Hard Times for Farmers: How the Federal Crop Insurance Program Could Strengthen American Farms

NRDC recommends FCIP offer a pilot program that reduces premiums for farmers who adopt soil-building management practices—doing so would benefit producers, make FCIP more financially sound, and build resilience to climate change.

HARD TIMES FOR FARMERS

It has been a tough few years for American farmers, who've increasingly turned to the Federal Crop Insurance Program (FCIP) to manage weather-related farming risks.[1] In 2011, FCIP paid out a record-breaking $10.8 billion in crop insurance claims to farmers, many of whom suffered during the historic Mississippi River basin floods that year.[2] FCIP broke that record in 2012, when indemnities topped an all-time high of $17.3 billion, mostly due to severe drought.[3] In 2013, drenching rains delayed or prevented farmers from planting their crops in many regions and drowned newly planted seeds in others, but by late summer, some regions were yet again nearing drought conditions. Whether too much water, too little water, or water at inconvenient times, the last several years exemplify the types struggles farmers will likely face due to climate change.

Yet FCIP premiums are set using a formula that fails to equip farmers for the challenges of climate change and instead, encourages farmers to make risky production decisions. Scientific experts, including leading agronomic organizations and U.S. Department of Agriculture (USDA) researchers, expect climate change to result in more frequent droughts, more intense precipitation events, greater water requirements for growing crops, and more significant pest problems for American farmers.[4] Unless farmers are encouraged to widely adopt climate resilient production methods on their fields, this already costly program will likely spiral out of control.

FCIP could be reformed to empower farmers to become more resilient to extreme weather conditions. FCIP could offer lower premiums to farmers who invest in farming practices that reduce crop loss risk, build soil health, and increase long-term productivity.[5] Encouraging practices that increase soil moisture, improve water infiltration, and combat pest pressures will help decrease yield fluctuation due to unfavorable weather season to season. In the long term, farmers who invest in soil health will increase their fields' yield potential and be better prepared to face extreme weather events that are likely to increase due to climate change. NRDC recommends FCIP offer a pilot program

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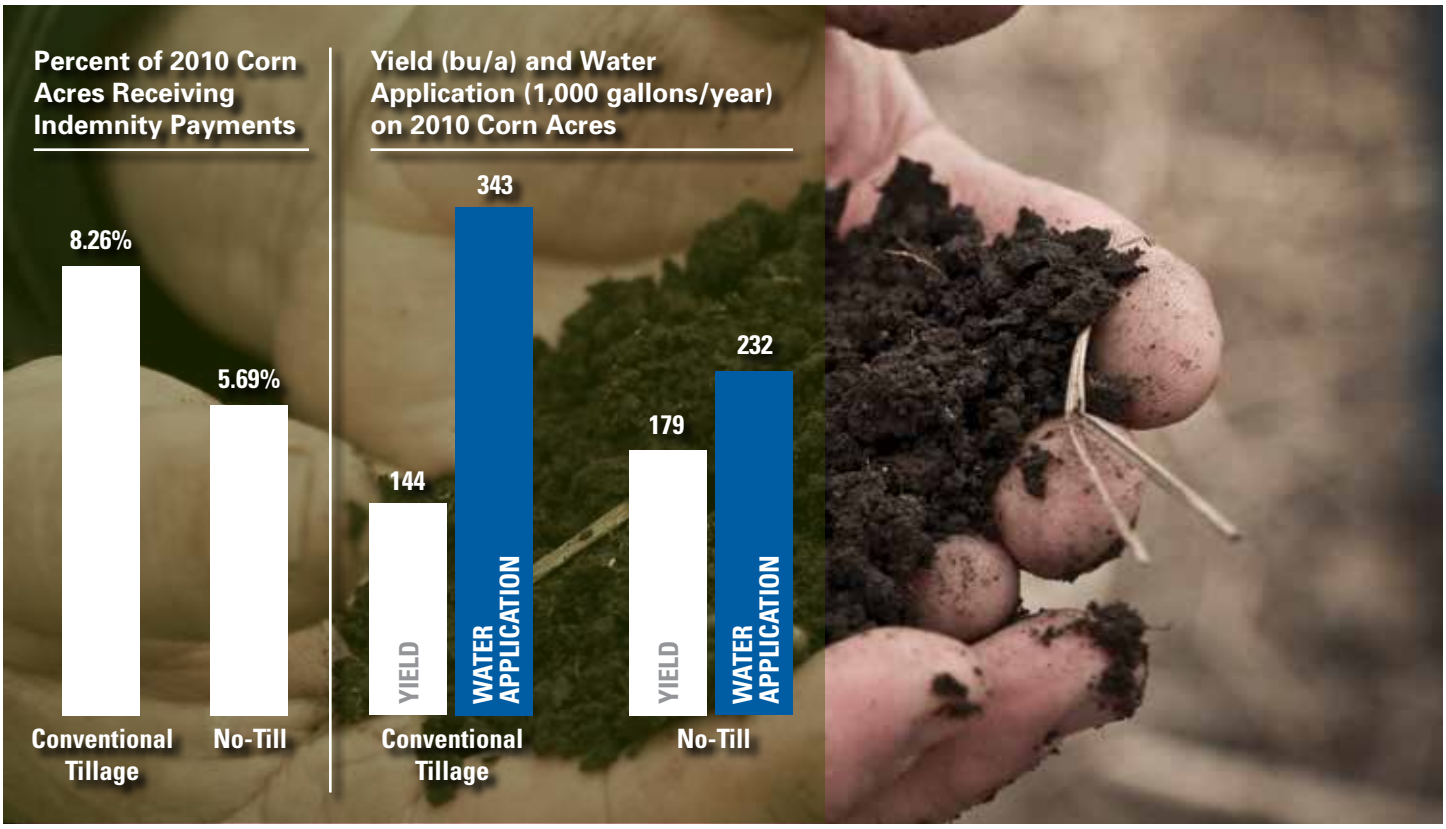


that reduces premiums for farmers who adopt soil-building management practices—doing so would benefit producers, make FCIP more financially sound, and build resilience to climate change.

THE FEDERAL CROP INSURANCE PROGRAM INCENTIVIZES RISKY FARMING PRACTICES

FCIP premium rates are non-competitively set by the Risk Management Agency (RMA), which is part of the USDA.[6] That means there are few market signals that private insurance companies can send to encourage farmers to make risk-reducing choices. This stands in contrast to private home insurance companies that may offer discounts to policyholders whose houses are equipped with alarm systems to encourage more homeowners to invest in alarms, or car insurance companies that offer "good driver" discounts to encourage careful driving habits.

In fact, FCIP actually tends to encourage farmers to make riskier choices,[7] such as expanding production to areas that are not well suited to growing crops, or planting the same high-priced crops (like corn) year after year, or using methods that may increase short term profits but degrade soil health and productivity over time, because the high-risk farmers who do so are undercharged compared to their low-risk peers.[8] It is almost like a car insurance company charging more for a driver with an impeccable record than a driver who has been cited for reckless driving.

When farming practices degrade soil health, farmers often turn to chemically-intensive inputs like pesticides, artificial fertilizers, and increased irrigation to replace the weed-suppressing,[9] nutrient-providing,[10] and moisture-maintaining[11] qualities healthy soil and naturally provides. This can lead to damaging health and environmental outcomes.

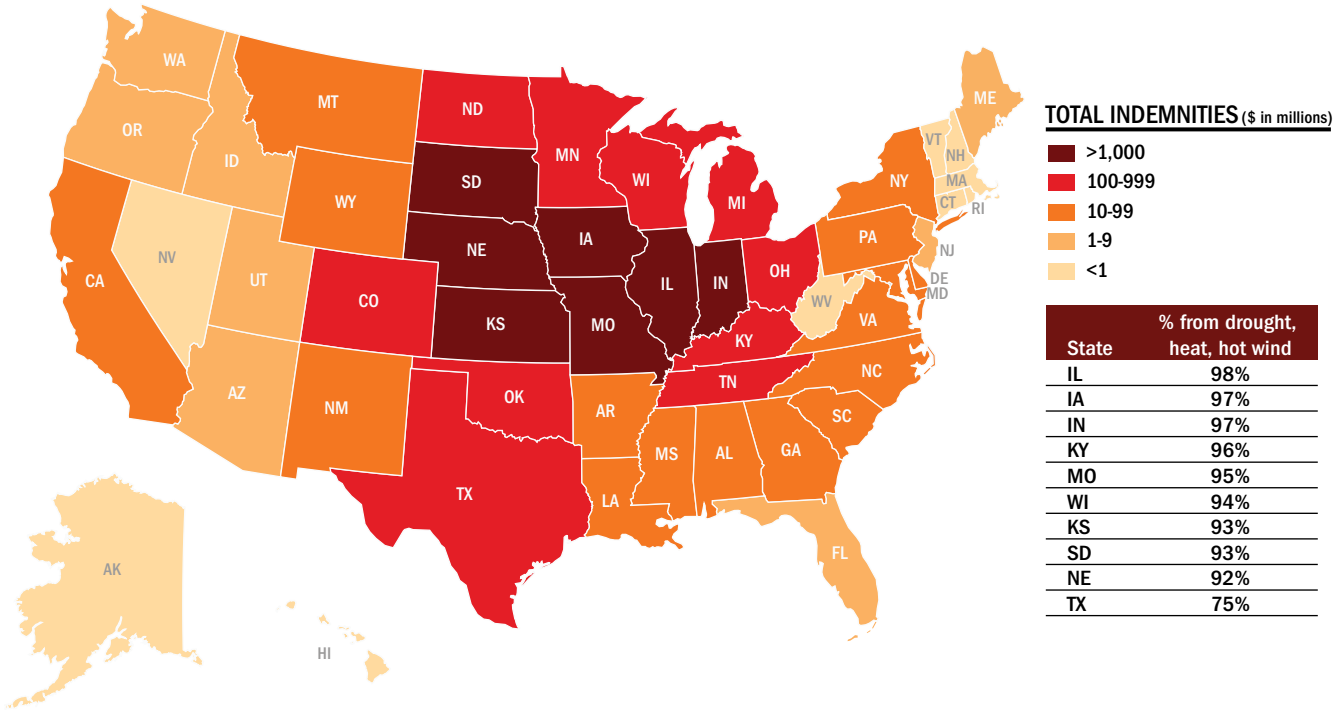
SOIL-BUILDING PRACTICES REDUCE EXTREME WEATHER RISKS

A recent comprehensive USDA report on the effects of climate change on U.S. agriculture pointed to conservation tillage, cover crops, and efficient irrigation as key strategies to prepare for the intense rainfall and severe drought episodes that are expected to accompany climate change.[12] Unfortunately, even though these practices reduce risk and improve environmental outcomes, the RMA's premium formula prevents farmers who employ these methods from receiving the actuarial benefits of their actions.

For example, consider that in 2010, corn farmers who used no-till were 30 percent less likely than their conventional-tilling peers to receive an indemnity payment from FCIP.[13] No-till farmers plant their crops directly into the stubble left from the previous year's crop, which acts like garden mulch to help soil retain more moisture[14] and hedge against erratic rainfall and declining irrigation supplies.[15] If all corn farmers who used methods other than no-till had instead used the no-till technique, approximately $224 million in indemnities could potentially have been avoided in 2010.[16]

Crop Insurance Claims for Drought-Related Losses* in 2012

*Causes of loss = drought, heat, hot wind



State	% from drought, heat, hot wind
IL	98%
IA	97%
IN	97%
KY	96%
MO	95%
WI	94%
KS	93%
SD	93%
NE	92%
TX	75%

Similarly, in 2012, cover crops could have potentially helped avoid significant drought-related indemnity payments. Cover crops are non-commodity crops that are planted with the primary purpose of improving the soil ecosystem. Like no-till, cover cropping increases water infiltration and storage, thereby helping to provide water to growing commodity crops and decreasing the need for irrigation.[17] Corn farmers in states that were most impacted by the 2012 drought—Illinois, Iowa, Nebraska, and Kansas—received nearly $4 billion in indemnities due to drought loss.[18] However, the average cover cropping corn farmer's yields did not go below the average yield that would trigger an insurance claim payment in these states;[19] in other words, the average cover cropping farmer did not hit the average crop insurance "deductible."[20] Considering these numbers, it is likely that most of the almost $4 billion in drought-related indemnities paid out in these states went to corn farmers who did not use cover crops.

Finally, in 2012, irrigation supply failures accounted for more than $14.7 million in indemnity payments.[21] However, farmers who use efficient irrigation management practices can keep their yields high even while they reduce the amount of water they apply to their crops. In a 2009 University of Nebraska demonstration, corn farmers who used soil moisture monitors and the evapotranspiration rate of crops to schedule irrigation were able to reduce the amount of water they applied to their corn by 15 percent without impacting their yields.[22] Not only does this reduce farmers' costs in the short term,[23] but conserved water is potentially banked for future, drier years. Such irrigation management could help farmers avoid some supply constraints that cause indemnified losses during dry years.

FCIP SHOULD REDUCE PREMIUMS FOR SOIL-BUILDING FARMERS

According to the law that governs FCIP, insurance companies may petition the RMA to reduce premium rates below those set with the standard formula.[24] These companies could ask for a pilot program that could lower premium rates for farmers who adopt soil-building and risk-reducing management practices, like no-till, cover cropping, and efficient irrigation management. The pilot program could be used to provide fairer premiums to low-risk farmers and encourage more farmers to adopt low-risk practices.

Although reducing premiums for farmers who improve their soil health would mean that FCIP is bringing in less money, the avoided indemnities created by risk-reducing management practices allow plenty of room to offer significant premium reductions to farmers who adopt them. Over time, these practices will also reduce the need for and size of FCIP.

Practices such as no-till, cover cropping, and efficient irrigation can simultaneously help farmers reduce the risk of crop loss and improve agriculture's environmental outcomes. FCIP should recognize the benefits of these practices by piloting a premium reduction for farmers who reduce their risk of crop loss through on-farm stewardship. This more holistic view of risk management would be good for farmers, good for taxpayers, and good for the environment.

Endnotes

1 USDA Risk Management Agency (RMA), "Federal Crop Insurance Corp Summary of Business Report for 2010 thru 2013 As of 08-05-2013," www3.rma.usda.gov/apps/sob/current_week/sobrpt2010-2013.pdf.

2 USDA RMA, "RMA Indemnities (as of 7/23/2012)," www.rma.usda.gov/data/indemnity/2011/72312table.pdf.

3 USDA RMA, "RMA Indemnities (as of 7/22/2013)," www.rma.usda.gov/data/indemnity/2013/072213table.pdf.

4 C.L. Walthall, et al., "Climate Change and Agriculture in the United States: Effects and Adaptation," USDA Technical Bulletin 1935 (2012); see also Working Group Representing the American Society of Agronomy, Crop Science Society of America, and Soil Science Soiciety of America, Position Statement on Climate Change (2011).

5 Substantially increasing premiums for farmers who make risky production choices would also achieve beneficial environmental and actuarial results, but this paper focuses on using a provision of the Federal Crop Insurance Act that specifically allows crop insurance companies to pilot lower premium rates.

6 7 USCA § 1508(d).

7 Cf. Robert McLeman and Barry Smit, "Vulnerability to Climate Change Hazards and Risks: Crop and Flood Insurance," The Canadian Geographer 50:217 (2006).

8 JunJie Wu, "Crop Insurance, Acreage Decisions, and Nonpoint-Source Pollution," American Journal of Agricultural Economics 81:305 (1999) ; see also Ruiqing Miao, et al., "Land Use Consequences of Crop Insurance Subsidies," selected paper prepared for presentation at the Agricultural & Applied Economics Association's AAEA & NAREA Joint Annual Meeting, Pittsburgh, Pennsylvania, July 24-26, 2011 (using a model to demonstrate that subsidized crop insurance will lead to increased acres planted on marginal farmland); cf. Barry K. Goodwin, et al., "An Empirical Analysis of Acreage Effects of Participation in the Federal Crop Insurance Program," American Journal of Agricultural Economics 86:1058 (2004); and Michael J. Roberts, et al., "Estimating the Extent of Moral Hazard in Crop Insurance Using Administrative Data," Review of Agricultural Economics 28:381 (2006) NOT PEER REVIEWED (finding limited evidence of increased yield variability due to moral hazard in crop insurance).

9 E.A. Nord, et al., "Integrating Multiple Tactics for Managing Weeds in High Residue No-Till Soybean," Agronomy Journal 103:1542 (2011).

10 See Humberto Blanco-Canqui et al., "Summer Cover Crops Fix Nitrogen, Increase Crop Yield, an dImprove Soil-Crop Relationships," Agronomy journal 104:137 (2012).

11 See Loyd R. Stone and Alan J. Schlegel, "Tillage and Crop Rotation Phase Effects on Soil Physical Properties in the West-Central Great Plans," Agronomy Journal 102:483 (2010); see also Humberto Blanco-Canqui, "Addition of Cover Crops Enhances No-till Potential for Improving Soil Physical Properties," Soil & Water Management & Conservation 75:1471 (2011).

12 Walthall, supra note 4.

13 USDA Economic Research Service, "Agricultural Resources Management Survey—Crop Production Practices for Corn: All Survey States," http://www.ers.usda.gov/data-products/arms-farm-financial-and-crop-production-practices/tailored-reports.aspx?reportPath=/ARMSr4/CrossTab&survey_abb=CROP&subject_num=1&report_num=17&series=TILLTYP&fips_st=00&series2=FARM&statYear=2010.

14 Craig Osteen, et al., "Agricultural Resources and Environmental Indicators, 2012 Edition," Economic Research Service, Economic Information Bulletin No. 98 (2012).

15 See Stone and Schlegel, supra note 11.

16 The reduced indemnities resulting from all farmers' switching to no-till can be estimated by calculating the difference between current failures and projected failures under no-till, as follows:

> (16,832,794 insured conventional till (CT) acres * .08258 CT indemnity rate – 16,832,796 CT acres *.05699 No-till (NT) indemnity rate) + (19,639,280 insured mulch till (MT) acres * .09202 MT indemnity rate – 19,639,280 MT acres * .05699 NT indemnity rate) + (16,635,367 insured reduced till (RT) acres * .09087 RT indemnity rate – 16,635,367 RT acres * .05699 NT indemnity rate) + (3,691,508 insured acres with undetermined tillage methods (UD) * .08090 average insured acres indemnity rate – 3,691,508 UD acres * .05699 NT indemnity rate) = 1,770,585 acres that failed under previous tillage methods, but would be expected not to fail under 100% NT. USDA Economic Research Service, supra note 13.

The cost savings of the reduction in failing acres can be calculated by multiplying the formerly failing acres by the average per-acre indemnity payment, as follows:

> 1,770,585 formerly failing acres * $126.67 per acre = $224,285,415 in reduced indemnities. Federal Crop Insurance Corporation, "Crop Year Statistics for 2010," www3.rma.usda.gov/apps/sob/current_week/crop2010.pdf.

17 Nord, supra note 9.

18 USDA RMA, "Cause of Loss Historical Data Files 2012," www.rma.usda.gov/data/col/indemnity/col_indem_2012.zip.

19 Cover cropped fields yielded an average of 122 bushels of corn per acre in these states, while non-cover cropped fields yielded only 106 bushels of corn per acre in these states on average. Conservation Technology Information Center and USDA North Central Sustainable Agriculture Research & Education, "2012-2013 Cover Crop Survey: June 2013 Survey Analysis," available at www.northcentralsare.org/Educational-Resources/From-the-Field/Cover-Crops-Survey-Analysis; 10-year historic corn yields (used as a proxy for Actual Production History) for these states averaged 150.5 bushels per acre. USDA National Agricultural Statistics Service, Historic Corn Yield, available at http://quickstats.nass.usda.gov/results/9E984264-C64C-3542-8A8E-ED30E3FE8641.

20 Average coverage level in these states is around 75%, implying a 25% deductible. Pat Westhoff, *Crop Insurance: Background Statistics on Participation and Results*, Food and Agriculture Policy Research Institute (2010), available at www.fapri.missouri.edu/outreach/publications/2010/FAPRI_MU_Report_10_10.pdf. Yields below 112.85 bushels of corn per acre would trigger an indemnity for the average corn farmer with 75% coverage and 150.5 bushels per acre APH (.75 * 150.5 = 112.85).

21 USDA RMA Cause of Loss Historical Data Files, supra note 18.

22 University of Nebraska Extension, 2009 NAWDN Survey, available at http://water.unl.edu/c/document_library/get_file?uuid=7c342db7-0a59-488f-bccf-62120e4c8088&groupId=468040&.pdf.

23 See S. Irmak, et al., "Nebraska Agricultural Water Management Demonstration Network (NAWMDN): Integrating Research and Extension/Outreach," Applied Engineering in Agriculture 26:599 (2010).

24 7 USCA § 1523.