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Climate Change's Latest Victim: Your Thanksgiving Pies



CLIMATE ACTION CAMPAIGN

Introduction

Thanksgiving is rife with delicious, but often tricky choices: canned cranberry sauce versus fresh, or classic turkey versus the less traditional but still tasty "turducken." But if there's one thing most people can agree on, it's that every Thanksgiving dessert table needs at least one pie.

Sadly, though, even this seemingly agreeable Thanksgiving option is under fire. Climate change – and the extreme weather, seesawing temperatures, and unpredictable growing seasons it's bringing – is jeopardizing one of the Thanksgiving traditions we hold most dear. Climate change is making the pie fillings that are synonymous with Thanksgiving more expensive, harder to find, and less reliable to produce – impacts that aren't likely to let up anytime soon.

Why are pies falling victim to climate change? The short answer is that the food system and the climate system are closely linked. Crops like apples, cocoa, wheat, and corn need certain temperatures and precipitation levels to thrive, so a spring season that's too wet or a summer that's too warm and dry can damage crops and lead to farmers spending more resources on irrigation and other inputs, driving up prices. Extreme weather events like hurricanes and wildfires can wipe out entire groves of pecan or peach trees, destroying a farmer's entire season. Extreme weather can also disrupt supply chains and produce distribution, making food prices and availability chaotic and costly, especially with skyrocketing diesel prices.

As a whole, research has found that **climate change has raised food prices in the U.S. by an average of 6.7% over the last 50 years** – and that's a conservative estimate. Extreme weather has played a big role in these food price spikes: Hurricane Ian wiped out 90% of Florida's citrus crop, devastating losses that ended up driving up orange juice prices by 50% in 2024 compared to 2020. In 2022, unprecedented drought in Arizona and California – major vegetable-producing states – helped raise vegetable producer prices by 80%.

The fillings that go into our fall pies aren't immune to these weather shocks. Hurricane Helene, as this report will outline, caused massive devastation to Georgia's pecan orchards, driving up costs and limiting pecan availability. Whether it's too much rain or too little, too much heat or a late-season cold snap, our most beloved Thanksgiving pie fillings are getting hit hard by climate change.

"Before a chef starts baking, every Thanksgiving pie begins with a harvest. The pumpkins, apples, sweet potatoes, and pecans on our holiday tables are there because of a farmer's hard work during the growing season, which climate change is making harder every year," said Anne McBride, Vice President of Impact at the James Beard Foundation.

"Droughts, floods, extreme heat, and late frosts are impacting the harvests that farmers' livelihoods depend on, and when a crop comes up short, it's the farmer's bottom line that takes the first hit."
– Anne McBride, James Beard Foundation

"Next in line are the chefs and bakers whose planned costs are increasing, if the ingredients are even available. And then, of course, there are the families trying to prep for their Thanksgiving meal amid rising prices and decreased availability. That's why protecting the people who grow and cook our food from climate change must be a priority."

From High Heat to Late Frost, Apples Are Getting Hit From All Sides

It's been a bad year for apple growers across the country. Multiple states, from New York to Wisconsin, were hit with late spring frosts, which exposed apple trees to freezing temperatures just around the time that they were starting to bloom. The frosts were so damaging that some orchards in the Mid-Atlantic cancelled their fall picking seasons, and officials in New York State report that farmers are expected to be hit by more than $30 million in losses. **On the whole, USDA officials estimate that this year's apple crop will be 7% smaller than last year's**. These losses could mean some regional shortages and slightly higher prices for apple buyers.

Climate change can make fruit trees more susceptible to these longer shoulder seasons and sudden cold snaps: As winters become shorter and more prone to wild temperature fluctuations, trees prematurely awaken, which makes them more vulnerable to damage from freezing temperatures in late winter or early spring.

The U.S. grows a lot of apples, stacking up just behind China as the second-top apple producer in the world. This much-loved crop is under threat in some of the country's biggest apple-growing counties (including Yakima County in Washington, Kent County in Michigan and Wayne County in New York) with many of them experiencing severe impacts from climate change, according to a 2025 study. That Washington State University study found that Yakima County, the top apple-producing county in the U.S., has been hit with five out of six climate metrics measured by the researchers that are bad for apple growth, including a growing number of extreme heat days and warm nights.

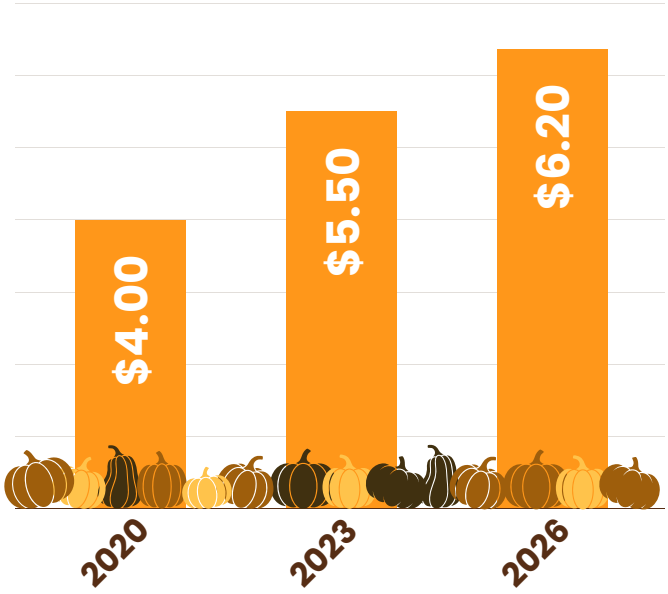
Long stretches of high temperatures are bad for apple trees, as heat makes apples more susceptible to "sunburn," a condition which causes big brown spots on the surface of the apple and can lead to tens of millions of dollars in lost revenue annually among apple growers. Warm nights can also dull the fruit's color, making it less appealing to shoppers. All of these trends point to a worrying future for apple-pie enthusiasts.

Pumpkins Pushed to the Brink

Every state in the U.S. produces pumpkins, with Illinois coming in as the top pumpkin-grower in the country. This geographic spread means pumpkin crops are being hit by a wide variety of climate change impacts. In Texas, for instance, some farms saw their crops nearly wiped out this year by the extreme heat that gripped the state over the spring and summer. In Utah, drought and wildfire smoke, which kept pollinators at bay, led to the worst pumpkin harvest in decades for some farmers. In Connecticut, meanwhile, heavy rains affected crop yields for some growers and also kept visitors at home, reducing farms' customer base.

These extremes contributed to pumpkin prices surging this year. According to the USDA, **the average price of a pumpkin is $6.20 this year, compared with about $4 in 2020 and $5.50 in 2023**. Pumpkins are sensitive to weather conditions. Extreme heat can cause the plants to wilt or flowers to fall, threatening pollination, and heavy rain can lead to mildew development, nutrient deficiencies, and delayed planting or harvesting, depending on when the wet conditions occur. This summer was also the country's hottest on record. The top pumpkin producing state of Illinois also saw above-average rainfall in June – warm, wet conditions that aren't ideal for pumpkin growing.

Pumpkin Prices Keep Rising



Pumpkins have been pushed to the brink by weather before. In 2015, Morton, Illinois – "The Pumpkin Capital of The World" – experienced a very wet pumpkin growing season, which led to diseases, rot, and fungus that plagued pumpkin crops. As a result, Libby's Brand Pumpkin, which supplies 85% of the world's canned pumpkin products, warned of a pumpkin shortage. Heavy rains and abnormally dry conditions also affected 2023's pumpkin crop.

One sweet spot in all this? Sweet potatoes - which some say reign supreme over pumpkin on the Thanksgiving pie table – could be a climate-resilient crop that can carry pie enthusiasts into our warming future. Though climate change could constrict sweet potato crops in some parts of the country, overall, the crop is heat-tolerant and adapted to thrive in warm temperatures.

Pecans Hit Hard By Severe Storms and Drought

Pecan pie is rich, sweet, and super vulnerable to climate change. Pecans need a lot of water, and when the weather gets hot – like it did during our record-breaking summer in the U.S. this year – their water needs skyrocket. Not getting enough water, particularly in times of drought, can cause pecan quality and quantity of harvest to decrease. Hot weather can also damage pecan trees and lead to lower crop yields.

On the flipside, hot, humid weather can lead to an increase in pests and diseases. That includes a scourge called pecan scab, which, when severe, can cause major nut losses and can drive up costs for growers as they increase their use of fungicides to control the scab. This year, farmers in parts of South Georgia struggled with pecan scab due to heavy rainfall.

In 2024, Hurricane Helene devastated pecan groves in Georgia, the country's number one producer of pecans, with some farmers facing total losses. The storm cut pecan production by 75% in Georgia that year, and drove up prices of the nut.

As climate change continues to make weather more unpredictable and more extreme, we can expect pecan prices to remain volatile. Georgia is seeing more heat, more severe storms, and more heavy rainfall as climate change progresses. New Mexico and Arizona, the second and third top pecan producers, are seeing more drought and high heat. All of these changes spell a rocky future for Thanksgiving's nuttiest dessert.

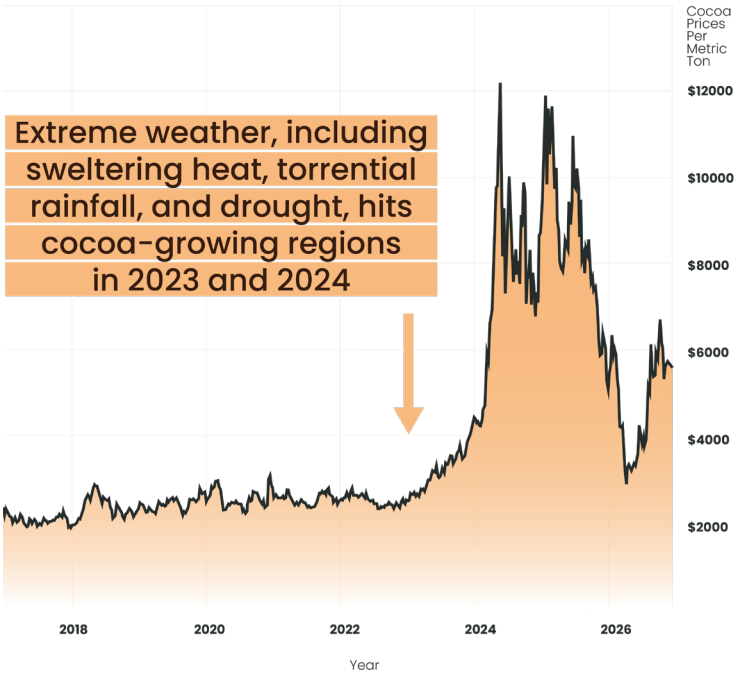
Chocolate Faces Price Shocks and Lower Quality

Chocolate pies and tarts are a decadent addition to the Thanksgiving table. But climate change is delivering a double whammy to this sweet treat, driving up the price and lowering the quality. In the last few years, cacao, which is largely grown in Latin America and West Africa, has been hit by heavy rainfall that damaged cacao flowers and pods. High, long-lasting humidity also damaged plants by creating ripe conditions for fungal diseases. Two of those diseases, frosty pod rot and black pod rot, can cause devastating damage to cacao plants, with frosty pod rot capable of destroying up to 90% of a cacao crop. Meanwhile, in West Africa, drought and high heat has also taken a toll on cacao crops. According to Climate Central, climate change is driving dangerous heat in West Africa, a region which produces 70% of the world's cocoa.

This drought and heavy rain double whammy for cacao-growing countries has led to serious price shocks. In 2024, cacao prices reached a record high of more than $12,000 per ton – far higher than the historic average of $2,000-$3,000 per ton. Overall, chocolate prices quadrupled between January 2023 and January 2025, due to extreme weather in chocolate-producing countries. Chocolate makers buy cocoa months or even years in advance, so consumers are paying for that price spike now:

Chocolate prices are up 9.4% this year compared to last year

Because of these astronomical costs, chocolate producers are putting less cocoa into their recipes, using fillers like palm and shea oils instead – all bad news for chocolate purists. And unfortunately, chocolate lovers aren't set to see relief anytime soon. With the arrival of a record-setting El Niño, which is set to continue into next year, drought and torrential rainfall events are in the forecast for cocoa-growing regions.



Your Cranberry Tart, Threatened by Warming Winters

Cranberries love the cold. They thrive in cold winters, requiring a certain number of "chill hours" (at temperatures between 32 and 45 degrees) to flourish. That makes them particularly vulnerable to warming winters. Wisconsin, the country's top cranberry-producing state, is seeing some of the fastest-warming winter temperatures in the nation, putting cranberry crops at significant risk. Farmers are trying new tactics to adapt to the changing climate, updating the ways they sand their bogs, installing new "smart" irrigation systems, and using more up-to-date forecasts. But as climate change continues to make winters warmer and as precipitation patterns change, experts warn that supplies could fall and prices could rise for this Thanksgiving staple.

Conclusion

Warming winters, hotter springs and summers, and increasingly erratic and severe weather play a huge role in our food system, causing major disruptions that can upset the delicate balance of conditions needed to grow and distribute our food. You may still have a pie on your table this Thanksgiving, but chances are, some of the ingredients will be less available and cost more because of our changing climate. Whether it's apple quality suffering due to cold snaps, cacao crops pummeled by severe weather, or pecans still recovering from major hurricanes, extreme weather is putting your Thanksgiving favorites in jeopardy.

One thing CAC is thankful for this Thanksgiving? The fact that we have the tools we need to address the climate crisis, including clean, affordable, reliable energy like wind and solar. Embracing clean energy would help address the root cause of the climate crisis and the extreme weather it drives, making our communities, and the pies on our Thanksgiving tables, safer.



Mock Apple Pie with Sonora Brown Sugar Crust

Rose Wilde

Note from the chef: *A little kitchen magic born out of necessity! Inspired by the mock apple pies of the Great Depression, this recipe transforms humble crackers and a warmly spiced syrup into a filling that looks, feels, and tastes remarkably like apple pie. The crust comes from my book Bread and Roses and features whole grain Sonora wheat, but feel free to swap in any whole grain flour you love. I find this kind of ingenuity inspiring, but as climate change threatens apple harvests and other crops, I worry about the foods I love eventually becoming too scarce or expensive to enjoy.*

Yield: One 9-inch double-crust pie, in a 1½–2-inch-deep metal pie tin
Oven: 425°F (220°C) Bake: Approximately 35 minutes



Sonora Brown Sugar Pie Dough

- 220 g (1 3/4 cups) Sonora flour
- 320 g (2 2/3 cups) all-purpose flour
- 75 g (1/3 cup packed) dark brown sugar
- 5 g (3/4 teaspoon) fine salt
- 300 g (2 2/3 sticks) cold unsalted butter, cubed
- 170 g (2/3 cup plus 1 tablespoon) cold water, plus more as needed

Mock Apple Filling

- 75 Ritz crackers (about 2½ sleeves), divided
- 776 g (3¼ cups) water
- 750 g (3¾ cups) granulated sugar
- 75 g (5 tablespoons) fresh lemon juice, or juice of 1 large lemon
- 2 teaspoons finely grated lemon zest, or zest of 1 large lemon
- 1 teaspoon ground cinnamon
- ½ teaspoon ground coriander
- 1/8 teaspoon freshly ground black pepper
- 1 teaspoon fine salt
- 57 g (4 tablespoons) unsalted butter, cut into small pieces

Finish

- 1 large egg
- 1 teaspoon whole milk
- Turbinado sugar, as needed

Method

Dough. Whisk together the flours, brown sugar, and salt in a large bowl, then turn the mixture out onto a clean work surface. Add the cold, cubed butter and gently toss to coat. Using the heel of your hand, flatten the butter into thin sheets. Gather the mixture with a bench scraper, then chop and fold it together to distribute the butter throughout the flour. Slowly cut in the cold water in two additions, using the bench scraper to bring the dough together, just until it begins to hold. Press into a rectangle, cut into thirds, stack, and press flat. Cut in half and stack again. Divide into two disks, wrap, and refrigerate for at least 2 hours.

Syrup. Combine the water and sugar in a saucepan and bring to a boil, stirring to dissolve. Boil gently for 20 minutes, until the syrup lightly coats the back of a spoon. Remove from the heat and stir in the lemon juice, zest, spices, and salt. Transfer to a small metal bowl and cool to room temperature. To speed things along, set the bowl in an ice bath or pop it in the freezer, stirring occasionally.

Crust. Preheat the oven to 425°F. Roll the bottom dough to 1/8-inch thick and trim into an even circle with a pizza cutter. Fit into a 9-inch metal pie tin, 1½–2 inches deep, leaving about 1½ inches of overhang. Dock the bottom a few times with a fork. Roll the top crust to 1/8-inch thick and trim to about 11 inches across, leaving enough to seal with the bottom crust. Refrigerate both while the syrup finishes cooling.

Fill. Roughly break 65 crackers into a bowl, reserving the remaining 10. Pour over about half the cooled syrup and gently fold for about 1 minute to coat. Transfer to the bottom crust and let settle. Dot with butter, tucking the pieces beneath some of the crackers. Break up the reserved crackers, toss with more syrup, and arrange over the filling to create a level top. Pour in additional syrup, aiming for the very edge of the pie tin. You may have ½–¾ cup syrup left; reserve it for finishing or serving.

Seal. Cover with the top crust, trimming any excess. Roll the edges together into a coil and crimp to seal. Freeze for about 5 minutes while you cut leaves or feathers directly from the dough trimmings with a pizza cutter, without rerolling.

Decorate. Beat the egg with the milk. Brush the pie with egg wash, attach the shapes, and brush them too. Sprinkle generously with turbinado sugar, then cut vents in the top crust.

Bake. Bake at 425°F for about 35 minutes, starting on the middle rack for 25 minutes, then moving to the bottom rack for the final 10 minutes to crisp the bottom without overbrowning the top. The crust should be deeply browned.

Finish and cool. If you like your pie extra saucy, use a turkey baster to add some reserved syrup through the vents while it's fresh from the oven. Otherwise, serve the extra syrup alongside slices. Cool on a wire rack for about 2 hours before slicing.

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