same as what was described in the preliminary report (Court et al., 2024a). Definitions for each intensity index are provided in Table 1. Due to the update in wind swath data, parcel-level HCII values differ slightly from those presented in the preliminary report. Table 2 summarizes the revised impacted acreage of agricultural lands by commodity group and HCII level across Florida.

Table 1. *Definition of intensity indices for wind, rainfall, and flooding associated with tropical cyclone events, which are components of the UF/IFAS EIAP's Hurricane Composite Intensity Index (HCII).*

Intensity Index	Wind Speed (mph)	Precipitation (inches)	Flood Depth (ft)
1	TS1: 39–57	3–6	> 0–1
2	TS2: 58–73	6–9	1–2
3	Cat. 1: 74–95	9–12	2–4
4	Cat. 2: 96–110	12–15	4–6
5	Cat. 3: 111–129	15–18	6–8
6	Cat. 4 & up: > 130	> 18	> 8

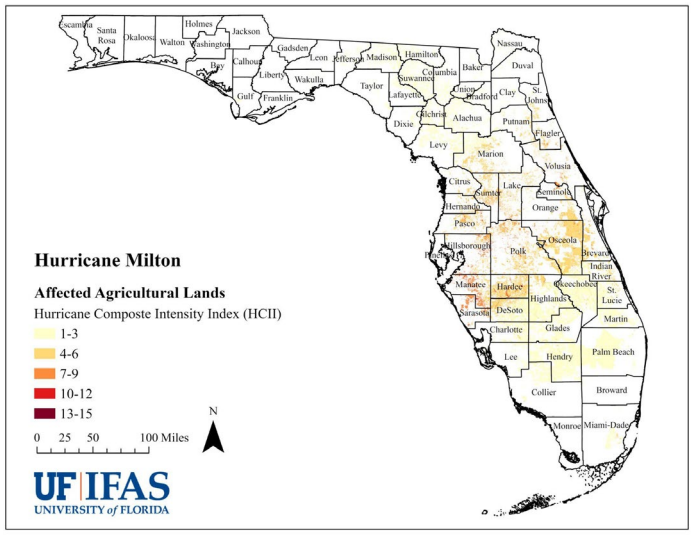

Figure 2. *Hurricane Composite Intensity Index (HCII) level of impacted agricultural lands in Florida for Hurricane Milton.*

Source: The agricultural lands geospatial data are from the Florida Statewide Agricultural Irrigation Demand (FSAID) Agricultural Lands Geodatabase (ALG) developed by the Florida Department of Agriculture and Consumer Services (FDACS) (www.fdacs.gov/Agriculture-Industry/Water/Agricultural-Water-Supply-Planning).

Over 5.7 million acres of agricultural lands were affected by Hurricane Milton, of which over 68% was grazing land. Across all commodity groups, around 60.3% of affected acreage experienced low-intensity weather conditions (HCII levels 1–3), 39.1% of affected acreage experienced moderate-intensity weather conditions (HCII levels 4–9), and only 0.7% of affected acreage experienced high-intensity weather conditions (HCII levels 10–15). The commodity groups that were most affected (in terms of acreage impacted by moderate- or high-intensity weather conditions) by Hurricane Milton were Field and Row Crops (100,382 acres, including hay and sugarcane), Citrus (166,785 acres), Animals and Animal Products (70,469 acres, not including grazing land), and Vegetables, Melons, and Potatoes (58,418 acres).

County-level affected acreage of agricultural lands by commodity group are shown in Table A-1 in the appendix. Information on the percentage of agricultural lands affected in each county of Florida are shown in Table A-2. Fifty-three (53) of the 57 affected counties had 100% of their agricultural lands affected.

Table 3 shows the estimated annual value of production on the affected acreage areas by commodity group and HCII level. County-level estimates of annual value of production by commodity group and HCII level are shown in Table A-3. The data sources and methodology for estimating the annual value of production on the affected lands did not

change between the preliminary and final report (Court et al., 2024a). In estimating the annual production value for acreages impacted by Hurricane Milton, we have excluded the dollar-value losses previously caused by Hurricanes Debby and Helene. This approach ensures our assessment more accurately reflects the incremental losses attributable solely to Hurricane Milton, thereby avoiding any double- (or triple-) counting within agricultural areas impacted by more than one of these events.

Table 2. *Estimated acreage of impacted agricultural lands by commodity group and HCII level for Hurricane Milton.*

Commodity Group	Hurricane Composite Intensity Index (HCII)					Total
	1–3	4–6	7–9	10–12	13–15	
Animals and Animal Products[1]	2,147,434	1,542,409	338,936	29,582	486	**4,058,847**
Field and Row Crops[2]	996,723	86,313	12,746	1,305	<100	**1,097,105**
Citrus[3]	107,920	117,776	43,301	5,336	372	**274,705**
Vegetables, Melons, and Potatoes	143,750	32,499	25,728	190	<100	**202,168**
Greenhouse/Nursery	47,864	29,897	4,375	239	-	**82,375**
Fruit and Tree Nuts[4]	16,928	4,915	2,427	<100	-	**24,320**
Total	**3,460,619**	**1,813,809**	**427,513**	**36,703**	**876**	**5,739,520**

Notes: [1] Animals and Animal Products acreage includes grazing land. [2] Field and Row Crops acreage includes field crops, hay, and sugarcane. The acreage of cotton is adjusted with the county level harvested acres of cotton from USDA 2022 Census of Agriculture data. [3] Citrus acreage includes bearing and non-bearing acreage and was adjusted to reflect the 2024 Commercial Citrus Inventory Preliminary Report from USDA National Agricultural Statistics Service (NASS). 4 The acreage of pecan in the Fruit and Tree Nuts group is adjusted with the county level bearing and non-bearing acres of pecan from USDA 2022 Census of Agriculture data. Acreages less than 100 are represented as '<100' in the table.

Table 3. *Estimated value of annual production (2024$, Thousands) on affected acreage by commodity group and HCII level.*

Commodity Group	Hurricane Composite Intensity Index (HCII)					Total
	1–3	4–6	7–9	10–12	13–15	
Greenhouse/Nursery	$1,238,114	$1,023,484	$177,902	$13,689	$-	**$2,453,189**
Vegetables, Melons, and Potatoes	$1,577,365	$349,870	$346,916	$2,333	<$100	**$2,276,502**
Animals and Animal Products	$989,987	$454,286	$123,792	$13,036	$309	**$1,581,411**
Field and Row Crops	$1,405,842	$55,574	$9,351	$1,054	<$100	**$1,471,835**
Citrus	$214,304	$233,874	$85,931	$10,554	$739	**$545,402**
Fruit and Tree Nuts	$116,274	$129,242	$80,609	$1,482	<$100	**$327,608**
Total	**$5,541,887**	**$2,246,330**	**$824,501**	**$42,149**	**$1,080**	**$8,655,947**

Note: Values less than $100K are represented as '<$100' in the table.

The annual value of agricultural products (crops, livestock, aquaculture, etc.) produced on agricultural lands affected by Hurricane Milton is estimated to be nearly $8.7 billion throughout a calendar or marketing year, some across multiple growing seasons (e.g., Vegetables, Melons, and Potatoes) and others that might produce year-round (e.g., Greenhouse/Nursery, Animals and Animal Products). Considering impacts of all intensities, the commodity groups that were most affected in terms of "annual value at risk" by Hurricane Milton include Greenhouse/Nursery, Vegetables, Melons, and Potatoes, and Animals and Animal Products. A majority, 99.4%, of the estimated value of annual production across all commodities, was impacted by low-intensity conditions (HCII levels 1–3) or moderate-intensity conditions (HCII levels 4–9). The annual value of agricultural products grown or raised in areas that experienced high intensity conditions (HCII levels 10–15) is estimated to be $43.2 million, including Greenhouse/Nursery ($13.7 million), Animals and Animal Products ($13.3 million), and Citrus ($11.3 million).

AGRICULTURAL LOSSES IN FLORIDA

On May 28, 2025, completed survey responses from both the English- and Spanish-language versions of the UF/IFAS "Assessment of Losses and Damages to Florida Agriculture from Hurricane Milton" were downloaded and prepared for analysis by investigators from the UF/IFAS EIAP. The investigators compiled the survey information for all commodities in each county affected by the disaster. The methodologies used for relating survey responses to HCII levels experienced and for estimating the production loss percentage (%) for different commodity groups at different HCII levels did not change from those implemented in the preliminary report (Court et al., 2024a). The area-weighted HCII levels of each affected county are shown in Figure 3 with the updated wind swath data.

Table 4 displays the estimated annual production loss percentages (%) by commodity group and HCII level. Production loss estimates ($) convey the percentage of annual production (calendar year 2024 or marketing year 2024–2025) that has been lost due to Hurricane Milton. Note that some producers (e.g., vegetable farms) have multiple growing seasons in Florida and others (e.g., beef and dairy cattle operations) sell products year-round. Considerations related to multiple growing seasons, planting and harvesting progress prior to Hurricane Milton, delayed planting in the face of Hurricane Milton, or the potential for growers to replant damaged or destroyed acreage for some commodity groups are reflected in these annual production loss estimates.

Table 4. *Estimated annual production loss by commodity group for different HCII levels based on analysis of survey data for Hurricane Milton along with observations from previously analyzed tropical cyclone events (Irma [2017], Michael [2018], Ian [2022], Idalia [2023], Debby [2024], and Helene [2024]).*

Commodity Group	Hurricane Composite Intensity Index (HCII)				
	2–3	4–6	7–9	10–12	13–15
Animals and Animal Products	2%	5%	10%	15%	25%
Citrus	0%	10%	30%	50%	75%
Field and Row Crops	2%	5%	15%	30%	50%
Fruit and Tree Nuts	5%	10%	20%	30%	50%
Greenhouse/Nursery	2%	10%	10%	15%	25%
Vegetables, Melons, and Potatoes	5%	10%	15%	20%	30%

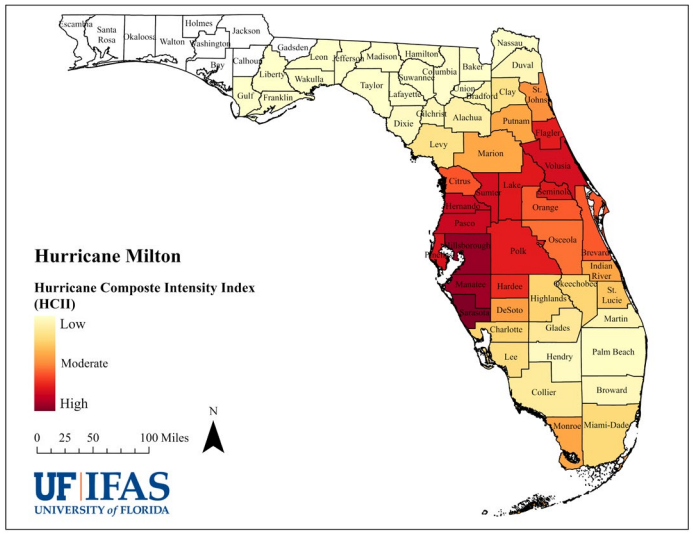

Figure 3. *Area-weighted HCII levels of affected counties in Florida.*

These estimates of percentage production losses by commodity group and HCII levels were then combined with the estimated value of annual production on affected agricultural lands to determine estimated production losses. Estimated production losses for agricultural producers in Florida resulting from Hurricane Milton are $428.0 million.

Agricultural Losses by Commodity Group

The estimated agricultural losses by commodity group and HCII level are displayed in Table 5. The baseline data contributing to these estimations include information on acreage, value per acre, and season or growth stage for specific commodities compiled from sources such as the United States Department of Agriculture (USDA)'s 2022 Census of Agriculture, annual surveys by the USDA National Agricultural Statistics Service (USDA-NASS), IMPLAN, Ask IFAS, as well as data published within the FDACS FSAID Geodatabase.

The commodity groups that were most impacted in terms of production losses are Greenhouse/Nursery ($142.3 million), Vegetables, Melons, and Potatoes ($142.1 million), and Citrus ($55.0 million).

Table 5. *Estimated agricultural losses (2024$, Thousands) due to Hurricane Milton by commodity group and HCII level.*

Commodity Group	Hurricane Composite Intensity Index (HCII)					Total
	1–3	4–6	7–9	10–12	13–15	
Greenhouse/Nursery	$20,122	$102,348	$17,790	$2,053	$-	**$142,314**
Vegetables, Melons, and Potatoes	$54,628	$34,987	$52,037	$467	<$100	**$142,124**
Citrus	$-	$23,387	$25,779	$5,277	$554	**$54,998**
Animals and Animal Products	$10,605	$22,714	$12,379	$1,955	<$100	**$47,732**
Fruit and Tree Nuts	$3,342	$12,924	$16,122	$445	<$100	**$32,834**
Field and Row Crops	$3,455	$2,779	$1,403	$316	<$100	**$7,959**
Total	**$92,152**	**$199,140**	**$125,511**	**$10,513**	**$644**	**$427,960**

Note: Authors' calculations based on analysis of survey data along with observations from previously analyzed tropical cyclone events (Irma [2017], Michael [2018], Ian [2022], Idalia [2023], Debby [2024], and Helene [2024]). Values less than $100K are represented as '<$100' in the table.

Production losses associated with Greenhouse/Nursery operations in the affected area are estimated at $142.3 million, resulting from structural damage, flooding, and power outages. Many producers reported the complete or partial destruction of greenhouses, shade houses, and saran structures, with extensive damage or loss of poly plastic coverings, ground cloth, and irrigation infrastructure. Stripped plastic and toppled greenhouses in facilities that had just finished renovations were also reported (Rusnak, 2024). Significant crop losses were reported due to wind and flooding damage. High winds blew over or broke container plants, with some operations reporting up to 75% of plants affected. Flooding submerged nursery pots and fields, causing root stress and increasing susceptibility to disease. Power outages disrupted critical climate control and irrigation systems, leading to additional losses of sensitive crops and seedlings. Furthermore, producers reported additional losses due to planting delays, increased costs for inputs and labor associated with recovery efforts, and revenue losses due to missed sales opportunities and canceled markets, leading to operational disruptions and financial hardship.

Production losses estimated for Vegetables, Melons, and Potatoes in the affected area are $142.1 million. The losses vary by crop and are heavily dependent on the time since planting as well as the ability (or inability) to harvest prior to the hurricane event or to replant damaged or destroyed crops after the event. Producers noted complete field losses due to flooding, wind damage, and erosion. Substantial losses were reported across a range of crops, including beans and potatoes from flooding, toppled cabbage and cauliflower, damaged peppers, wind-stunted tomatoes, and torn leafy greens like choi, collards, kale, and baby greens. Many pre-harvest crops were destroyed by strong winds, with plants toppled, trellises damaged, and fruit stripped or rotting. In some areas, fields were flooded for extended periods, resulting in the loss of root crops and some growers reported delaying winter crop planting, potentially disrupting their production schedule and potentially affecting the value of their future harvests. Some farmers also reported the destruction of plastic mulch and drip tape, leaching of fertilizers, and increased replanting costs.

Production losses for Citrus in the affected area are estimated at $55.0 million, due to fruit drop caused by high winds and physical damage to trees. Significant fruit drop was reported, especially on varieties that were ready for harvest, such as early oranges, tangerines, hamlins, and tangelos. Some growers reported broken branches and structural damage to trees, with some young citrus trees splitting, compromising their health and future productivity. Excessive rainfall and flooding led to root stress, erosion, and washouts, contributing to further decline in tree health. An additional report described widespread defoliation and mortality of younger trees due to prolonged flooding (Jacabo, 2024).

Production losses associated with animal operations (beef and dairy cattle, poultry, shellfish aquaculture, apiculture, etc.) and producers of animal products (milk, eggs, honey) in the affected area are estimated at $47.7 million. These losses stem from damaged fencing, livestock shelters, watering systems, aquaculture structures, flooded beehives, as well as power outages and feed loss. Cattle producers reported stressed or injured animals and lack of water and feed. Poultry and dairy operations were impacted by prolonged power outages that disrupted water, ventilation, and refrigeration. Aquaculture producers reported equipment loss, fish mortality, and water salinity issues, while apiculture operations experienced hive losses due to flooding. These disruptions led to reduced productivity, increased operational costs, and longer-term impacts on animal health and recovery.

Fruit and Tree Nut commodity group production losses in the affected area are estimated at $32.8 million. These losses can be attributed to damages from wind, heavy rainfall, and flooding. Reported losses include destruction of plants or plant beds, branch breakage, fruit loss, and scarring. Some persimmon growers noted severe structural damage to trees, while pecan producers reported extensive tree loss due to high winds. Some crops like blueberries, even though out of season, were reported to have plants uprooted or damaged. Infrastructure damage, including to irrigation systems, shade structures, and fencing, further disrupted operations. In addition, extended power outages led to issues with cold storage and delays in planting schedules, affecting the production cycle.

Field and Row Crop production losses in the affected area are estimated at $8.0 million, with limited direct reports of significant or widespread losses, though some respondents mentioned that stored hay rolls were damaged due to flooding.

Agricultural Losses by County

The top five counties in terms of agricultural losses were Manatee ($67.5 million), Hillsborough ($49.8 million), Miami-Dade ($30.3 million), Polk ($30.1 million), and Orange ($27.2 million), as shown in Figure 4 and Table A-4. Losses were generally higher in counties that experienced higher intensity hurricane conditions, where the value of agricultural production in the path of the storm was high, or where both of these conditions were met. County-level losses by commodity group are shown in Figure 5 and Table A-4. The top five counties in terms of Greenhouse/Nursery losses were Orange ($26.1 million), Miami-Dade ($20.1 million), Volusia ($17.2 million), Lake ($15.6 million), and Hillsborough ($11.6 million). The counties with the highest Vegetables, Melons, and Potatoes losses were Manatee ($55.3 million), Collier ($20.9 million), Hillsborough ($10.1 million), Miami-Dade ($6.8 million), and St. Lucie ($5.9 million). The highest losses associated with Citrus were in Polk ($19.8 million), Sarasota ($9.9 million), Hardee ($9.4 million), DeSoto ($6.2 million), and Highlands ($3.0 million).

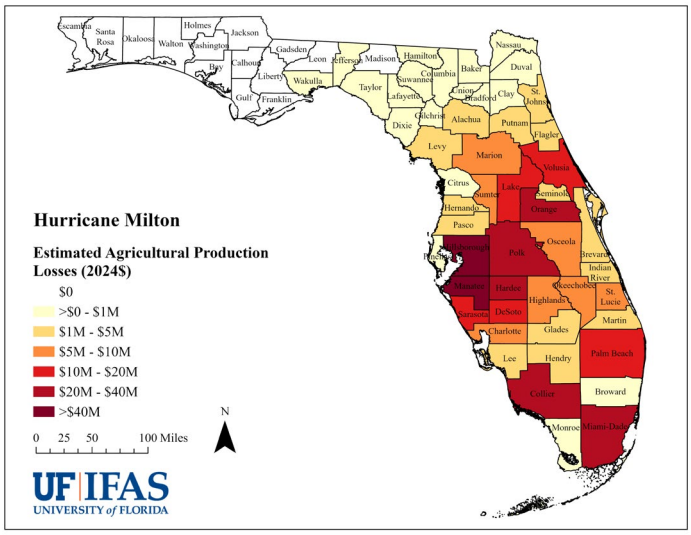

Figure 4. *Estimated total county-level agricultural production losses due to Hurricane Milton (2024$).*

Note: Authors' calculations based on analysis of survey data along with observations from previously analyzed tropical cyclone events (Irma [2017], Michael [2018], Ian [2022], Idalia [2023], Debby [2024], and Helene [2024]).

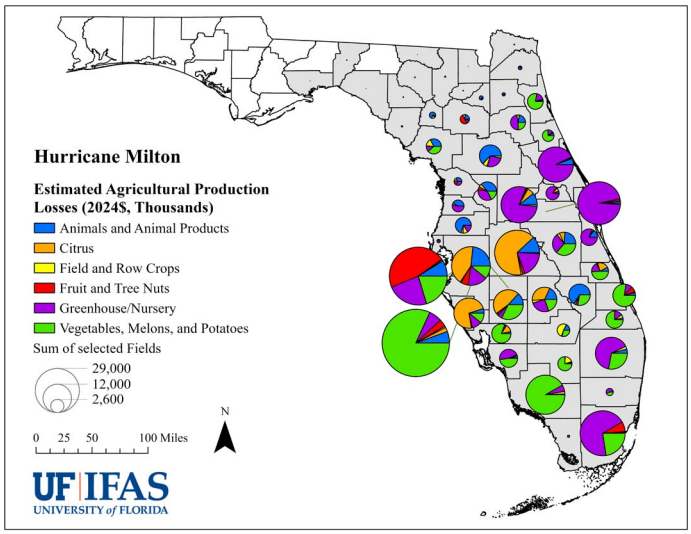

Figure 5. *Estimated county-level agricultural production losses due to Hurricane Milton by commodity group (2024$, Thousands).*

Note: Authors' calculations based on analysis of survey data along with observations from previously analyzed tropical cyclone events (Irma [2017], Michael [2018], Ian [2022], Idalia [2023], Debby [2024], and Helene [2024]).

Additional Considerations

This report focuses on the assessment of statewide production losses for the calendar year 2024 or marketing year 2024–2025 for agricultural operations in Florida due to Hurricane Milton. The value of the following categories of damages or losses are not included in these estimates and should be considered in addition to production losses suffered by impacted agricultural producers:

- Value of damages to agriculture-related infrastructure (including perennial plantings and lost/deceased animals that are used to produce animal products) that will need to be repaired or replaced.
- Value of stored inputs (seed, fertilizer, etc.) or stored harvested products that were damaged or destroyed.
- Expenses related to Hurricane Milton-specific preparations ahead of the storm and expenses related to clean-up after the storm.
- Value of production losses that might carry over into calendar year 2025, marketing season 2025–2026, or beyond due to damages to agriculture-related infrastructure or other effects of the storm.
- Production losses for agricultural operations that specialize in post-harvest processing, packing, or distribution that might be impacted as a result of impacts to production agriculture operations (e.g., operations specializing in peanut drying, cotton ginning, seafood packaging and distribution, etc.).
- Value of timber- or forestry-related losses, which were assessed by the Florida Forest Service at nearly $25 million.
- Value of production losses to capture fisheries; however production loss estimates in this report do include shellfish and finfish aquaculture as these operations are considered agriculture. Capture fisheries might be covered by surveys and assessments conducted by other organizations.

It is also important to note that the estimates of production losses represent the estimated total value of agriculture-related production losses due to Hurricane Milton and do not account for the fact that some crop losses might be eligible for or covered by crop insurance or other risk management tools available to producers.

AGRICULTURAL DAMAGES IN FLORIDA

Agricultural damages include both asset damages (buildings, equipment, perennial plantings, livestock structures, etc.) and production-related damages (stored feed, stored fertilizer, harvested and stored crops, etc.). The findings related to agricultural damages presented in the preliminary report, summarized below, remain valid and unchanged (Court et al., 2024a). Due to data limitations and survey design, in which supplemental questions on damages were optional, not all producers provided responses on agricultural damages.

Infrastructure damages reported by survey respondents include homes, fencing, livestock sheds, conservation structures, irrigation systems, greenhouses, perennial plantings, farm equipment, and aquaculture facilities. Livestock operations were particularly affected by destroyed shelters, watering points, and feed storage facilities, while damaged fencing led to animal displacement and increased management costs. Greenhouses and other growing structures sustained wind and flood damage, interrupting high-value specialty crop production. Aquaculture facilities reported structural losses (e.g., lost gear and bags) and water system failures, while apiculture operations cited loss of honey bee boxes. Survey respondents also reported damages to or destruction of stored agricultural inputs including loss of hay, feed, seeds, fertilizers, strawberry plants, and aquaculture medicine as well as stored harvested products including eggs, honey, meat, and food fishes. While these data represent only a portion of impacted producers, they highlight the scale and complexity of infrastructure damage caused by Hurricane Milton.

While precise statewide damage estimates could not be developed, available data allow for an assessment of the scale of agricultural infrastructure and assets at risk. Agricultural infrastructure located in areas exposed to moderate- and high-intensity hurricane conditions (HCII levels 4–15) included approximately 72.8 million square feet of structure footprints, an area roughly 58 times the building footprint of the Pentagon. In terms of estimated value (adjusted to 2024 dollars), agricultural buildings at risk were valued at approximately $30.1 billion in areas that experienced moderate-intensity conditions (HCII 4–9) and $1.38 billion in areas that experienced high-intensity conditions (HCII 10–15). Machinery and equipment values in these two areas were estimated at $1.63 billion and $0.81 billion, respectively. Additionally, more than 260,000 acres of irrigated agricultural land were affected by hurricane wind conditions, about 5% of which employ center pivot/lateral move irrigation systems, which are vulnerable to wind damage. Around 96,000 acres of irrigated agricultural lands were impacted by flooding, 87% of which employ micro spray, gravity systems, or drip irrigation systems.

As noted in the preliminary report, these figures represent the value of assets that experienced wind, precipitation, and/or flooding associated with Hurricane Milton, and do not provide any information on repair or replacement costs associated with any damage or destruction to these assets as a result of conditions experienced.

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APPENDIX A

Table A-1. *Estimated acreage of affected agricultural lands by commodity group in each county of Florida.*

County	Animals and Animal Products	Citrus	Field and Row Crops	Fruit and Tree Nuts	Greenhouse/ Nursery	Vegetables, Melons, and Potatoes	Total
Alachua	88,236	-	31,631	1,663	1,195	691	**123,415**
Baker	11,513	-	1,308	<100	149	<100	**13,039**
Bradford	19,908	-	5,228	<100	<100	<100	**25,306**
Brevard	80,488	254	7,847	-	457	-	**89,046**
Broward	3,990	-	151	<100	445	705	**5,307**
Charlotte	101,102	4,764	1,485	-	<100	9,427	**116,816**
Citrus	27,250	<100	2,319	<100	176	-	**29,832**
Clay	14,977	-	599	-	274	-	**15,851**
Collier	58,379	15,305	2,621	<100	601	31,901	**108,809**
Columbia	42,266	-	21,535	380	265	<100	**64,533**
DeSoto	163,992	51,800	3,320	124	466	4,737	**224,439**
Dixie	19,929	-	6,935	-	<100	106	**26,979**
Duval	12,705	-	883	129	295	-	**14,012**
Flagler	23,665	-	1,942	<100	486	1,474	**27,571**
Franklin	108	-	<100	-	-	-	**135**
Gilchrist	31,570	-	29,779	<100	234	993	**62,653**
Glades	183,843	1,498	73,484	-	531	987	**260,343**
Gulf	8,231	-	1,521	-	<100	-	**9,797**
Hamilton	22,898	-	17,271	-	252	3,135	**43,557**
Hardee	182,842	36,017	5,032	434	1,439	2,214	**227,977**
Hendry	237,888	27,813	146,694	<100	5,518	28,193	**446,131**
Hernando	31,766	<100	2,394	<100	663	-	**34,862**
Highlands	261,849	40,737	22,238	<100	2,842	3,696	**331,393**
Hillsborough	75,773	713	2,485	4,423	1,502	7,006	**91,902**
Indian River	52,037	7,251	7,714	-	1,107	3,048	**71,157**
Jefferson	21,030	-	8,651	2,551	933	<100	**33,174**
Lafayette	20,047	-	17,574	<100	324	190	**38,182**
Lake	98,642	3,593	4,417	201	3,764	342	**110,959**
Lee	34,430	1,055	408	<100	2,238	3,276	**41,495**

County	Animals and Animal Products	Citrus	Field and Row Crops	Fruit and Tree Nuts	Greenhouse/ Nursery	Vegetables, Melons, and Potatoes	Total
Leon	3,044	-	461	<100	<100	-	**3,586**
Levy	97,771	-	41,425	<100	1,750	3,366	**144,365**
Liberty	<100	-	<100	-	-	-	**<100**
Madison	50,192	-	34,508	202	345	2,177	**87,424**
Manatee	81,566	2,574	3,531	682	1,689	29,918	**119,960**
Marion	203,216	237	16,725	<100	1,514	536	**222,294**
Martin	99,453	-	32,970	<100	3,029	9,506	**144,969**
Miami-Dade	3,614	-	6,688	10,506	19,578	14,688	**55,073**
Monroe	<100	-	-	-	-	-	**<100**
Nassau	15,457	-	2,568	-	<100	<100	**18,140**
Okeechobee	305,039	1,865	12,407	-	857	4,101	**324,269**
Orange	74,007	110	594	109	1,314	167	**76,300**
Osceola	438,345	2,650	11,428	-	1,666	3,115	**457,203**
Palm Beach	21,893	-	400,507	<100	8,064	10,394	**440,909**
Pasco	76,685	477	6,444	<100	560	<100	**84,185**
Pinellas	503	-	<100	-	<100	-	**533**
Polk	220,512	58,516	5,033	175	1,312	238	**285,786**
Putnam	39,445	<100	8,690	<100	2,206	909	**51,310**
Sarasota	48,733	16,378	1,323	-	373	1,056	**67,863**
Seminole	18,643	623	294	<100	675	<100	**20,258**
St. Lucie	83,462	101	10,714	920	1,833	10,864	**107,893**
St. Johns	8,026	-	4,339	-	204	3,181	**15,749**
Sumter	87,589	-	6,485	<100	778	952	**95,872**
Suwannee	61,922	-	51,250	935	1,397	4,268	**119,772**
Taylor	17,625	-	1,589	-	215	-	**19,429**
Union	17,840	-	5,532	<100	<100	383	**23,789**
Volusia	48,464	270	2,804	<100	6,514	<100	**58,111**
Wakulla	4,414	-	1,212	<100	<100	<100	**5,701**
Total	**4,369,477**	**274,705**	**1,223,183**	**20,002**	**81,286**	**203,828**	**6,172,481**

Note: Acreage less than 100 are represented as '<100' in the table.

Table A-2. *The area-weighted intensity of wind, precipitation, and flood, HCII, and percentage of affected agricultural land in each county.*

County	Area-Weighted Wind Speed Index	Area-Weighted Precipitation Index	Area-Weighted Flood Index	Area-Weighted HCII	% Affected Agricultural Land
Alachua	1.0	0.5	0.1	1.6	100%
Baker	1.0	0.0	0.0	1.0	100%
Bradford	1.0	0.4	0.0	1.5	100%
Brevard	2.9	1.4	0.5	4.8	100%
Broward	1.0	0.3	0.0	1.3	100%
Charlotte	2.0	0.4	0.3	2.7	100%
Citrus	2.0	2.4	0.4	4.8	100%
Clay	1.0	1.0	0.1	2.1	100%
Collier	1.0	0.8	0.1	1.9	100%
Columbia	1.0	0.0	0.0	1.0	100%
DeSoto	2.8	0.8	0.4	3.9	100%
Dixie	1.0	0.2	0.0	1.2	100%
Duval	1.0	0.3	0.0	1.3	100%
Flagler	2.0	3.0	0.7	5.6	100%
Franklin	1.0	0.0	0.0	1.0	100%
Gilchrist	1.0	0.3	0.1	1.4	100%
Glades	1.7	0.0	0.2	1.9	100%
Gulf	1.0	0.0	0.0	1.0	36%
Hamilton	1.0	0.0	0.0	1.0	100%
Hardee	4.0	1.0	0.6	5.5	100%
Hendry	1.1	0.0	0.1	1.2	100%

County	Area-Weighted Wind Speed Index	Area-Weighted Precipitation Index	Area-Weighted Flood Index	Area-Weighted HCII	% Affected Agricultural Land
Hernando	2.0	3.5	0.6	6.1	100%
Highlands	2.2	0.2	0.3	2.6	100%
Hillsborough	3.2	3.1	0.7	6.9	100%
Indian River	2.1	1.5	0.2	3.7	100%
Jefferson	1.0	0.0	0.0	1.0	77%
Lafayette	1.0	0.0	0.0	1.0	100%
Lake	2.0	3.2	0.5	5.7	100%
Lee	1.5	0.7	0.3	2.4	100%
Leon	1.0	0.0	0.0	1.0	26%
Levy	1.0	1.0	0.2	2.2	100%
Liberty	1.0	0.0	0.0	1.0	2%
Madison	1.0	0.0	0.0	1.0	100%
Manatee	4.9	1.7	0.3	6.9	100%
Marion	1.6	1.6	0.3	3.5	100%
Martin	1.0	0.4	0.1	1.5	100%
Miami-Dade	1.0	1.5	0.0	2.5	100%
Monroe	1.0	1.0	1.6	3.6	100%
Nassau	1.0	0.0	0.0	1.0	100%
Okeechobee	2.0	0.5	0.1	2.6	100%
Orange	2.7	1.7	0.3	4.7	100%
Osceola	2.9	1.2	0.3	4.5	100%
Palm Beach	1.0	0.1	0.0	1.1	100%
Pasco	2.0	3.4	0.7	6.2	100%
Pinellas	2.0	3.3	0.6	5.9	100%
Polk	3.2	2.0	0.6	5.8	100%
Putnam	1.4	1.9	0.3	3.6	100%
Sarasota	5.0	1.8	0.6	7.3	100%
Seminole	2.0	2.9	0.9	5.7	100%
St. Lucie	2.0	0.9	0.0	2.9	100%
St. Johns	1.1	2.7	0.1	4.0	100%
Sumter	2.0	3.4	0.6	6.0	100%
Suwannee	1.0	0.0	0.0	1.0	100%
Taylor	1.0	0.0	0.0	1.0	100%
Union	1.0	0.0	0.1	1.1	100%
Volusia	2.0	3.2	0.7	6.0	100%
Wakulla	1.0	0.0	0.0	1.0	100%

Table A-3. *Estimated affected value of annual production (2024$, Thousands) by commodity group in each county of Florida.*

County	Animals and Animal Products	Citrus	Field and Row Crops	Fruit and Tree Nuts	Greenhouse/ Nursery	Vegetables, Melons, and Potatoes	Total
Alachua	$23,973	$-	$14,595	$16,834	$29,128	$5,783	**$90,314**
Baker	$13,947	$-	$964	$309	$1,559	$279	**$17,057**
Bradford	$18,192	$-	$2,485	$807	$534	$177	**$22,195**
Brevard	$11,731	$504	$1,952	$-	$37,397	$-	**$51,585**
Broward	$2,511	$-	$148	$155	$35,880	$6,651	**$45,346**
Charlotte	$7,581	$9,460	$896	$-	$6,198	$88,158	**$112,293**
Citrus	$5,959	<$100	$1,598	$1,755	$3,184	$-	**$12,564**
Clay	$4,611	$-	$389	$-	$3,000	$-	**$8,000**
Collier	$9,138	$30,392	$2,050	<$100	$49,079	$474,586	**$565,271**
Columbia	$28,601	$-	$9,481	$3,837	$6,553	$687	**$49,159**
DeSoto	$48,174	$102,858	$2,078	$4,764	$17,839	$49,019	**$224,732**
Dixie	$5,921	$-	$4,062	$-	<$100	$283	**$10,295**
Duval	$5,905	$-	$652	$1,326	$6,503	$-	**$14,386**
Flagler	$2,432	$-	$971	$141	$2,911	$14,443	**$20,898**
Franklin	$425	$-	<$100	$-	$-	$-	**$444**
Gilchrist	$58,537	$-	$15,677	$734	$3,092	$7,832	**$85,873**

County	Animals and Animal Products	Citrus	Field and Row Crops	Fruit and Tree Nuts	Greenhouse/ Nursery	Vegetables, Melons, and Potatoes	Total
Glades	$23,491	$2,975	$106,352	$-	$3,644	$13,491	**$149,953**
Gulf	$347	$-	$914	$-	$-	$-	**$1,261**
Hamilton	$11,364	$-	$8,993	$-	$1,449	$27,608	**$49,415**
Hardee	$89,086	$71,507	$3,378	$16,279	$36,390	$24,019	**$240,659**
Hendry	$22,767	$55,230	$245,669	$271	$8,747	$297,744	**$630,428**
Hernando	$13,878	<$100	$1,347	<$100	$10,966	$-	**$26,295**
Highlands	$63,986	$80,894	$15,618	$272	$48,735	$34,861	**$244,367**
Hillsborough	$55,481	$1,415	$1,964	$151,604	$115,260	$75,353	**$401,077**
Indian River	$10,300	$14,399	$2,283	$-	$9,171	$33,249	**$69,402**
Jefferson	$10,053	$-	$4,043	$25,799	$5,060	<$100	**$45,031**
Lafayette	$56,723	$-	$9,676	$661	$1,927	$1,502	**$70,489**
Lake	$34,253	$7,134	$2,591	$1,805	$154,608	$3,135	**$203,526**
Lee	$7,115	$2,095	$308	$941	$45,732	$45,212	**$101,403**
Leon	$594	$-	$252	$796	$158	$-	**$1,800**
Levy	$52,055	$-	$25,782	$517	$17,461	$24,632	**$120,447**
Liberty	<$100	$-	<$100	$-	$-	$-	**<$100**
Madison	$48,678	$-	$18,271	$1,965	$7,996	$26,951	**$103,861**
Manatee	$43,773	$5,103	$2,885	$23,504	$41,305	$409,515	**$526,084**
Marion	$115,224	$470	$11,285	$667	$20,680	$4,017	**$152,343**
Martin	$15,760	$-	$50,299	$107	$51,449	$99,027	**$216,642**
Miami-Dade	$11,941	$-	$6,682	$40,798	$726,926	$127,881	**$914,229**
Monroe	$2,204	$-	$-	$-	$-	$-	**$2,204**
Nassau	$11,738	$-	$1,963	$-	$109	$154	**$13,965**
Okeechobee	$206,907	$3,703	$7,347	$-	$18,178	$37,588	**$273,724**
Orange	$7,512	$218	$537	$4,180	$257,797	$2,742	**$272,987**
Osceola	$38,941	$5,262	$5,167	$-	$25,594	$29,378	**$104,343**
Palm Beach	$27,399	$-	$828,825	$318	$295,996	$102,191	**$1,254,729**
Pasco	$40,686	$947	$3,803	$122	$5,710	<$100	**$51,330**
Pinellas	$881	$-	<$100	$-	$1,196	$-	**$2,095**
Polk	$56,505	$116,193	$3,537	$4,639	$55,070	$2,303	**$238,247**
Putnam	$19,690	<$100	$6,272	$169	$16,216	$8,832	**$51,249**
Sarasota	$7,196	$32,461	$932	$-	$14,505	$10,125	**$65,218**
Seminole	$2,086	$1,237	$271	$221	$21,408	$167	**$25,389**
St. Lucie	$13,928	$201	$2,388	$9,527	$16,101	$104,492	**$146,636**
St. Johns	$2,607	$-	$1,868	$-	$14,375	$29,854	**$48,704**
Sumter	$29,885	$-	$3,691	$2,369	$17,730	$8,307	**$61,982**
Suwannee	$153,315	$-	$22,785	$8,795	$6,442	$40,698	**$232,036**
Taylor	$2,388	$-	$541	$-	$1,104	$-	**$4,033**
Union	$5,835	$-	$2,517	<$100	$1,893	$3,161	**$13,467**
Volusia	$15,250	$536	$2,112	$341	$172,128	$146	**$190,514**
Wakulla	$1,933	$-	$609	$155	$1,089	$128	**$3,915**
Total	**$1,581,411**	**$545,402**	**$1,471,835**	**$327,608**	**$2,453,189**	**$2,276,502**	**$8,655,947**

Note: Values less than $100K are represented as '<$100' in the table.

Table A-4. *Estimated county-level agricultural losses (2024$, Thousands) due to Hurricane Milton by commodity group.*

County	Animals and Animal Products	Citrus	Field and Row Crops	Fruit and Tree Nuts	Greenhouse/ Nursery	Vegetables, Melons, and Potatoes	Total
Alachua	$305	$-	$111	$638	$162	<$100	**$1,283**
Baker	$-	$-	$-	<$100	$-	$-	**<$100**
Bradford	$183	$-	<$100	<$100	<$100	<$100	**$251**
Brevard	$619	<$100	$101	$-	$3,331	$-	**$4,125**
Broward	<$100	$-	<$100	<$100	$420	$334	**$771**
Charlotte	$180	$704	<$100	$-	$155	$4,451	**$5,515**
Citrus	$313	<$100	<$100	$176	$319	$-	**$912**
Clay	<$100	$-	<$100	$-	<$100	$-	**$158**

County	Animals and Animal Products	Citrus	Field and Row Crops	Fruit and Tree Nuts	Greenhouse/ Nursery	Vegetables, Melons, and Potatoes	Total
Collier	$126	$521	<$100	<$100	$1,198	$20,876	**$22,749**
Columbia	<$100	$-	<$100	<$100	<$100	<$100	**<$100**
DeSoto	$1,746	$6,220	$110	$261	$617	$4,290	**$13,243**
Dixie	<$100	$-	<$100	$-	$-	<$100	**<$100**
Duval	<$100	$-	<$100	<$100	$119	$-	**$206**
Flagler	$155	$-	<$100	<$100	$291	$1,486	**$2,005**
Franklin	$-	$-	$-	$-	$-	$-	**$-**
Gilchrist	$423	$-	<$100	<$100	<$100	<$100	**$591**
Glades	$398	<$100	$1,235	$-	<$100	$676	**$2,369**
Gulf	$-	$-	$-	$-	$-	$-	**$-**
Hamilton	<$100	$-	<$100	$-	$-	$-	**<$100**
Hardee	$5,222	$9,394	$195	$1,415	$3,639	$2,416	**$22,280**
Hendry	<$100	<$100	$591	$-	<$100	$2,230	**$2,981**
Hernando	$863	<$100	$102	<$100	$1,108	$-	**$2,087**
Highlands	$1,624	$2,991	$336	<$100	$2,287	$1,762	**$9,024**
Hillsborough	$4,347	$341	$232	$23,126	$11,637	$10,143	**$49,827**
Indian River	$330	$938	<$100	$-	$805	$2,097	**$4,262**
Jefferson	$-	$-	<$100	<$100	$-	$-	**<$100**
Lafayette	<$100	$-	<$100	<$100	<$100	$-	**<$100**
Lake	$2,078	$1,225	$175	$233	$15,563	$317	**$19,592**
Lee	$154	$111	<$100	<$100	$2,212	$2,323	**$4,858**
Leon	$-	$-	$-	$-	$-	$-	**$-**
Levy	$1,110	$-	$555	<$100	$409	$1,307	**$3,409**
Liberty	$-	$-	$-	$-	$-	$-	**$-**
Madison	$-	$-	$-	$-	$-	$-	**$-**
Manatee	$3,767	$1,397	$423	$2,473	$4,207	$55,271	**$67,538**
Marion	$4,485	<$100	$473	<$100	$1,839	$253	**$7,157**
Martin	$142	$-	$264	<$100	$675	$3,317	**$4,404**
Miami-Dade	$208	$-	$154	$2,175	$20,888	$6,843	**$30,269**
Monroe	<$100	$-	$-	$-	$-	$-	**<$100**
Nassau	<$100	$-	<$100	$-	$-	$-	**<$100**
Okeechobee	$4,490	<$100	$151	$-	$242	$1,886	**$6,798**
Orange	$399	<$100	<$100	$419	$26,091	$274	**$27,250**
Osceola	$1,939	$630	$295	$-	$2,274	$2,950	**$8,088**
Palm Beach	$651	$-	$432	<$100	$9,887	$4,245	**$15,227**
Pasco	$2,624	$168	$359	<$100	$571	<$100	**$3,746**
Pinellas	<$100	$-	<$100	$-	$120	$-	**$176**
Polk	$3,592	$19,827	$322	$584	$5,508	$241	**$30,074**
Putnam	$730	<$100	$171	<$100	$1,597	$800	**$3,321**
Sarasota	$673	$9,904	$137	$-	$1,451	$1,465	**$13,630**
Seminole	$132	$229	<$100	<$100	$2,192	<$100	**$2,606**
St. Lucie	$311	<$100	<$100	$627	$703	$5,904	**$7,606**
St. Johns	<$100	$-	<$100	$-	$641	$2,890	**$3,707**
Sumter	$1,877	$-	$270	$295	$1,773	$902	**$5,117**
Suwannee	<$100	$-	<$100	<$100	<$100	<$100	**<$100**
Taylor	<$100	$-	<$100	$-	$-	$-	**<$100**
Union	<$100	$-	<$100	<$100	$-	<$100	**<$100**
Volusia	$1,033	$112	$125	<$100	$17,228	<$100	**$18,563**
Wakulla	<$100	$-	$-	<$100	$-	$-	**<$100**
Total	**$47,732**	**$54,998**	**$7,959**	**$32,834**	**$142,314**	**$142,124**	**$427,960**

Note: Authors' calculations based on analysis of survey data along with observations from previously analyzed tropical cyclone events (Irma [2017], Michael [2018], Ian [2022], Idalia [2023], Debby [2024], and Helene [2024]). Values less than $100K are represented as '<$100' in the table.

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