

The Effects of Hurricane Irma on Florida Agriculture

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THE EFFECTS OF HURRICANE IRMA ON FLORIDA AGRICULTURE

<http://www.freshfromflorida.com/News-Events/Press-Releases/2017-Press-Releases/Commissioner-Putnam-Announces-Preliminary-Florida-Agricultural-Damages-Due-to-Hurricane-Irma-Total-2.5-Billion>

Source: Florida Department of Agriculture and Consumer Services-October 4, 2017

Commissioner Putnam Announces Preliminary Florida Agricultural Damages Due to Hurricane Irma Total \$2.5 Billion

TALLAHASSEE, Fla. — Florida Commissioner of Agriculture Adam H. Putnam today announced that the preliminary agricultural damages caused by Hurricane Irma in Florida total more than \$2.5 billion.

In an initial report released today, the Florida Department of Agriculture and Consumer Services estimated losses for each segment of agriculture. The preliminary economic assessments account for: current crop losses and ancillary losses, such as debris cleanup, damaged infrastructure, and animals' long-term welfare affected by Hurricane Irma. This preliminary assessment will change as new information becomes available, and it is not representative of any specific funding request.

"Florida agriculture took it on the chin as Hurricane Irma pummeled the state, and the \$2.5 billion in agricultural damages is only an initial assessment. We're likely to see even greater economic losses as we account for loss of future production and the cost to rebuild infrastructure. We're going to do everything within our power to support Florida agriculture as it recovers from Hurricane Irma's devastation," stated Commissioner of Agriculture Adam H. Putnam.

The estimated economic agricultural damages according to the Florida Department of Agriculture and Consumer Services' preliminary report are as follows:

Total Florida agriculture: \$2,558,598,303

Citrus: \$760,816,600

Beef Cattle: \$237,476,562

Dairy: \$11,811,695

Aquaculture: \$36,850,000

Fruits and Vegetables (excluding citrus): \$180,193,096

Greenhouse, Nursery and Floriculture: \$624,819,895

Sugar: \$382,603,397

Field Crops: \$62,747,058

Forestry: \$261,280,000

The estimates included in the preliminary report are based on data obtained from the USDA National Agricultural Statistics Service, the UF-IFAS "Impacts of Hurricane Irma on Florida

Agriculture: Update #4 Report," UF-IFAS crops budgets, Timber Damage Estimates prepared by the Florida Forest Service, and early surveys the Florida Department of Agriculture and Consumer Services conducted with industry leaders and individual producers.

[View the preliminary report](#) [Adobe PDF Document 434.26 KB].

<https://www.marketplace.org/2017/11/27/economy/florida-citrus-industry-still-suffering-irma>

Source: Marketplace- November 27th, 2017

Florida's citrus industry is still suffering from Hurricane Irma

When Hurricane Irma made landfall in Southwest Florida on Sept. 10, the state's citrus groves were hit especially hard. And they were already vulnerable, after more than a decade of struggle against a devastating crop disease. Hurricane Irma's severe winds, rain and flooding left extensive damage in the groves, which growers say will take years to recover.

Paul Meador, a fourth-generation citrus grower, has spent the last two and a half months assessing damage and supervising cleanup of his family's groves and logistics facilities across Southwest Florida. The company, Everglades Harvesting & Hauling, supplies juice oranges to Florida's Natural coop. His operation has 50 full-time employees and typically hires about 500 seasonal workers on temporary work visas to pick and process fruit. It is based in LaBelle, Florida, in Hendry County, northeast of Marco Island, where Hurricane Irma came ashore after first crossing the Florida Keys.

One of Meador's groves occupies 500 acres east of Naples, Florida. It's surrounded by small canals, dense forest and swampland.

"This is where the eye wall of the storm passed over," said Meador, pointing to a row of toppled orange trees, with fallen fruit and leaves still scattered on the ground. "We've cleaned up a lot already, but there's a lot of broken limbs laying around. We have two front-end loaders that have been working here for over a month."

He pointed to one front loader, carrying a huge uprooted orange tree to dump on a burn pile.

"That's one of thousands that we'll be removing in this block," he said.

Hurricane Irma hit the grove with 130 mile-per-hour winds and torrential rain, Meador said, leaving the grove flooded for days afterward.

"A lot of our best-producing trees have been destroyed, so we have to replant the trees that are gone, and those were the workhorses that really generated money for us. I would guess that two-thirds of our crop is gone — either because of tree loss or the fruit was shaken out of the trees. So now we have to fund another entire crop year. It's going to be a very challenging 24 months to come."

It's also a challenging time for seasonal agricultural workers who pick the oranges, said Gerardo Reyes Chavez. He's an organizer for the Coalition of Immokalee Workers, a farmworker advocacy

group that helps poor, mostly Latino immigrant laborers in South Florida's citrus and tomato fields.

"You cannot replant a tree," said Reyes Chavez, who has spent time working in the orange groves that surround the town of Immokalee. The harvest season usually starts mid-October. "That's a season that's completely destroyed for all the orange groves. Thousands of workers without a job — it's hard."

Andrew Meadows, a spokesman for Florida Citrus Mutual, a trade organization for growers, points out that even before the hurricane there were problems.

"We were facing the fight of our lives before Irma," he said. "A dozen years ago we were producing 242 million boxes of oranges. Last year we produced about 69 million boxes. Some of that is due to development, some is due to previous hurricanes. But a large portion of it is due to HLB."

HLB is the abbreviation for a plant disease called Huanglongbing, or citrus greening. It's caused by a bacteria spread by a tiny invasive insect that saps the orange trees of nutrients, ruining the fruit and weakening the trees. There's no cure for citrus greening, but agricultural scientists have made significant progress to mitigate its damage for growers like Meador, whose trees were developing a healthy crop this year.

"We were hoping that this was going to be a rebound year," Meadows said. "Unfortunately, Irma came through, and we took one step forward and maybe five steps back."

Meadows predicts growers statewide will end up losing more than half of this year's crop to Hurricane Irma. The Florida Commissioner of Agriculture has estimated the cost of Irma to Florida's farm sector at \$2.5 billion, with projected losses to citrus producers the worst of any sector, at \$760 million.

"When a tree sits in water for two, three, four days, it destroys the root system and kills the tree," Meadows said. "We won't know the true effects of Irma until a year or two from now. So that \$760 million is expected to grow. And if we don't receive a relief-rebuild package, there's going to be a mass exodus from the industry."

The Florida congressional delegation, along with Florida's governor and other state officials, have been lobbying hard in Washington, D.C., for federal disaster funding dedicated specifically to helping the citrus industry.

"There really isn't a program in place at the moment to indemnify direct crop loss with specialty crops," said Max Moody, spokesperson for Republican U.S. Rep. Tom Rooney, whose district is Florida's top citrus-producing region. Moody said crop insurance will only cover a fraction of losses, and Small Business Administration loans aren't very useful to large growers.

So far, dedicated funding for Florida citrus has not been included in the two disaster-aid bills passed by Congress totaling more than \$50 billion. And it's not in the White House's most recent \$44 billion supplemental request submitted in mid-November, either. U.S. Rep. Dennis Ross, a

Republican from Florida, strongly criticized the latest funding proposal, saying in a statement: "I cannot — I will not — support a proposal that leaves behind over 60,000 Florida jobs."

Moody said that getting citrus assistance included in Congress's next disaster bill is crucial.

"What's available to them if we don't get into the supplemental?" he asked, referring to Florida citrus producers. "The answer is: Not a lot."

Florida usually produces about 60 percent of the U.S. juice-orange supply. Moody said that with domestic production slashed after Irma, orange imports to the U.S. from Central and South America are on track to nearly double.

"That's the only option to keep the processing plants open," he said.

And the supply crunch has caused prices to spike, with orange juice futures up about 25 percent since Hurricane Irma hit.

<http://www.panna.org/blog/when-disaster-strikes>

Source: Pesticide Action Network- October 19th, 2017

Florida

Many Southwest Florida farms were in the path of Hurricane Irma. After the storm passed, 50-60% of citrus fruit was on the ground and trees were surrounded by standing water, putting their roots — and entire orchards — in jeopardy. Farmworker housing also suffered extensive damage, displacing many workers and families.

<https://www.npr.org/sections/thesalt/2017/09/12/550404709/floridas-veggie-farmers-look-at-irmas-damage-probably-the-worst-we've-seen>

Source: NPR- September 12th, 2017

Florida's Farmers Look at Irma's Damage: 'Probably the Worst We've Seen'

When the worst of Irma's fury had passed, Gene McAvoy hit the road to inspect citrus groves and vegetable fields. McAvoy is a specialist on vegetable farming at the University of Florida's extension office in the town of LaBelle, in the middle of one of the country's biggest concentrations of vegetable and citrus farms.

It took a direct hit from the storm. "The eyewall came right over our main production area," McAvoy says.

The groves of orange and grapefruit were approaching harvest. But after Irma blew through, it left "50 or 60 percent of the fruit lying in water [or] on the ground," says McAvoy. Many trees were standing in water, a mortal danger if their roots stay submerged for longer than three or four days.

About a quarter of the country's sugar production comes from fields of sugar cane near Lake Okeechobee, east of LaBelle. Harvest season for the sugar cane crop is only a few weeks away, but Irma knocked much of the cane down, making it more difficult to harvest. "We won't know the exact extent of the loss until it's harvested," McAvoy says.

Fortunately for vegetable farms, the storm hit before most of those fields in his area had been planted. The ones that were planted — perhaps 10 percent of them — were "a total loss," he says. Even unplanted fields sustained damage; before planting, growers typically prepare the fields by covering low rows with plastic to apply fertilizer and pesticides. Irma's winds tore that plastic away.

"It's probably the worst hurricane that we've ever seen," McAvoy says, although he says Wilma, in 2005, was nearly as damaging.

"It's just not a good day in Florida today," says Lourdes Villanueva, who works with the Redlands Christian Migrant Association, which provides services for farm workers in the state. Villanueva says the storm destroyed many trailers and other houses where workers live. "The ones where the roof didn't go, trees fell on them," she says.

Farm workers often live in the most low-quality and vulnerable housing, she says. Some families have been left homeless. Other structures are empty at the moment, because most migrant farm workers still are working in the north, harvesting fall crops like apples. Florida's growers will need those workers soon, says Villanueva, but "will they want to come here if there's no housing?"

Farming communities living farther north, or outside Irma's path, fared better. Justin Sorrells, a citrus producer in Arcadia, Fla., says that farmers in his area lost a "minimal" amount of fruit, although he's worried the flooding still could damage many trees.

The state's citrus industry has been shrinking because of citrus greening disease, but it still accounts for about half of the country's production.

Florida's strawberry crop, meanwhile, wasn't yet planted. Kenneth Parker, executive director of the Florida Strawberry Growers Association, says that the storm destroyed some of the plastic that's been laid down on strawberry fields in advance of planting, but growers will be able to make repairs and plant on schedule, starting in a couple of weeks. "These [strawberry growers] are so resilient, they're going to do what it takes to get the job done," he says.

<https://www.apnews.com/0e56c7d984b94df1851bae6073842be1/Official:-Irma-was-'lethal'-for-Florida-citrus,-other-crops>

Source: Associated Press News- October 12th, 2017

Official: Irma was 'lethal' for Florida citrus, other crops

TALLAHASSEE, Fla. (AP) — Florida's famous oranges are still falling from trees and rotting on the ground weeks after Hurricane Irma, and the state's agriculture commissioner said Thursday

there will be fewer Florida vegetables on Thanksgiving tables and a shortage of poinsettias at Christmas.

Agriculture Commissioner Adam Putnam and Florida farmers updated the state Senate Agriculture Committee that the storm damaged crops of all kinds, with losses topping \$2.5 billion. Losses are reported to peanuts, avocados, sugar, strawberries, cotton and tomatoes. The storm also affected timber, milk production and lobster and stone crab fishing.

"The fresh winter vegetables that are on people's Thanksgiving tables won't be there this year because of Hurricane Irma," Putnam said. "The losses are staggering; in many cases, the tale of those losses will be multiple years ... This is more than just damage contained in just one crop year."

He said Irma's path couldn't have been "more lethal" for Florida agriculture, with few crops spared. The citrus industry was particularly hard hit, with some estimates of more than half the orange crop lost.

The U.S. Department of Agriculture released its Florida citrus forecast Thursday, estimating that Florida will produce 54 million boxes of oranges, down 21 percent from last year.

But the Florida Citrus Mutual said the federal government should have delayed the forecast because it's still too early to tell just how hard hit the industry was after the storm. It said production would be closer to 31 million boxes of oranges, or a 55 percent drop from the 68.7 million boxes produced in the 2016-2017 season.

"Irma hit us just a month ago and although we respect the skill and professionalism of the USDA, there is no way they can put out a reliable number in that short time period," said Michael W. Sparks, CEO of the Florida Citrus Mutual.

The agricultural losses are expected to affect consumers, but how much so is still to be determined.

"I would expect prices to rise as a result of the winter vegetable capital of America being put out of the production going into the holiday season," Putnam said, but he added that there could be a flood of foreign fruit and produce entering the market that could keep prices from rising — something he said could further hurt Florida farmers.

"That could, over time, replace market share that should be going to Florida's farmers," he said.

Committee Chairwoman Sen. Denise Grimsley talked about the damage she's seen in her family's orange groves.

"The fruit on the ground was so thick it was hard to walk through, and the smell is now bad because of the rotting fruit," she said.

Putnam's family also farms orange groves. He told reporters they've lost about half the crop.

"It's not good," he said. "You can stand in the grove and continue to hear fruit fall. It's a double kick in the gut because this was the best crop we've set in years. We had better crop, better crop

size, more fruit on the trees than I've seen in years. It was finally a crop to be proud of and now it's laying on the ground."

<http://ag.alltech.com/en/blog/nature-fury-natural-disasters-and-agriculture-2017>

Source: Alltech- December 2017

Irma

One thousand miles eastward from the Texas coast across the Gulf of Mexico, the citrus growers of Florida were already struggling with crop losses due to the bacterial disease citrus huanglongbing (HLB). Also known as "yellow dragon" or "greening" disease, HLB had infected all 32 of the state's growing citrus counties. There is no known cure.

But things finally seemed to be looking up in August when Dr. Elizabeth Steger of the Kissimmee-based Citrus Consulting International — whose crop yield forecasts have become something of a gold standard among Florida citrus growers — predicted a 10 percent increase in yield over 2016.

That forecast was dashed on Sept. 10 when Hurricane Irma struck the coast of southern Florida and tied with the 1935 Labor Day hurricane as the strongest ever to make landfall in the Atlantic basin. The huge storm proceeded to barrel north, straight up the peninsula, raking citrus groves in Florida's top-producing citrus counties: DeSoto, Polk, Hendry, Highlands, Hardee and Collier.

Now, instead of the long-awaited growth that had been predicted, the Sunshine State's citrus growers anticipate producing 35 percent less for 2017 than in the year before, according to Jim Ellis, financial examiner/analyst with the Florida Department of Agriculture and Consumer Services.

And the impact doesn't stop at grove's edge.

Ellis noted that Florida is home to 18 fruit packing houses. In 2016, the industry packed 12 million 4/5-bushel cartons. He estimates that there is only enough citrus remaining after the storms of 2017 to fill 6 million cartons. Three packing houses can process that entire crop, he said, adding that the state's fruit processors will pack an estimated 50 million boxes this year — down by 20 million boxes from 2016.

"The industry is crippled now," said Ellis. "The packing and processing plants can't run at full capacity, so there is a direct impact on labor and profits."

<https://www.thepacker.com/article/growers-inspect-irma-damage-look-federal-aid>

Source: The Packer- September 14th, 2017

Growers inspect Irma damage, look for federal aid

Hurricane Irma left Sunshine State citrus groves with dropped fruit, standing water and dashed hopes.

While tomato, strawberry, and vegetable growers came through the storm in comparatively better shape, no part of the Florida produce industry was untouched by the Sept. 10-12 storm.

Industry leaders will lobby for federal relief efforts as loss estimates are determined, said Mike Stuart, president of the Florida Fruit & Vegetable Association, based in Maitland, Fla.

The Florida Farm Bureau predicted damage from the storm will run in the billions of dollars.

Beyond crops, finding labor is a concern after Irma.

Stuart said industry representatives are working with the Department of Labor to build as much flexibility as possible into H-2A contracts. Finding workers and ensuring they have places to stay is a top concern, he said.

While the northward track of Irma hugged the west coast of Florida's peninsula and caused greater winds in the Gulf region and the southwest part of the state, heavy rain was experienced throughout the state.

On the east coast, Florida's Indian River region — where 80% of the state's grapefruit crop is grown — growers were still assessing damage and trying to drain standing water from groves, said Doug Bournique, executive director of the Indian River Citrus League.

Early damage estimates for grapefruit were running at 25% lost and could rise from there, said Kevin Spooner, managing member of Vero Beach, Fla.-based Southland Citrus LLC.

Though some published reports speculated that between 20% to 50% of Florida's citrus crop could be lost, Bournique said it was too early to put a number on crop losses. "We don't know the full effects and we won't know for weeks," he said.

The region experienced as much as 20 inches of rain and winds of 60 to 80 miles per hour.

While the wind blew off some fruit, Bournique said standing water of up to 18 inches was hurting the crop as much as the storm itself. The residual water does not allow the roots of the citrus trees to breathe and the trees become stressed.

Still, Bournique insisted that growers will harvest, market and export substantial volume of fresh grapefruit this season. The region exports four out of every five boxes of fresh grapefruit.

Strawberries spared

In west central Florida, Kenneth Parker, executive director of the Florida Strawberry Growers Association, Dover, Fla., said growers are expected to recover from Irma and plant strawberries in time to meet the normal marketing window from November through March.

"Our season is going to be fine — thank God we had not planted yet," he said Sept. 14, noting the planting season starts about the third week of September and will continue through the third week of October. About 10,000 acres of strawberries are expected to be planted this year, similar to last year.

Growers have to repair some wind and rain-damaged plastic, with damage estimates pegging that between 5% to 30% of plastic in strawberry fields will need to be replaced.

Veg and tomatoes

Irma hit southwest Florida's Immokalee Naples region hard.

"It's a battle," said Steve Veneziano, vice president of sales and operations for Naples, Fla.-based Oakes Farms Inc., noting the company had 240 workers cleaning the fields and another 100 working in the packinghouse. Labor supplies are very tight, he said Sept 14.

The company had planted about 20% of its fall vegetable crops — including peppers, tomatoes, eggplant and squash — when Irma hit.

For southwest Florida, delays involved in replanting may mean 90% of crops that could have been harvested in mid- to late November will be pushed to January, he said.

Other regions were less damaged by Irma's wind and rains or had not yet planted.

"The good news for the vegetable industry was that it was early enough in the season that there wasn't much in the ground," said Stuart of the FFVA.

"We're going to be fully in business, if a little late, but there's no doubt we will be in full volume by the end of the year," Stuart said.

While tomato growers in Florida's Immokalee region were hard hit, growers in Dade County and Palmetto Ruskin had fewer concerns after Irma, said Reggie Brown, manager of the Florida Tomato Committee.

South Florida's Homestead growers had not yet planted tomatoes when Irma hit, Brown said.

For the fall season, only about 4% to 5% of the tomato crop had been planted, and most of those plantings were in the Palmetto Ruskin region south of Tampa. That region fared better than Immokalee, he said.

While November shipments will be less than normal, tomato volume from Palmetto Ruskin and Immokalee will ramp up by Thanksgiving and Brown expects good volume of tomatoes in December.

<http://www.tampabay.com/florida-politics/buzz/2017/10/12/florida-citrus-industry-wont-see-quick-aid-from-congress/>

Source: Tampa Bay Times- October 12, 2017

Florida citrus industry won't see quick aid from Congress

WASHINGTON - Despite 11th hour lobbying from Gov. Rick Scott and Agriculture Commissioner Adam Putnam, Florida House members were unable to secure \$2.5 billion for the state's hard-hit agriculture industry in a broader hurricane relief package.

But Rep. Tom Rooney, who spearheaded the effort, has gotten assurance for aid in a subsequent package.

"As of now, we have been assured that there will be another aid bill soon and that our amendment/ag aid package will be attached to that one," Rooney spokesman Max Moody tells the Tampa Bay Times. "Leadership has expressed their support for helping Florida's agriculture industry and the exclusion of funding in this supplemental was simply an issue of timing."

Scott and Putnam met with the Florida delegation on Wednesday. "I know that's a heavy lift," Putnam said. "But time is of the essence for supporting growers who have between 50 and 100 percent of their crop on the ground."

<http://www.tampabay.com/florida-politics/buzz/2017/12/18/florida-citrus-could-finally-see-federal-relief-money/>

Source: Tampa Bay Times- December 18th, 2017

Florida citrus could finally see federal relief money

Rep. Vern Buchanan, R-Sarasota, said on Twitter that House leaders have agreed to \$81 billion in emergency spending for hurricanes. The package includes \$3.8 billion for agriculture losses.

Florida lawmakers in both parties had grown frustrated with a lack of relief money following Hurricane Irma, particularly for the state's citrus industry, which was already hard-hit by greening disease.

Rep. Tom Rooney, a member of the appropriations subcommittee on agriculture, released a statement:

The bill released today fully-funds my request to help Florida farmers recover from the storm, providing a total of \$2.6 billion to the U.S. Department of Agriculture to make direct payments to producers who've suffered hurricane-related crop losses this year. This has been a trying time for all of the state's farmers, ranchers, and growers who have been working tirelessly for months to recover from the devastation caused by Irma throughout Florida's Heartland. I am glad to say we finally cleared the first major hurdle by securing this funding in the latest disaster supplemental

bill. I am grateful to House Leadership for working with me and all of the industry stakeholders in Florida to support this funding and for their commitment to getting this bill approved before the end of the year."

<http://www.naplesnews.com/story/weather/hurricanes/2017/12/23/house-passed-citrus-relief-money-damage-hurricane-irma-but-bill-could-stall-senate-senate-isnt-expec/977346001/>

Source: Naples Daily News- December 23rd, 2017

Senate vote on citrus relief money will wait until January

Florida's citrus growers won't get their Christmas wish.

On Thursday the U.S. House passed federal relief money for the state's growers who suffered billions of dollars in losses from Hurricane Irma.

But the Senate won't take up an \$81 billion disaster relief package that includes the citrus money until January — and it won't come in the "must pass" form growers wanted.

Before the House voted on the relief money, leaders separated it from a short-term funding resolution aimed at keeping the government running through mid-January.

The Senate may be less likely to approve the disaster relief on its own. Florida's two senators — Democrat Bill Nelson and Republican Marco Rubio — have pushed for the money.

U.S. Rep. Tom Rooney, R-Punta Gorda, a leader in the fight for grower money, voted against the short-term funding bill, which narrowly passed. He wasn't happy the two were separated.

<http://www.southeastfarmpress.com/disaster/ag-updates-south-florida-disheartening>

Source: Southeast Farm Press- September 14th, 2017

Ag updates from south Florida disheartening

Agricultural and coastal assessment updates from University of Florida's Institute of Food and Agricultural Sciences experts throughout the state.

Okeechobee County

"There is a lot of damage and it is hard to make accurate estimates of damage. Extrapolating numbers to the surrounding areas (about 50 dairies in south Florida), there could be in excess of \$16,000,000 of damages; additional losses of animals and production could be \$400,000 per day depending on weather and continued loss of power. Additional fuel expense could be \$40,000 per day, again depending on the length of time without power. Some dairies will lose generators because of overuse. Forage crops have been affected by wind and water, but it is difficult to know which ones will recover."

UF/IFAS Extension Seminole Tribe of Florida

"100 percent of 600 acres of sugar cane in Brighton is leveled and underwater just north of Lake Okeechobee. Little damage to cattle, but calving season has begun. ±14,000 Brighton and ±10,000 Big Cypress improved pasture acres are underwater. Calves born onto flooded ground and forage under water will create significant financial loss for ranchers. Significant damage to pasture culverts and solar wells on both reservations. Crews out repairing miles of perimeter fences. Interior fences will be inspected once water recedes. In the 600 Citrus acres at Brighton there is 50 to 60 percent fruit drop. The Brighton hog farm facility and 4-H show pavilion have been destroyed."

Gene McAvoy, UF/IFAS Extension Hendry County director – Sept. 12

"Around Immokalee and LaBelle, 50 to 60 percent of the fruit has been blown off the trees and is floating in flood waters. Groves are extensively flooded and growers are having difficulty removing the water because the retention areas are also flooded. In some cases, dikes are breaking and releasing the water back into the grove. Even where the dikes are holding, there's no place to put the water, so they're having a slow go of removing water. This is going to result in long-term damage to trees. We're also seeing widespread damage to buildings, power outages and internal farm roads washed away, so road repairs will be necessary. Some power units have been damaged, and electrical power is out in most places with extensive damage to power lines."

Whitney Elmore, UF/IFAS Extension Pasco County director – Sept. 12.

"I have been in touch with most of our large producers in Pasco. Most are reporting little to no damage. I am currently touring the county to speak with others where possible. One blueberry producer, Frogmore Fresh in Dade City, was hit very hard. They have over 100,000 plants down. I was searching for 30 to 40 people to help get plants reset as their help left prior to the storm. Based on a suggestion from Nick Place, I am trying to coordinate a group of 4Hers and some from FFA to go out Thursday and Friday to assist."

Steve Futch, UF/IFAS Extension regional citrus agent – Sept. 12

Regarding the citrus crop, as you approach the path of the storm, the damage increased with dropped fruit and in some places you can easily see overturned trees.

The injury to the crop can be as high as 50 percent or more loss where close to the storm or more on the east side of the storm than the west side path. While I stated 50 percent or more, that will vary with many factors and could easily be higher where a tornado impacted the area. It would be impossible to state the total damage from the storm to the entire citrus industry as some areas received more or less damage.

Many of the areas that are in the process of planting fall crops (tomato, strawberry, etc.) will be impacted due to high water and very wet soils that will impact the bedding process.

<https://www.dairyherd.com/article/hurricane-irma-costs-florida-dairy-producers-nearly-12-million>

Source: Dairy Herd Management, October 9, 2017

Hurricane Irma Costs Florida Dairy Producers Nearly \$12 Million

Last month Hurricane Irma made landfall in Florida, leaving a wake of devastation in its path. An estimated \$2.5 billion in damage was done to production agriculture across the Sunshine State. Dairy producers were not hit as hard as other sectors, but losses are still expected to total near \$12 million according to officials with the Florida Department of Agriculture.

“Florida agriculture took it on the chin as Hurricane Irma pummeled the state, and the \$2.5 billion in agricultural damages is only an initial assessment,” says Adam H. Putnam, Florida commissioner of agriculture.

A report released by the Florida Department of Agriculture with data from USDA’s National Agricultural Statistics Service assessed damage in all of Florida’s 67 counties.

Irma forced milk processing plants to shutdown prior, during and after the storm. Southeast Milk Inc., a milk cooperative in with members across Florida, lost an estimated \$1,951,695 from milk dumping and milk being sold at lower prices in other markets.

Electricity went down for several days at dairies making cooling animals with fans difficult, leading to heat stress and lower milk production. It is estimated Florida dairy farms will lose \$7.5 million in revenue during the next four months because of the health setbacks cattle suffered.

An estimated 40 dairies incurred significant damage from Irma to barns, equipment, fences and other structures. No official number is released, but estimates include:

\$4,000 per farm in debris cleanup and rebuilding fences: \$160,000.

\$50,000 per farm in damage to barns, sheds, milk parlors, and other infrastructure: \$2,000,000.

\$5,000 per farm in equipment damage: \$200,000.

“We’re likely to see even greater economic losses as we account for loss of future production and the cost to rebuild infrastructure,” Putnam says.

Total losses, including crop losses, to dairy producers in the state are estimated to be \$11,811,695.

Losses for other agriculture industry sectors include:

The report states Florida has more than 100 dairies milking 125,000 total cows. Annually milk sales are more than \$500 million in Florida.

<https://www.bloomberg.com/news/articles/2017-12-14/florida-grapefruit-production-may-reach-99-year-low-on-storms>

Source: Bloomberg Markets- December 14th, 2017

Florida Grapefruit Production May Reach 99-Year Low on Storms

It's not just the orange groves that were hit hard by Hurricane Irma -- Florida's grapefruit harvest is now projected to fall to the lowest in nearly a century.

Production may only reach 4.65 million boxes in the current crop year, which would be the lowest output since 1919, according to a U.S. Department of Agriculture forecast earlier this week. Texas is aiming to shore up some lost output and next year could surpass Florida as the top grapefruit producer for the first time, according to USDA data. Still, the nationwide crop of 14.15 million boxes will be the smallest since 1930, less than half the harvest as recently as 2013.

Hurricane Irma in September nearly finished off a crop that's already struggled with devastation from citrus greening disease for more than a decade, said Alan Hodges, an agricultural economist with the University of Florida in Gainesville. "There's a question whether the industry will survive," he said.

Still, he said, Florida remains central to U.S. grapefruit exports, and consumer demand has remained strong in spite of rising prices.

<http://texasfarmbureau.org/irma-impacts-florida-agriculture/>

Source: Texas Farm Bureau- September 20th, 2017

Irma impacts Florida agriculture

The full impact of Hurricane Irma on Florida's agriculture is still undetermined, but early informal estimates place the cost of farm losses in the billions of dollars, according to Florida Farm Bureau Federation (FFBF) Director of Public Relations G.B. Crawford.

"We've experienced an agricultural disaster here," Crawford told the Texas Farm Bureau (TFB) Radio Network. "Our farm families are extremely resilient, capable, independent people. They did everything they could to protect their animals, their properties and, of course, their families."

The entire peninsula suffered major damage, according to Crawford. He said the worst damage was sustained in Southwest Florida counties.

"In some of those areas, citrus growers tell us that 60-70 percent of the fruit on the trees was simply blown away," Crawford said. "Standing water of up to three feet threatens plant health and productivity in the future."

These losses raise the likelihood that the 2017-2018 crop will be much smaller than expected.

Crawford noted around 10 percent of Florida's fall vegetable crop was in the ground when the storm hit. Those farmers who had already planted fall vegetables, including tomatoes, report a near-total loss.

In Hendry and Glades counties, hundreds of sugarcane plants were submerged in water, buried in sediment or blown away. Palm Beach County sugarcane appears to be shredded, but farmers there say that new growth is possible and along with it a partial harvest.

Crawford said Miami-Dade County lost about 40 percent of all farm commodities, and ornamental plant nurseries lost 70 percent or more of their shade cover and structures.

"Even the cut foliage growers as far north as Daytona Beach area have suffered significant damage," Crawford said.

In east Florida's Brevard County, ranchers have experienced heavy flooding. There was an estimated 50,000 acres of ranchland underwater, according to a FFBF news release.

"Many of our beef cattle ranchers across the state cannot gather and care for their animals because flooding has isolated sections of their properties," Crawford said. "It will mean calf weights will drop and profits will drop, as well."

Dairies in the southern part of Florida lost valuable production time because of electric power grid failures, according to Crawford.

Source: Aljazeera.com

Video- Florida's poor still struggling three months after Hurricane Irma

<http://www.aljazeera.com/news/2017/12/floridas-poor-struggling-months-hurricane-irma-171226074743456.html>

<https://www.local10.com/weather/hurricane-irma/south-florida-farmers-struggling-after-hurricane-irma-wipes-out-crops>

Source: Local 10 News- September 25th, 2017

South Florida farmers struggling after Hurricane Irma wipes out crops

MIAMI-DADE COUNTY, Fla. - Hundreds of millions of dollars are estimated to be lost in southern Miami-Dade County because farmers haven't been able to work after Hurricane Irma destroyed so much of their crops.

And even though money has stopped coming in, their bills have not.

Florida Keys will open to visitors Oct. 1

First cruise ship arrives in Key West after Irma

THE EFFECTS OF HURRICANE IRMA ON FLORIDA AGRICULTURE

Miami Beach parks workers could be fired for not coming to work quickly...

Gov. Scott visits one of hardest-hit areas of Florida Keys after Irma

Tebow hands out food to Hurricane Irma victims in Florida Keys

For many people in the area, things are beginning to get desperate.

"We have nothing coming in, and we're trying to pay mortgages, and you can imagine what 5-acre mortgages are like," Andres Mejides said.

Mejides and his family run Tropical Delights Organic Farm, in the Redlands area of Miami-Dade County. But things have been tough since Hurricane Irma hit a couple of weeks ago.

"The majority of our business is micro greens, and those need at least once a day of watering, and we haven't been able to water, so we can't plant. We just don't have any income whatsoever," he said.

Walking around their property, midseason avocados are now rotting on the floor, ripped off the trees by Irma's winds before they were ripe.

Dozens of lychee trees are lying on the ground, as well. Their season fortunately ended just before the storm hit, but Mejides is worried about them in the long term.

"We'll probably lose next year's income -- a great majority of it -- if we happen to get the trees up on time," Mejides said.

Many people in the area are still working with limited power and little to no running water -- a death sentence for some crops that may have been otherwise salvageable.

Now, desperate farmers are searching for help, saying people might not notice the effects right away, but they will, and soon.

"There's all of these groups that are into the local food movement. Well look around, this is your local food movement right now. I hope you can hold your stomachs for a few months, you know? If not longer," Mejides said.

That struggle is being felt all around the south Miami-Dade area.

In fact, the Farmworkers Association of Florida said it has been inundated with calls from people who normally tend to the farms and are now desperate for work.

They said the people are often undocumented and are ineligible to apply for unemployment, so they have nowhere else to turn.

<http://jacksonville.com/news/metro/2017-10-07/northeast-florida-farmers-race-salvage-crops-replant-recover-hurricane-irma>

Source: The Florida Times- Union- October 7th, 2017

Northeast Florida farmers race to salvage crops, replant, recover from Hurricane Irma

A month after Hurricane Irma inflicted almost \$2.6 billion in total agricultural damage statewide, Northeast Florida farmers still scramble to recover from shredded crops, flooded fields, flattened farm buildings and a delayed planting season.

Informal estimates suggest the storm's total agricultural tab will be well into the billions of dollars, say Florida Farm Bureau Federation officials.

Following record flooding fueled by storm surge and monster rains, farm families may be assessing their Irma losses for several months before a final total estimate is available, said G.B. Crawford, federation public relations director.

"Many of the losses will be calculated in coming weeks. It's very difficult for folks to make a total estimate if they're still struggling to get to their fields, their pastures, round up animals, to repair buildings," Crawford said.

Anecdotal evidence and informal evaluations indicate the Northeast Florida fared somewhat better than Southwest Florida, which agriculture experts say suffered the most severe overall agricultural destruction.

Southwest Florida farmers who had already planted fall vegetables, including tomatoes, report a near-total loss, according to the state Farm Bureau Federation.

Scattered assessments among Florida ornamental plant growers including some in Northeast Florida indicate that many greenhouses and shade covers either were demolished, left partially standing or sustained other damage making them unusable.

Some Florida nursery owners reported having less than 50 percent of their plants in marketable condition, according to the state Farm Bureau Federation.

NE FLORIDA FARM DAMAGE

Farmers growing vegetables and ornamental plants in St. Johns, Clay, Putnam, Flagler and Volusia counties reported damage to crops and barns. They also reported fields submerged beneath several feet of water, and greenhouses destroyed

Farm families are salvaging the crops they can, and focusing on moving forward with planting or replanting as they continue to clean up debris.

ST. JOHNS COUNTY

Fifth generation Barnes Farms in Hastings — the agricultural heart of St. Johns County — grows cabbage and other vegetables routinely found on home dinner tables, and served in restaurants along the East Coast.

The Barnes family farm escaped Hurricane Irma largely unscathed simply because it hadn't planted yet. But the storm put the family behind schedule for planting. The nor'easter last weekend flooded fields filled with the first plantings of cabbage and cauliflower with 13 inches of rain, Virginia Barnes said.

"It could have been a lot worse ... Compared to a lot of people around here, we were very, very fortunate, said Barnes, adding the roughly 25 acres of young plants survived, so the family won't have to replant.

"The plants that we were supposed to plant this week are sitting in our cooler right now because we can't do anything with them yet. It's kind of frustrating," she said.

Hurricane Matthew also delayed planting last year but all of the farm's plants survived because of her father, Marcus Barnes, and his experience and guidance, Virginia Barnes said.

"So, we're hoping, crossing our fingers, that will happen again this year. It looks rather bleak right now but it did last year, too," she said.

The planting delay is a major challenge confronting Northeast Florida farmers along with storm damage, said Gary K. England, regional specialized extension agent IV/director at the Hastings Agricultural Extension Center.

England said farmers will be able to make up a few of those acres but certainly not all of them so that will impact their gross sales. It also will affect consumers, said England citing an estimated two-week delay planting cabbage.

"There might not be any coleslaw on the table for Christmas, or it will be expensive coleslaw," England said.

Other St. Johns crops also got hammered.

The hurricane's high winds ravaged 166 acres of Asian vegetables, and heavy rain ruined other crops, said Bonnie C. Wells, commercial agriculture extension agent for St. Johns County.

"The estimated loss for Asian vegetables is more than a million dollars," said Wells, noting that includes seed, materials for trellising, products and labor costs.

Wells said waterlogged soil forced growers of cole crops such as cabbage, broccoli, cauliflower and Brussels sprouts, to delay planting by 1- to 2 weeks during the peak fall growing window.

"... This might mess up the market window at harvest, but the full extent of impacts from the delay are not predictable," she said.

Market window misses from delayed planting could result in a huge financial hit for farmers, but it's unknown currently if that will happen, Wells said.

Small acreages of field corn that weren't harvested before the storm also were damaged. It's possible small acreages of sweet potatoes also might have been impacted but no losses were reported immediately.

Most St. Johns farmers sustained storm damage to barns or other buildings, Wells said.

PUTNAM, VOLUSIA, FLAGLER COUNTIES

Agriculture officials haven't completed a total dollar value assessment of the damage in Putnam, Volusia and Flagler counties.

However, floral green ornamental plant growers in Putnam and Volusia counties sustained significant damage. Both counties are deemed the Florida center of that specialized agricultural industry — which relies on greenhouses and similar structures, England said.

"The reports I have is that about 70 percent of the shade cloth was blown off," England said of the damage to the greenhouse-like structures, commonly called a shadehouse, in Putnam County. Similar damage also occurred in Volusia.

Sometimes growers can put the shade cloth back on but other times, it's ripped and too badly damaged to be salvaged. Typically, the supporting lumber, poles and cables of the structure also break. Repairs and restoration requires intensive hand labor, he said.

England said at least one Datil pepper farmer in Putnam County lost part of his crop in the ground due to flooding. A Datil grower near Hastings had the plastic cover of its shadehouse blown off, exposing the young pepper plants, he said.

"When you talk about Datil peppers, it's relatively small acreage but high value crops," England said about the loss of pepper plants in the ground, although a dollar estimate wasn't available. In addition, one barn was destroyed in Putnam, he said.

Putnam potato growers had planted field corn as a rotational crop. About 30 percent to 40 percent of that field corn was lost to the storm because it hadn't been harvested before Irma hit. Most was in Putnam County but some was in St. Johns, he said.

In Flagler County, two barns each estimated to be worth about \$50,000 were destroyed. About 100 acres at a sod farm was under water for a while, meaning it will take longer for it to grow out for harvest, England said.

CLAY COUNTY

Initial assessments indicate Clay County farmers sustained relatively few crop losses. The preliminary damage assessment totals about \$25,000, and is based on conversations with producers, said Luke B. Harlow, agriculture and natural resources agent for the county extension service.

Harlow said that was partly due to the many hay and vegetable growers unable to plant vegetables or harvest hay during the summer because of the early year drought followed by heavy summer rains.

The hurricane destroyed a Keystone Heights hydroponic tunnel, which is similar to a greenhouse, where the farmer was producing lettuce and other vegetables. Also destroyed was a Middleburg greenhouse growing tomatoes and peas, Harlow said.

"While the percent lost was high for these producers, total acreage lost was low compared to intensively farmed regions, estimated at less than 10 acres in total," said Harlow, adding a few farmers lost some squash and other vegetables planted before Irma.

Harlow also said some county cattle ranchers sustained barn damage and downed fences. One horse died as a result of the storm, he said.

<http://aldianews.com/articles/politics/immigration/floridas-undocumented-farmworkers-especially-hit-hard-irma/50078>

Source: Al Día Daily- September, 28th, 2018

Florida's undocumented farmworkers especially hit hard by Irma

Hurricane Irma not only caused millions of dollars in losses and damaged thousands of homes but also exacted a particularly heavy toll on the agricultural sector in Florida, ruining harvests and leaving many undocumented farmworkers unemployed.

The hurricane's human cost is particularly apparent in Immokalee, a southwestern Florida town of around 20,000 inhabitants where approximately half of the population are undocumented farmworkers from Mexico, Guatemala and Haiti who work in tomato, cucumber, bell pepper and pumpkin fields.

Zulaika Quintero, advocacy support assistant at the Redlands Christian Migrant Association (RCMA (link is external)), told EFE that Irma, which made landfall in southwestern Florida on Sept. 10, severely damaged farmworkers' homes and also destroyed a large percentage of the crops in that area of the state.

"Water got inside most of the homes, and people are afraid that they're contaminated," said Quintero, the director of the elementary school in the Immokalee community.

The major hurricane also left hundreds of farmworkers unemployed when it ravaged crops and covered them with trees, branches and debris.

Practically all of the crops were destroyed, Quintero said, adding that "everything they'd planted was damaged."

The natural disaster has exacerbated the grinding poverty in that area of the state, whose population is mostly Hispanic, and prompted the RCMA to provide food aid, especially for children.

"Children will be given lunch and dinner until October," Quintero said, adding that undocumented farm workers are waiting for the situation to improve so they can return to work.

The farm laborers who make up the Coalition of Immokalee Workers, a worker-based human rights organization, say thousands of hectares were destroyed by Hurricane Irma, which made landfall in the Florida Keys and then later moved up the west coast of the state.

Cruz Salucio Perez, a farmworkers' leader and member of the coalition, lamented that the hurricane had wiped out everything "just when the workers were to start collecting the harvest" (the tomato harvest runs from November until May) and predicted that the consequences of the damage would be felt nationwide.

Florida's struggling citrus industry, which provides employment to more than 45,000 people and generates some \$8.6 billion in total sales, also was not spared Irma's wrath.

Irma destroyed more than half of Florida's orange crops, further reducing a harvest that was already expected to be the smallest in 50 years, the Florida Department of Citrus said.

The situation is problematic for farmworkers but also for the thousands of families who depend on agribusiness for their livelihoods, "such as packers, cleaning crews, etc."

Salucio Perez called on authorities to help thousands of farmworkers build higher-quality houses for themselves and their family members.

Immokalee is one of the poorest communities in the United States, according to figures provided by Jeff Fox, who serves as director of the Mother Teresa Project and regularly leads social service brigades to the town made up of students from nearby Ave Maria University.

<https://insideclimatenews.org/news/16102017/hurricanes-florida-agriculture-migrant-farm-workers-jobs-crop-loss>

Source: Inside Climate Change- October 17th, 2017

Hurricane Irma's Overlooked Victims: Migrant Farm Workers Living at the Edge

Hurricane Irma knocked millions of dollars' worth of oranges and grapefruits to the ground. Its high winds mowed down thousands of acres of sugarcane, toppled nursery plants, and decimated the avocado crop.

The damage will cost the state's agricultural industry billions, but for the migrant workers who pick these crops and work in the fields, the storm means real hardship that will test lives already on the edge.

"If you listen to the news coverage about Irma, you'll hear about damage to the farms. You don't ever hear about impact to farm workers," said Jeannie Economos, the pesticide safety and environmental health project coordinator with the Farmworker Association of Florida. "And there's a critical piece—an intersection of climate change and living and working conditions for migrant workers."

The storm destroyed housing across communities that are home to many of the estimated 300,000 migrant workers in the state. Now, the damage to Florida's agriculture industry will

mean fewer jobs, and because of their legal status or lack of a permanent address, many migrant workers don't qualify for relief—or are afraid to seek help. For people already living on the margins, missing even a week or two of work can mean being unable to pay rent, buy groceries or fill up a car with gas.

"There's not going to be a lot of work this year," said Gene McAvoy, a horticultural specialist with the University of Florida. "They don't have credit cards. They don't have bank accounts. The housing they live in is substandard. They took a disproportionate hit by the storm. It's really going to have a major impact on that community."

Florida is the country's second-largest producer of vegetables and top citrus producer, and its \$8 billion agricultural economy depends on migrant workers. Unlike other parts of the country, where the agricultural economy is supported by mechanization, almost all of the crops grown in Florida, from asparagus to zucchini, require a human to pick them. Many are migrant workers—some in the country legally, and some not—who are especially vulnerable to the danger and economic hardship that accompany a monster storm like Irma.

"If you're not picking, you're not getting paid—you won't have any income," said Kathy Dain director of the Beth-El Farmworker Ministry in Wimauma. "For those who live in poverty—which would be our farmworkers—you don't have the resources. A middle-income person can just go out and buy the things they need."

In the hours before Irma hit, some farm workers spent their limited cash taking shelter in motels. Some spent money on gas to leave the state. Still others wouldn't seek shelter, fearing that operators or law enforcement would ask for papers.

"I saw, first hand, families that didn't want to go to shelters," said Lourdes Villanueva, the director of farmworker advocacy at the Redlands Christian Migrant Association. "It took a lot of convincing."

With anti-immigrant rhetoric simmering across the country—inflamed by talk of border walls and immigration-tightening legislation floated by lawmakers—fear is running high.

"It's always a difficult life, but in this political climate, it's harder," Villanueva added. "If these people could be invisible, they would be."

Some farm workers waited out Irma at home, losing the roofs over their heads and all the food in their refrigerators.

"That sets a poor family back much more than it does a family who has an employer 52 weeks a year," said Steve Kirk, president of a not-for-profit called Rural Neighborhoods that rents 1,700 apartments, many to farmworkers. "From a financial perspective, they have a hard time rebounding, especially when they lose weeks of work."

The Farmworker Association of Florida estimates that the state has 300,000 farmworkers in total, roughly half of whom are undocumented. "FEMA and food stamps and other emergency help — they're not going to qualify," said Tirso Moreno, a director with the association.

Irma's impact, at least initially, was especially severe in Immokalee, a chronically poor town at the heart of Florida's tomato-growing industry in the southwestern part of the state.

About 30 miles east the expensive high-rise apartment buildings of Naples that tower at the edge of the Gulf, Immokalee was in near ruin. Irma's winds ripped roofs off mobile homes like sardine cans. Houses were inundated with water that people tried to pump out with hand-made devices fashioned out of bits of hose. Thousands of acres of plastic sheeting—laid down to prepare for the tomato crop—sat under mud.

Government and other aid workers were slow to arrive with basic supplies, and it took nearly two weeks for power to return—providing, finally, some relief from the south Florida heat.

"The Red Cross didn't show up for a week. If you needed water or ice, you needed it right away, not 10 days later," Villanueva said. "The help went to Naples, to other places. No one bothered to go to that area."

Nor to other, lesser-known farming communities across the state.

"This storm was so big, they weren't prepared," Moreno said. "The southwest was the most affected, but there were problems all over."

In a state with a shortage of affordable housing, landlords can charge huge rents for mobile homes, and many of those are unanchored or so old they don't meet newer safety standards. The housing stock in Immokalee was already limited and shoddy, even before Irma wiped out as many as 100 mobile and traditional homes.

The problem extends through much of Florida's agricultural areas, especially in the central and southern parts of the state—away from the tourism and the wealth of the coasts.

"The real issue is the lack of affordable housing for everyone, but that's magnified by what these families go through. They're not here year-round. They can't secure a year-round lease, so they're not ideal candidates for landlords," Villanueva said. "There are just so many factors that are really stacked against these families."

The good news for Immokalee and other produce-growing areas is that most of the crop wasn't yet in the ground and there's still time to plant for the winter growing season. That means there will be field jobs, albeit on a delayed schedule.

The picture is different with the state's citrus crop, which in some areas was almost completely destroyed. That comes after a decade battling a vexing tree disease called citrus greening, which has driven down citrus yields in the state.

"As an industry, it looked like we turned a corner. Then Irma came," said Fritz Roka an associate professor of agricultural economics with the University of Florida. "Clearly there's not going to be work for them to do, certainly in citrus."

Like so many harvesting jobs, picking citrus well requires specialization and experience. Increasingly, those workers have come from Mexico under the H2A guest worker program. In

2010, there were about 4,500 H2A workers approved in Florida. Last year, that number was nearly 23,000. As many as 80 percent of them work in the state's citrus orchards, Roka said.

Because orchard owners apply for those workers ahead of time and base their numbers on their estimated work needs, they're likely to apply for a significantly lower workforce this year. That will help their balance sheets.

But workers, both in the U.S. and Mexico, will feel it.

"It makes putting food on the table a lot more challenging," said Bryan Moorefield, a Ph.D. candidate at Brown University who studies social impacts on migrant farmworkers and lives part of the year in a community in central Mexico where many H2A workers live. "You're dealing with communities that often don't have access to labor markets. Maybe tomatoes will be able to bounce back, but missing a month or two of work might mean not paying for housing."

For those who get jobs in Florida's citrus industry, working conditions this year will be unusually tough.

"Most citrus workers tell me: Citrus is the hardest job I've had in agriculture, but I also want as many hours as I can get," Moorefield added. "If there's less fruit on the tree and it's smaller, they'll have to work quicker to make up the volume."

Economos, meanwhile, believes that increasingly volatile weather could mean that employers lean on the H2A guest program even more in coming years

"With climate change and the impact of storms, it's even further incentive to hire guest workers, because if their farms are damaged, they don't have to bring workers here," she said. "If there's going to be increased storms or weather events, and if they're going to affect the crops, then what's that going to do to documented, undocumented and guest workers in Florida and the United States? It's going to shift the dynamic. That's a really big discussion that needs to be had."

If employers don't hire guest workers, that could push them to come illegally.

"If they were expecting a contract, if they were expecting to come here on an H2A and they don't get one, they're more likely to risk crossing the desert to get here," she said.

The issue strays well beyond Florida's borders.

"The climate situation has been very bad for our workers," said Baldemar Velasquez, president of the Ohio-based Farm Labor Organizing Committee. "It's not just hurricanes. The weather patterns bringing rain into North and South Carolina. We see it every day. They can't send money home. They're worried about their families."

This year's hurricane season has pummeled farmers all along the Gulf coast and throughout the Caribbean.

This, climate scientists say, will become more common.

As ocean waters get warmer, stoking more frequent and intense storms, poor migrant workers will remain the least equipped to prepare for hurricanes and the least able to get out of their

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way. In Florida—flat, hot and flanked by the hurricane-fueling waters of the Atlantic and Gulf of Mexico — the challenges facing migrant farmworkers will be uniquely amplified.

"Middle-class Americans don't have to deal with the things migrant workers have to deal with: There's too much water. There's not enough water. There's too much wind, too much heat," Villanueva said. "All of these things affect our livelihood, which is crops. That's reality."
