

***Ad Hoc* Disaster and Crop Insurance Programs May Reduce the Use of Risk-Reducing Conservation Tillage Practices**

There is growing concern that the risks facing agricultural producers are increasing due to several factors that include the predicted effects of climate change leading to more frequent floods, droughts, and higher temperatures as well greater use of agricultural outputs for nonfood energy products.

These risks are partially managed through federal agricultural programs. *Ad hoc* disaster payments have frequently been used to provide financial support. For example, drought conditions in California in 2013-2014 have triggered disaster payments of up to \$100 million, Public Law (P.L.) 108-7 of 2003 provided \$3.1 billion to crop and livestock producers in counties affected by drought during the 2001 and 2002 seasons, and P.L. 103-75 of 1993 provided \$2.5 billion to Midwest producers impacted by flood. In addition to disaster payments, federally subsidized crop insurance helps producers manage risks, and programs have been modified in recent decades. The number of crops covered has increased and subsidy rates have risen. The 2014 Farm Bill introduced the Supplemental Coverage Option (SCO), allowing producers to insure revenue above the previous maximum of 85%. Other changes in the 2014 Farm Bill include allowing producers to choose different coverage levels for irrigated and dryland production.

In addition to government programs, producers can use on-farm production practices that affect exposure to the risk of crop loss. One example in drought-prone regions is no-till or conservation tillage, which helps to protect soil moisture. Thus, the extent to which federal risk-management policies and on-farm risk-management strategies are substitutes or complements is of critical importance for policymakers.

CAFIO-PRG Research

A CAFIO-PRG project examines the impact of federal risk management programs on the use of risk-reducing conservation tillage. The work is novel for several reasons. It incorporates 1) both recent and long-term weather patterns; 2) political variables that are expected to influence support for payments; and 3) both *ad hoc* payments and crop insurance indemnities in examining behavior. Each of these sets of variables is expected to influence a producer's expectations about crop losses and/or payments. A critical difference between *ad hoc* disaster payments and crop insurance is that *ad hoc* disaster payments are not part of expectations for a single year, but producers may develop expectations about future payments over time. Crop insurance indemnities are predictable based on a producer's choice of program and coverage level.

CAFIO-PRG Findings

The CAFIO-PRG research shows that:

- The predicted effects of poor weather conditions and risk aversion on the use of risk-reducing practices like conservation tillage are ambiguous and depend on the extent that payments through government risk-management programs compensate for on-farm losses.
- Empirical results show that recent disaster and crop insurance payments are associated with an increase in the use of no-till and a decrease in the use of other conservation tillage, with the net effect being a decrease (increase) in total conservation tillage use with disaster (indemnity) payments.
- Producers in counties with recent flood and drought events are more likely to use conservation tillage.

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