



Field Notes: **Extreme Weather and Community Resilience**

[Midwest Farmers Planted Greatest Corn Crop since 1937 Relying on Extreme Weather Forecasts and Crop Insurance. But Climate Disruption Trumped the Forecasts and Threatens Insurance.](#)

[Nation's Corn Crop Hammered. Crop Insurance Under Scrutiny.](#)

What it looked like in the Fields

Drought was everywhere on well-tended farms for hundreds of miles along the familiar rural highways of Eastern Indiana and Western Ohio in mid-August. My view from the road was that even the best of these farms rarely had corn much over 5-feet high, when it should have been 8-feet or more. Ears of corn appeared either stunted or entirely absent on the drying stalks. Entire corn and soybean fields in many areas were turning yellow and brown too soon. This is country where farmers of soybeans and corn, the nation's largest crop, are savvy and experienced. So why did they plant so much in this year of disastrous drought?

Make no mistake; it is a disaster in the fields. According to NOAA: "By the end of August 2012, about 83 percent of the Primary Corn and Soybean Belt was experiencing moderate to extreme drought (based on the Palmer Drought Index), surpassing all previous droughts except those in 1988 and the 1930s."

<http://www.ncdc.noaa.gov/sotc/national/2012/8>

The Indianapolis National Weather Service Forecast Office said: "Drought conditions in portions of central and southern Indiana were worse than the Dust Bowl Days of the 1930s."

http://www.crh.noaa.gov/news/display_cmsstory.php?wfo=ind&storyid=84020&source=0

The September 18th USDA Weekly Weather and Crop Bulletin assessed 50% of the corn crops in the 18 major corn states as either poor or very poor. Conditions in major states were much worse: Illinois 75%, Indiana 68%, Kansas 71% and Missouri 84%.

<http://www.usda.gov/oce/weather/pubs/Weekly/Wwcb/wwcb.pdf>

Run Up To Corn Crop in the Ground

The year 2011 produced a bumper crop for U.S. corn farmers and raised hopes for a good 2012 crop. Since farming is a year-round business, last Fall farmers fertilized their fields and prepared for planting in Spring 2012.

During the planning and early plowing months of February and March 2012, it was evident the winter was warmer than usual, with hints of dryness. But the greater concerns were frost damage to crops planted too early and the need to delay planting until the crop insurance start date. The delay in corn planting to ensure crop insurance coverage reflected both years of late-Spring frost and the business skills of farmers.

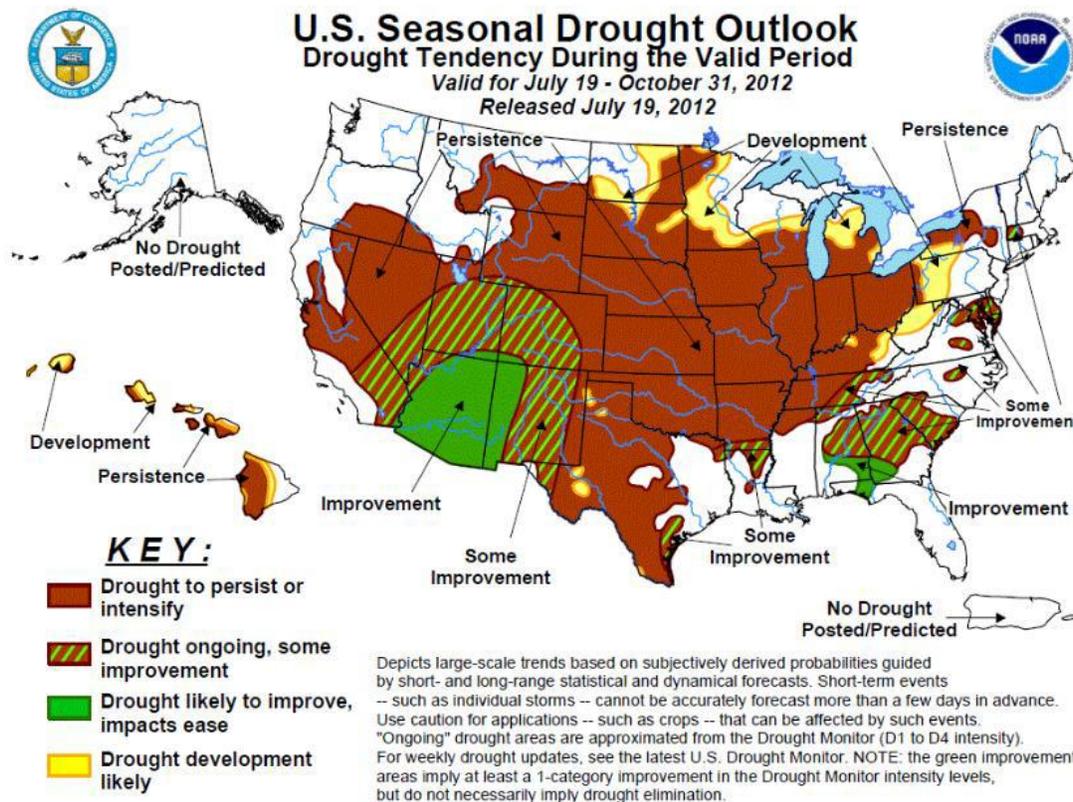
NOAA's U.S. Seasonal Drought Outlook maps for March 1, April 5 and May 17 all indicated that mild drought conditions over most of Plains and Midwest area were actually receding. They

gave farmers increased confidence that the summer weather would support heavy corn planting.

A few risk takers started early corn planting in March—3% by end of the month. With early April's good weather, planting moved into high gear. For various market reasons and an apparent circulating belief [AGNEWS] that earlier-planted corn gave higher yields, by April 3, the USDA estimated 2012 would have the highest corn acreage since 1937. By May 6th 71 % of the projected corn acreage was in the ground. The combination of good planting conditions and crop insurance as a backup gave farmers more confidence about their risk exposure.

A Measure of the Drought

Just one month later, the June 21 NOAA U.S. Seasonal Drought Outlook map indicated that newly-intensifying drought was exploding across the Corn Belt. By the July 19, 2012 NOAA SDO map, the drought had actually expanded and consolidated across nearly all the Corn Belt.



The September 18 Drought Monitor reported that, at its peak, the 2012 drought covered 54.25% of the continental U.S. in moderate to exceptional drought, the highest category. Almost 35% of the country was in severe to exceptional drought. Extraordinary heat in the Corn Belt dried out what moisture was in the fields, making crop damage even worse.

Damage From 2012 Drought

Of the 95.9 million acres of corn planting projected [USDA WW+CB April 3], only 87.4 million acres are likely to be actually harvested [USDA WW+CB Sept 18]. The lost crop acreage, whether not planted, cut for silage or plowed under, represents an area approximately 1/3 the size of the State of Ohio.

The USDA July report projected corn yields of 146 bushels per acre (Market Watch WSJ). By the next report in **August**, the USDA slashed that estimate to 122.8 bushels per acre [USDA WW+CB **Sept 18**]. That huge loss of 2.2 BILLION bushels of corn [MARKET WATCH WSJ] is already driving up corn prices, with price increases for cereal products, livestock and ethanol for gasoline to follow next year. It is further economic damage at a bad time for both farmers and consumers.

A Disaster in the Fields, But Not Necessarily for Farmers—Yet

If 2012 was a nasty bell ringer in the cornfields, it was not necessarily so for most farmers. The latest crop insurance information RMA provides online is for year 2011. The 2011 average of Corn Belt farmers buying crop insurance covering drought ranged from 94% in Minnesota and South Dakota, to 88-90% in Kansas, Missouri and Nebraska, to 74% in Indiana. [RMA]. A TIME magazine article [cite] explored how plowing under a failed crop might actually net higher income for a farmer, under the formula used to compute loss. Less corn in a drought harvest means higher prices per bushel; and those prices are the ones used in computing insurance payments. If crop damage payments total too much for private insurance carriers that actually write the policies, U.S. taxpayers are on the hook for overages. We won't know for several months, but that issue is already simmering in Congress.

Startling Pace of Climate Disruption Threatens Crop Insurance

In 2007 the Government Accountability Office (GAO) published a report starkly highlighting the threat to two federal insurance programs—flood and crop—from climate disruption. The National Flood Insurance Program is threatened by out of control damage claims due to extreme weather. Federal crop insurance subsidies may be next. U.S. taxpayers foot the bill for losses under both programs.

In March 2012 the GAO issued another report exploring the reduction of federal subsidies to farmers specifically for crop insurance premiums. In recent years, the value of crops insured—and the cost of federal subsidies for insurance premiums—has soared. If extreme weather driven by climate disruption continues to sour, U.S. taxpayers and the federal government may balk at the burden of premium costs. The risk for farmers is that crop insurance premium subsidies and perhaps even the availability of crop insurance may be cut back. Something similar is actually happening with federal flood insurance.

In recent years, direct federal crop subsidies have been phased back and partly replaced by increased subsidies for crop insurance premiums. Extreme weather driven by climate disruption may drive up taxpayer costs and make the subsidies less sustainable, resulting in greater farm and ranch risk. If it does, subsidized crop insurance with its rising costs and a shakier future may not be the best solution for either farmers or the rest of us.

Disrupted Climate = New Risks. We Adapt With New Tools.

A 2006 Geological Society of America conference on managing drought concluded that the best solution for farmers and consumers was better extreme weather forecasting—both more timely and at the scale that farmers need when they make crop decisions. The 2012 drought appeared to roar out of nowhere. But that may be a false impression. The real problem may be that our extreme weather forecasting tools are lagging behind the accelerating pace of erratic weather driven by climate disruption.

Climate disruption and resulting extreme weather are complex and relatively new. Climate models that work well at the global scale are slowly being scaled down to regional or state levels as local data increases. But efforts to capture the **erratic** element in **extreme weather risk** are still trailing behind the pace of weather change. The increasing damage from extreme events challenges us to improve our basic approach to weather disasters.

Currently, we rely mostly on **crisis management** (such as insurance payments after a disaster). That ensures we follow, rather than lead, damage from extreme weather. Emphasizing **risk management** (avoiding or minimizing damage before a disaster) will give us some of the tools we all need. New challenges create a need to adapt to new weather by developing new tools. Humans have highly-polished skills in adapting and developing new tools. Our success will depend on speeding up the pace for bringing these new tools online.

Farmers live year by year at a local level, making final crop decisions early each year in February through April. They are practical, clear-thinking optimists and incredibly resilient. But even they have limits. Large-scale changes in the climate and atmosphere push those limits. They need locally-detailed information about what, when and how much damaging weather to plan for **during the entire growing season**; and they need it **in time to make crop planting decisions**. Most of all, they need clear explanations of the **range of risk** from increasingly **erratic changes** in extreme weather due to climate disruption.

We All Benefit From Increased Resiliency

Developing risk-based **growing season** weather forecasting is not just for the benefit of farmers. We all have a stake in their year-to-year success. They live and work to bring crops to market. For them, crop insurance is simply a way to survive until the next growing season. The rest of us live in communities, small rural or large urban, which depend on farmers both to grow our food and to sell their crops as a strong element of our economy. Our community resilience rests directly on the year-by-year resilience of our farmers in growing crops and raising livestock. They, and we, need to adapt to the new extremes of weather driven by climate disruption. They, and we, need locally-detailed and more-reliable **growing season** risk assessment forecasts for the extreme weather challenging us.

Editorial thanks to Sam Thomas Odell

How to Get Involved

RRI would like to hear from you. If you have questions, comments, or concerns, please contact us at:

Resource Renewal Institute
187 East Blithedale Avenue
Mill Valley, CA 94941
415.928.3774
info@RRI.org

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