

Climate Change Is Hitting Farmers Hard

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Avery Ellfeldt, E&E News

Sweltering temperatures exacerbated by climate change dealt a multibillion-dollar blow to U.S. farmers and the public insurance program that shields them from **devastating losses**.

Those costs threaten to **take a toll on** the domestic agriculture sector and American taxpayers, who subsidize the federal insurance program that insulates farmers from financial shocks such as **plunging crop prices** and **yield volatility**, according to new research.

A recent study in *Environmental Research Letters* by Stanford University climate scientists examined global warming's impact on the U.S. crop insurance program, which Congress established in the 1930s to revive domestic agriculture **in the wake of** the Dust Bowl.

The findings were stark.

Climate-fueled temperature increases generated an estimated \$27 billion in insurance payments to farmers between 1991 and 2017, the study found. Those losses **accounted for** nearly 20% of the program's total payouts over that period.

And those numbers are expected to rise as climate change intensifies.

"This is further evidence that global warming is impacting people and ecosystems already, and it's further evidence that [climate change] is having financial costs that are in the billions," said Noah Diffenbaugh, a professor of earth system science at Stanford.

"And that's important for understanding climate change, understanding climate risks and ... for evaluating the value of both mitigation and adaptation actions," Diffenbaugh added.

Using temperature records and Department of Agriculture data on crop insurance payments, or indemnities, the researchers examined the relationship between insurance losses and temperature variations at the county level during all 26 growing seasons. Then, using climate model simulations, they calculated the insurance losses that would have occurred in a **hypothetical scenario** — also known as "counterfactual" — in which global warming didn't exist.

By comparing "actual indemnities and the counterfactual indemnities aggregated across all the years and all the counties for the whole [United States]," Diffenbaugh said, his team was able to attribute \$27 billion in insurance claims and payments to climate-related trends.

"This approach quantifies whether indemnities in a given county are higher or lower in a year in which temperature or precipitation is higher or lower than average for that county," the researchers wrote.

In 2012, for instance — when much of the U.S. experienced an intense drought and record summer temperatures — crop indemnities surpassed \$18 billion, making it the most costly year for the insurance program. The study estimated that climate-related temperature trends were responsible for \$8.8 billion of those payments.

That's a grim finding, Diffenbaugh said, given the growing body of research that shows "we can expect the kinds of conditions that happened in 2012 to happen a lot more frequently in the current climate — and even if the Paris Agreement goals are achieved and global warming is held below 2 degrees of warming."

"The risks are rising," he said.

The study came as lawmakers and regulators pay heightened attention to the risks that global warming poses to economic sectors, the financial system and the global economy more broadly. President Biden signed an executive order in May that kick-started an administrationwide effort to address the risks posed by global warming to public and private assets.

Environmentalists, climate finance experts and some researchers maintain that the U.S. needs to prepare more quickly for the financial effects of rising temperatures.

"It's clear at this point that we are not adapted to the climate change that's already happened," Diffenbaugh said. "And as this study shows and as other studies have shown, it is costing us substantially."

WORDLIST

Sweltering (adj.) – extremely hot:

- a sweltering summer day
- In the summer, it's sweltering in the smaller classrooms.

Exacerbate (v.) – to make something that is already bad even worse:

- This attack will exacerbate the already tense relations between the two communities.
- Her allergy was exacerbated by the dust.

Blow (v.) – to blow a sum of money is to spend it in a foolish way:

- I blew my first paycheck on a night out with my friends.

Take a toll – If something takes its/a toll, it causes suffering, deaths, or damage:

- The problems of the past few months have taken their toll on her health and there are shadows under her eyes.
- The deepening recession has also taken its toll in the south of the country, where unemployment is rife.

Subsidize (v.) – to pay part of the cost of something:

£50 would help to subsidize the training of an unemployed teenager.

Insulate (v.) – to protect someone or something from harmful experiences or influences:

- Children should be insulated from the horrors of war.
- Until recently the country's economy has been insulated from recession by its reserves of raw materials.

Plunge (v.) – If a value or price plunges, it suddenly becomes less:

- Rumors on Wall Street have caused stock prices to plunge.
- We are expecting a plunge in profits this year.

Yield (v.) – to supply or produce a profit, income, etc.:

- The stake, analysts say, could yield \$700m a year in revenue.
- British shares currently yield 3.3%.
- (yield profit/returns) Even the most unglamorous sectors of the market can yield big returns.

Volatility (n) – likely to change suddenly and unexpectedly, especially by getting worse:

- Food and fuel prices are very volatile in a war situation.
- The situation was made more volatile by the fact that people had been drinking a lot of alcohol.

In the wake of sth – If something happens in the wake of something else, it happens after and often because of it:

- Airport security was extra tight in the wake of yesterday's bomb attacks.

Stark (adj.) – empty, simple, or obvious, especially without decoration or anything that is not necessary:

- It was a stark room with a bed and chair as the only furniture.
- The stark reality is that we are operating at a huge loss.

Account for sth – to form part of a total:

- High-tech companies account for 32% of the total value of the payrolls in the area.

Mitigation – the act of reducing how harmful, unpleasant, or bad something is:

- effective mitigation of climate change

There has been no significant increase in funding for flood mitigation works.

Indemnity (n) – protection against possible damage or loss, especially a promise of payment, or the money paid if there is such damage or loss

Aggregate (v.) – formed by adding together several amounts or things; total:

- The seven companies made an aggregate profit of \$10.2 million.

Precipitation (n.) – water that falls from the clouds towards the ground, especially as rain or snow:

- The forecast is for dry, cloudy weather with no precipitation expected.

Drought (n.) – a long period when there is little or no rain:

- This year (a) severe drought has ruined the crops.

Grim (adj.) – worrying, without hope:

- The future looks grim.

Asset (n.) – something that is owned by a person, company, or organization, such as money, property, or land:

- The company reported total assets worth \$1.9 million.
- the sale/disposal/transfer of assets

Pose (v.) – to cause something, especially a problem or difficulty:

- Nuclear weapons pose a threat to everyone.
- The mountain terrain poses particular problems for civil engineers.

Maintain (v.) – to say firmly that something is true:

- Senior accountants at the firm maintained they knew nothing of the transactions.
- She maintains (that) she's being criticized simply for telling the truth.