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Examining Adverse Selection in Organic Crop Insurance: Where Do We Go From Here?

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Selected Paper prepared for presentation at the Agricultural & Applied Economics Association's
Crop Insurance and the 2014 Farm Bill Symposium, Louisville, KY, October 8-9, 2014.

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Understanding when and why organic farmers use crop insurance can not only instruct the design of an equitable and financially sustainable crop insurance system but also identify production methods that decrease dependence on program-based risk management. In this article, the research team will identify factors influencing organic farmers' decision to purchase or forgo crop insurance. Do organic farmers opt out of crop insurance because it is not cost-effective, because alternative risk management tools are preferred, due to barriers to access, or for some other reason? Understanding the drivers of and barriers to crop insurance use by organic producers can inform crop insurance designs that meet producer needs as well as illustrate alternative risk management methods that should not be lost as a result of the crop insurance safety net.

Review of Literature

The use of federal crop insurance to protect grain crop income has become ubiquitous with participation rates exceeding 80% for corn, soybeans, and wheat (Westhoff 2010). The 2014 Farm Bill, which replaced direct and counter-cyclical payment programs with crop insurance, increases the importance of participation in crop insurance programs. However, participation rates for organic field crop farmers continue to lag behind those of conventional growers. The Organic Farming Research Foundation's (OFRF) National Organic Farmers' Survey (NOFS) of 2004 surveyed 929 organic farmers and found that only 21% of those surveyed had used crop insurance within the past 5 years (Walz 2004). Peterson et al. (2012) conducted a similar survey of 727 National Organic Program (NOP) grain growers (including soybeans) and reported a higher crop insurance participation rate of 50%.

In 2013 the Risk Management Agency (RMA) of the U.S. Department of Agriculture (USDA) began implementing program changes to encourage participation of organic farmers including the removal of a 5% organic premium surcharge and the addition of organic price elections. Organic price elections allow organic farmers to receive indemnity payments based on higher organic market prices for their products as opposed to prices used for conventional growers. Price elections for corn, soybeans, cotton as well as several specialty crops became available in 2013 and wheat, barley, oats, and up to 60 other specialty crops are expected to follow in 2015.

Given these efforts to increase participation it has become increasingly important to gain a better understanding of how organic farmers manage risk and specifically the role crop insurance plays. Prior research exploring this issue took place prior to 2013 program changes and the results were inconclusive. Only 7 of 535 organic farmers surveyed for NOFS identified crop insurance as having a large impact on the economic stability of their farm (Walz 2004). A group of 100 organic growers surveyed in Texas ranked crop insurance least important of 12 types of services and information that would benefit their farms although 25% of respondents indicated that crop insurance would be very useful (Constance and Choi 2012).

Conversely, Peterson et al. (2008) reported that “a foremost concern” of organic grain farmers participating in a series of 2004 listening sessions in Illinois was the lack of understanding of organic farming practices by agricultural service providers, including crop insurance agents. Focus groups conducted in Wisconsin, North Dakota, and Texas in 2001 and 2002 indicated that

crop insurance was a “workable” risk management tool for organic growers but the premium surcharge and lack of organic pricing made the program cost-ineffective (Hanson et al. 2004).

A survey of 127 organic grain growers in Wisconsin, Iowa, and Minnesota found a 30% reduction in yields using a comparable approach for corn and soybeans, though oat yields were approximately equivalent (Singerman et al 2010). Unlike the RMA report, however, Singerman et al. (2010) collected data from both insured and uninsured organic producers. Comparisons between these two groups show that uninsured soybean and oat growers consistently report lower yields than insured counterparts (corn results are inconclusive). Across all states and crops uninsured growers also report higher standard deviations, indicating higher rates of variability in yield for growers deciding to adopt crop insurance (Singerman et al. 2010). Together, these findings suggest that lower-risk producers may be opting out of organic crop insurance programs.

A 2010 report to RMA (Watts and Associates 2010) examined the risk and loss experiences of organic farmers participating in federal crop insurance from 2001 to 2008 and found that organic yields were 35% lower, on average, than conventional reference yields. The report notes that such differences may be linked to “the organic insurance pool [being] subject to adverse selection by a subset of unusually high-risk producers.” The existence of adverse selection in crop insurance is not in question, but less is known about the factors driving organic producers to opt in or out of crop insurance policies.

The goal of this research is to further elucidate the factors influencing the organic farmer's decision to purchase or forgo crop insurance. Identifying such factors will illustrate predictors of crop insurance use and a set of growing practices that this article will refer to as "production-based risk management." With further research, production-based risk management could be incentivized through crop insurance policies, thus reducing dependence on crop insurance.

Methodology & Data

Yin (1994) describes the collection of qualitative data as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident." Before explicitly understanding the relationship between organic production and crop insurance use, a closer examination of the context is required.

The research team conducted exploratory focus groups to guide future research questions, hypotheses, and data needs for subsequent study. Two focus groups were conducted in 2014 in Iowa and North Carolina. A total of nine organic grain farmers were interviewed. Group participants were recruited voluntarily through existing on-farm participatory research networks maintained by the Practical Farmers of Iowa (PFI) and the Rural Advancement Foundation International-USA (RAFI-USA) in North Carolina. Each session lasted approximately two hours and contained three sections: (1) farming practices and general perceptions of risk, (2) farm-specific risks and how each is mitigated, (3) past experiences with and perceptions of crop insurance. Farmers filled in worksheets with specific descriptive information for each section and researchers recorded the sessions for later analysis.

Table 1 summarizes farmer and farm characteristics. While years of total farming experience, acreage, and number of crops grown are comparable between the groups, Iowa farmers have significantly more experience with organic practices. The Iowa group is also far more likely to sell in wholesale markets and participate in government programs, including but not limited to crop insurance. Each of these differences is consistent with cultural differences between these regions. The farmers grew 14 different crops with soybeans (grown by 7 farmers), corn (6), and barley (5) being the most common. Other grain crops, cover crops, and forage account for the remainder (alfalfa, clover, hay, oats, popcorn, rye, sorghum, spelt, sunflowers, triticale, and wheat).

Results & Discussion

Focus group participants individually answered a series of 10 questions to assess the farmer's relationship with and attitude towards risk consistent with McCarthy & Thomson (2008). The questions utilize Likert scale responses to measure (1) overall comfort with risk and (2) farm financial risk. Table 2 summarizes average farmer responses to these questions. Higher values indicate lower levels of risk aversion (higher levels of comfort with risk) and perceived farm financial risk on a scale of 1 to 5. The sample size was not sufficient to infer statistical differences in the scores by region or by crop insurance adoption. However, in these groups North Carolina farmers and farmers with crop insurance are more comfortable with risk and perceive higher levels of financial risk at their farms.

Before facilitating a conversation directly concerning crop insurance, participants were asked to provide a list of the risks faced by their farms and current methods for mitigating each.

Consistent with previous work (Peterson et al., 2012), the main risks identified were yield losses due to weather (listed as the primary by each farmer), weed pressure, and insects. Market risks were acknowledged but either ranked significantly lower than yield risk or mentioned in the past tense. Table 3 summarizes the risks and mitigation approaches utilized by farmers with and without crop insurance.

Two critical items should be considered when interpreting this information. First, only one farmer mentioned the use of crop insurance to mitigate risk without prodding from the focus group facilitators. After prodding, farmers were emphatic that it was excluded because they had focused on production risk when answering the questions and that crop insurance was critical to managing risk. Second, all Iowa farmers utilize crop insurance while only a single North Carolina farmer is currently enrolled in the program. Thus the differences in risks and mitigation approaches are likely related to geographic or cultural differences as well as the use of crop insurance.

Factors Impacting Decision to Participate in Crop Insurance Program

The 2009 survey conducted by Singerman et al. (2010) asked 54 organic corn and soybean farmers who had never purchased crop insurance to list the primary factor driving this decision. The researchers identified the use of alternative risk management approaches as the most common motivation, given by 50% of respondents. Other motivations included

desire to avoid government program participation (41%), inadequate coverage levels (37%), high premiums (34%), lack of coverage of all crops (31%), use of off-farm income (29%), and inadequate price election for organic crops (25%).

While many of these motivations were discussed in the focus groups, the majority of participants currently used crop insurance or had used crop insurance at some point in the past with conventional practices. Given this, facilitators focused instead on identifying the major factors contributing to the decision to (1) participate in the organic crop insurance program or (2) opt out of the program after transitioning to organic farming. Beginning to understand the answers to these questions will better inform future research into adverse selection in particular. The primary facilitator prompts addressing this nexus were:

- Explain the factors contributing to your final decision to adopt crop insurance.
- If you used crop insurance as a conventional farmer, why did you decide to stop using it as an organic farmer?
- Why do you think your conventional neighbors use crop insurance?

Results from these conversations generally mirrored Singerman et al. (2010). The majority of participants referenced preference for alternative risk management approaches and lack of cost-effective organic crop insurance products as the primary factors driving the decision to not participate. However, the focus group format allowed an opportunity to better understand the policy implications of each of these responses as well as identify supporting minor trends.

Using Alternative Risk Management Approaches

Farmers who participate in crop insurance and those who do not were most likely to opt out because of a preference for alternative risk management approaches. In particular, all participants discussed the risk protection they receive from both crop rotation and planting a diversity of crops at varying times. Many commented that this preference for production-based risk management is linked to fundamentally different approach to farming:

- An Iowa insured grower, referring to facilitator prodding on why he had not listed crop insurance as a risk mitigation tool, despite the use of it on his farm. “We... organic farmers do minimize their risks by their internalizing of how to minimize that risk without having some external reliance.”
- Another insured Iowa grower stated a similar opinion, “We're a lot more production-oriented, probably to a fault, than financially-oriented. I could certainly do better financially if I paid more attention to it. I just think that's the make-up of the typical organic person. They're more attuned to the soil, they're more attuned to their animals, more attuned to nature, rather than the banker.”
- An uninsured North Carolina grower, “We're different from conventional growers.” - North Carolina, uninsured grower

Notably, participants noted crop losses in which they had crop insurance coverage but relied on production-based risk management more or as much as crop insurance:

- A North Carolina uninsured grower, speaking of past experiences with insured conventional farming on 1,500 acres spread across 3 counties, “I

- think it was a pretty good program, but, you see, working all that land on different places was more important than having crop insurance.”
- An Iowa insured grower, speaking on an experience in 2012 where a crop failed to germinate due to insufficient rain, “I try to maintain the crop rotations despite the fact the weather was far from optimal and in the end all it cost me [was] a bunch of money. And we were able to get by because we switched this and we switched that and kept enough feed for the cows.”

Cost-Effectiveness

Organic farmers have long identified the lack of an organic price election as a barrier to their use of the product. The 2014 focus groups, however, were the first opportunity to meet with farmers about whether or not the initial set of organic price elections had impacted their crop insurance decisions. The fact that crop insurance had somewhat recently become affordable was frequently discussed. Three of the 4 Iowa farmers interviewed directly mentioned the removal of the 5% surcharge and organic price elections as catalysts for their participation. One of the Iowa farmers also mentioned the enterprise unit discount, which provides a discount to farmers growing in a single geographic location, and access to higher coverage levels.

- An Iowa insured grower stated, “Federal Crop is becoming a little more important because of organic prices and the amount of money you can lose. Not that you lose but less potential income maybe from not having crop insurance.”

- An Iowa insured grower referring to his decision to purchase crop insurance in 2013 said, “If there weren't something like [organic price elections] I would not have [signed up].”
- An Iowa insured grower, responding to facilitator prodding on why he had been farming organically for 14 years but only using crop insurance for the past 6 years, “Everything is really inflating in cost. You have to take advantage of every opportunity you have and crop insurance is an opportunity. It wasn't as lucrative then as it is now. It just got too good to not.”

North Carolina farmers, on the other hand, were more likely to feed grain crops to livestock for dairy production and were thus unaffected by organic price elections. However, the insured North Carolina farmer, who insures his wheat crop, indicated that the lack of an organic price election on wheat (pending in 2015) is the main issue he faces with his insurance.

Other Factors

The majority of participants mentioned both a preference for production-based risk mitigation and recent changes in the cost-effectiveness of federal crop insurance, but what was also evident was that decisions were often based on multiple factors. This section summarizes factors mentioned only by one to two of the participants: access to credit and other government programs, pest and weather events, and lack of information on crop insurance products.

Three uninsured North Carolina farmers linked their past use of crop insurance, as conventional growers, to gaining access to credit for the farm and government programs (conservation programs and disaster relief programs, though specific program names could not be recalled). One farmer went on to note that not having access to cost-effective crop insurance has contributed to his inability to gain access to credit as an organic grower, noting that, “That’s [access to credit] the biggest problem and that should be one of the biggest risks.” Another uninsured farmer in the North Carolina group, however, stated that he had had no trouble gaining access to a farm loan from the local bank without crop insurance.

Two insured Iowa farmers linked their enrollment in crop insurance to pest and weather events. One farmer suffered soybean losses in 2000 due to soybean aphid pressure and enrolled at this time. Soybean aphid pressure has since declined in his area but he remains enrolled due to increased volatility in rainfall, which he linked to climate change. The second farmer first lost crops to hail and then spent the two following years intensively managing his crops under drought conditions:

- “I walked the beans all summer. It was so frustrating. For me it was less about money and more about all that intense labor. I want to get something out of this so I decided to insure.”

Another insured Iowa farmer went further to note that increased volatility in weather due to climate change has compromised his long-standing ability to manage risk through production-based means and increased his dependence on crop insurance:

- "We can somewhat control working with nature to provide its own risk management through habitat, health and crop rotations, ecosystem management and all of that. We can't do that with climate change. We can only do so much because the scales have been tipped against us. So we have to have things like crop insurance because changing climate, I think, is the most important thing out there."

The final factor, lack of information, was directly mentioned only by one insured Iowa farmer who mentioned that his switch to crop insurance was directly related to an outreach event organized by a local extension agent. It was at this meeting that he first learned about crop insurance changes that would benefit his operation and these changes led him to the decision to enroll in the program. Though it was not directly addressed, the lack of information was apparent in the North Carolina focus group as well. In this group farmers expressed confusion regarding availability of crop insurance for farmers that do not use herbicides for weed management, a lack of knowledge about organic price elections, and uncertainty regarding crops covered by the Noninsurable Crop Disaster Assistance Program (NAP).

Recommendations and Conclusions

The goal of the focus groups was not to definitively answer questions regarding the relationship between organic farmers and crop insurance, but instead to underscore the need for continued research and to provide insight into next steps. Two key research needs arose from this work.

First, the potential for adverse selection of current organic crop insurance participants remains unexplained. Despite questions designed to assess exactly this issue, nothing in the focus groups indicated a fundamental difference in how risk is managed by these two groups though the differences in crop yield cannot be ignored (Watts and Associates 2010, Singerman et al. 2010). Farmers often suggested that these yield differences may be attributable to the level of experience of insurance participants. If participants have recently transitioned to organic production both the farmer and the soil are likely on a learning curve. This suggests that a next step is an analysis of differences in yield and yield variability that takes into account farmer experience and soil transition time. Second, the link between crop insurance and access to credit remains unclear after the focus groups. Some participants found it impossible to access credit without crop insurance while others did not encounter this barrier. A more nuanced analysis of the relationship between these variables for organic growers would take into consideration individual farm, farmer, and creditor characteristics.

Production-based risk management practices, such as crop rotation and diversification, are intrinsic to organic production. The failure of current crop insurance program design is that the premium rates and indemnities do not reflect the risk mitigation benefits inherent in these

practices. This disconnect is apparent when comparing crop insurance enrollment rates between organic and conventional farmers. It is equally apparent in the focus groups as farmers repeatedly referred to the availability of organic price elections and removal of the organic surcharge as critical to their decision to enroll.

However, due to the limited scope of the 2013 and 2014 adjustments, enrollment rates remain low and farmers without access to price elections remain at a disadvantage. In order for federal crop insurance to function as a truly equitable program USDA must continue to make adjustments that reflect the full value of production-based risk management. Moreover, it is critical that this disconnect is recognized in other USDA programs. Uninsured North Carolina growers emphatically stated that lack of access to credit was the foremost risk they face. It is not sufficient for crop insurance alone to reflect full value of these practices, lending policies must be assessed and adjusted for the same systematic discrepancies.

The focus group research reiterates that policy change alone is not sufficient for increasing organic farmer enrollment. More equitable policies must be paired with robust outreach and education efforts in order to raise organic farmer awareness. Outreach professionals and program administrators must become more acquainted with organic production in order to ensure that outreach efforts meet the same equitable access standards as the policy revisions themselves.

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Table 1. Farmer and Farm Characteristics, by State

Variable	Combined (N=9)	Iowa (N=4)	North Carolina (N=5)
Average years of farming experience	31	31	31
Average years of organic experience	9	15	4
Majority of income from farm	8	3	5
Average acres in production (<i>Min, Max</i>)	391	346 (<i>100,700</i>)	426 (<i>80,650</i>)
Average % acres owned (<i>Min, Max</i>)	75%	68% (<i>50%, 80%</i>)	80% (<i>0%, 100%</i>)
Number of crops grown	5.2	5.8	4.8
Use no-till	3	0	3
Use cover crops	6	3	3
Use irrigation	1	0	1
% Sales wholesale market	63%	100%	0%
Participate in government programs	4	4	0
Crop insurance in 2013	5	4	1

Table 2. Attitudes Towards Risk

Category	Comfort with risk	Farm financial risk
Combined	3.5	4.2
Iowa	3.2	2.9
North Carolina	3.8	3.5
Difference (%)	-0.6 (-15%)	-1.3 (-31%)
With crop insurance	3.7	2.8
Without crop insurance	3.0	4.1
Difference (%)	0.7 (24%)	1.2 (44%)

Table 3. Farm Risks and Mitigation Approaches

Risk	Mitigation Approach	With Crop	Without Crop
		Insurance	Insurance
<i>Weather</i>	Crop insurance	4	0
<i>(late frost, early frost, lack of rain, excess rain)</i>	Crop rotation	3	0
	Vary planting dates and crops	1	2
	Prepare in advance, finish early	0	2
	Plant drought resistant crops	1	0
	Irrigate	0	1
	Replant after failure	0	1
<i>Market risk</i>	Contracts	1	1
<i>(product, input, and land prices)</i>	Purchase used equipment	1	0
	Buy early and in bulk	1	0
	Place farm in easement	1	0
	Crop insurance	1	0
<i>Pest damage (weed pressure, insects)</i>	Plant pest resistant varieties	2	0
	Replant after failure	0	2
	Better technology	1	0
	Crop rotation	1	0
	Graze animals	0	1
	Molasses spray	0	1