



Lessons to learn from Crop Insurance programmes worldwide

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Summary

1. In conversations on post-Brexit agriculture policy, the adoption of government-backed crop insurance programmes has been proposed. This should be opposed since it would have the following negative impacts;
 - Incentivising the planting of marginal and environmentally sensitive lands to maximise profit
 - Higher applications of fertilisers and pesticides
 - Increased levels of monocultures when only one specific crop is insured
 - Higher costs to the taxpayer than compensating farmers for unexpected crop or market failures
2. The majority of state-run crop insurance schemes are environmentally damaging and financially irresponsible programmes. They have negative impacts on farm wildlife and soil health, and drive up agrichemical usage and land-use change. They have led to riskier farming practices, promoted more intensive practices and expanded the cultivation of monoculture crops.
3. The public, rather than farmers, bear most of the financial burden of crop insurance, and farmers are likely to financially benefit from yield-loss or mismanagement. As a result, farmers are less inclined to farm in ways that might better protect them from risk.

Current UK Situation

4. When the UK leaves the EU, the Common Agriculture Policy will no longer regulate agriculture funding. The UK Government is currently examining potential new policies to support farmers and rural communities. George Eustice, Minister of State at the Department for Environment, Food and Rural Affairs (DEFRA), has suggested support for the Canadian Crop Insurance model, saying, “our objective would be to put in place a government-backed insurance scheme, similar to the one in Canada, to protect farmers from bad weather, crop failures and drops in prices”.ⁱ
5. Currently, there is no government-subsidised crop insurance programme in the UK. Farmers are able to purchase their own private insurance policies but thus far, it has not been widely adopted.

US Approach to Crop Insurance

6. There are numerous crop insurance programmes around the world with their own idiosyncrasies but the most widely known is the Federal Crop Insurance Program (FCIP) in the United States. FCIP is regulated under the Farm Bill, which is renegotiated every 4 years and is next up for review in 2018. In summary, farmers can take out FCIP coverage on a specific crop from 50-85% in 5% increments for revenue of anything less than \$1,000 per acre. That means that “if the farmer bought a policy with a coverage level at 80 percent coverage, it triggers an insurance payment as soon as farm revenue on that crop drops below \$800 per acre—even if \$800 is enough to cover expenses and keep the farm profitable and financially secure”.ⁱⁱ
7. It is important to note that FCIP insures the crop and not the farm itself, which means that “crop insurance will pay out on the one unprofitable crop even though the overall farming operation was profitable”.ⁱⁱⁱ This inefficiency of FCIP is also born out in the manner by which the FCIP payment is calculated. The calculation of insured revenue is based on the pre-harvest price and the expected yield. However, the payment distributed is for the expected yield at the post-harvest price, which will tend to be higher if supply of a specific crop has become limited.
8. The flaws of FCIP have long been discussed. A leading voice on the issue, Dr Babcock highlighted how “hefty taxpayer subsidies pay about 60 percent of the premiums, all the costs of administering the programme and a large share of the claims payments. The cost to growers is so low that over time most

can expect to collect far more in payments than they pay in premiums. In other words, most farmers make money by just by buying crop insurance".^{iv} As a result, the average rate of return on crop insurance for all farmers in all states between 2000 and 2014 was 120 percent per year.^v Essentially "the taxpayer-funded subsidies to lower the cost of premiums have grown so large and the payments so generous that the programme now acts as yet another income support program for farmers, rather than as a risk management tool".^{vi} Moreover, the FCIP payments tend not to benefit smallholders who "are poor or food-vulnerable" since the benefits are mainly to large commercial farms.^{vii}

Canadian Crop Insurance

9. The Canadian crop insurance programme is contained within Growing Forward 2 agricultural programme. According to Rude and Boxall, the motivation for creating the program was based on three suppositions "low levels of income for farms and farm families are less than socially desirable... farms are exposed to abnormal levels of risk beyond the proprietor's control... [and] supporting agriculture also fosters rural development".^{viii}

10. Within the risk-management subsection of Growing Forward, there are five sub-categories;

- **AgriInvest** is a \$3.1billion program that deposits funds directly into the saving's accounts of producers.
- **AgriRecovery** is a \$916million program to provide producers with recovery funds for extraordinary expenses following a natural disaster that they would otherwise have not incurred.
- **AgriRisk** is a \$40million program to encourage the private sector to develop additional agricultural risk management tools.
- **AgriStability** is the Canadian version of FCIP. However, unlike the crop-specific FCIP, AgriStability takes a broader perspective, "subsidizing the whole farm profit margin rather than controlling prices or revenues associated with different agricultural commodities"^{ix}.

The program will make a payment if the producer's programme margin falls below 70 % of his/her pre-calculated reference margin due to any combination of production loss, adverse market conditions or increased costs. AgriStability payments will provide 70 cents for every dollar lost. The reference margin is set annually and is based on either the average net income or alternatively, the average expenditure, depending on which is lower. There is no environmental regulation and no cross-compliance, so no public goods benefit.

- **AgriInsurance** help to cover production loss and consequently are crop-specific. Unlike AgriStability, a producer who does not have a whole farm margin decline may still have an AgriInsurance claim for a specific crop. AgriInsurance covers 100% of loss below the guaranteed yield with claims paid after harvest.

Impacts and Consequences

11. The initial hope is that crop insurance (CI) would provide farmers with security, allowing them to transition to more agroecological methods, knowing that their economic viability would be protected. However, research into the environmental and social impacts resulting from CI programmes consistently show growth in risky farming practices and negative environmental impacts.

12. CI programmes have direct correlation with land-use changes since "excessive risk transfer creates incentives to plant on marginal and environmentally sensitive lands that would otherwise be too risky to farm".^x Therefore, with the USA's FCIP's adoption, "the area of wetland drained increased by 8-9% relative to the scenarios with no programs... Lubowski et al. (2006) estimated that 20% of net wetland loss in the US from 1992-1997 was related to increases in crop insurance subsidies. In 1997 alone, the total cropland area was 0.8% greater (2.5million acres) as a result of the increased subsidies".^{xi}

13. On-farm decisions are similarly impacted by CI participation. In US corn farms in the Mid-West, studies observed higher rates of fertiliser and pesticide use on farms that had greater programme participation due to the “psychological wealth effect” with people feel wealthier and therefore willing to spend more.^{xii} The studies determined that ending FCIP would reduce nitrogen fertiliser use by 7%-10%.^{xiii}
14. Additionally, monoculture farms tend to prevail under a CI system “because crop diversification has been used by many farmers as a risk management tool, risk reduction, through government programs, can result in less incentive to diversity crops. In such cases, the positive environmental benefits associated with crop diversification are also forgone”.^{xiv}
15. These environmental concerns related to CI are similarly born out in Canada. Despite assurances to increase environmental sustainability metrics, the agri-environmental indicators remained fairly constant (see table^{xv}).

% change in the Agri-Environmental Indicators from Baseline

	Greenhouse Gas	Wind Erosion	Water Erosion	Till Erosion	Habitat Availability	Residual Soil N
AgriStability and AgriInsurance	-	-	-	-	-	-
No AgriStability, No AgriInsurance	-0.04%	0.00%	0.15%	-0.008%	0.19%	-0.48%
No AgriInsurance (with AgriStability)	-0.03%	0.00%	0.15%	-0.008%	0.16%	-0.66%
No AgriStability (with AgriInsurance)	0.01%	0.00%	0.00%	-0.00%	0.03%	-0.00%

16. CI is also more economically costly than direct payment schemes. When the US switched from a direct payment system to FCIP, the motivation was to pay growers only when they suffered an actual loss. However, “the data show that at least some—and perhaps many—farmers actually make more money on crop insurance than they ever received in direct payments”^{xvi} and “Although avoiding ad hoc disaster relief expenses has been one of the most-often cited justifications for subsidised crop insurance, the current insurance program cost taxpayers far more in 2012 than traditional disaster relief would have”.^{xvii}
17. That said, crop insurance schemes do provide stability for farmers and therefore they are less likely to cut on-farm jobs during poor harvest years, which provides for more constant rural employment rates. However, CI is unlikely to lead to any additional jobs in rural communities and therefore will do little to support revitalisation efforts.^{xviii}

Trade Implications

18. CI programmes fall into the WTO’s “amber box” of trade-distorting policies, and are accordingly subject to strict limits. The US declares its financial support for crop insurance as an amber box programme and, as a result, is publically committed to capping total CI payments to \$19 billion. However, it is technically possible for countries to classify this support as “green box” (i.e. not trade-distorting) and therefore not subject to limits, so long as payments are limited to 70% of losses.^{xix}

Weather Indexed Crop Insurance

19. The US and Canada are not the sole models of CI. Different models of CI have been suggested to address the aforementioned environmental and financial inefficiencies. Weather-Indexed CI, adopted in Australia, Ghana and India, bases payments on the deviation from average rainfall.^{xx} The hope was that these CI models would minimise moral hazard and increase yields. However, in India, farmers covered by rainfall insurance shifted investments towards cash crops, which are more sensitive to

rainfall deficit with the expectation of receiving insurance payments when the crop failed.^{xxi} In Ghana, farmers who received rainfall insurance increased the land area under cultivation, regardless of its potential to increase yield.^{xxii}

20. Similarly, area-yield CI bases payment on shortfalls in county-wide crop yields, rather than on the yields of individual farmers. The logic is that “because the indemnity is based on an indexed measure such as county yields or regional rainfall, moral hazard and adverse selection problems are largely mitigated”.^{xxiii} However, these models assume that farms in a specific county will have the same rate of yield when in reality yield rate can vary drastically. For example, a farm at the top of a hill will likely not receive the same yield decrease due to heavy rainfall as one at the bottom of a valley.

Conclusion

21. The majority of state-run CI schemes are environmentally damaging and financially irresponsible programmes. They have negative impacts on biodiversity, and soil health and drive up agrichemical usage and land-use change. They have led to riskier farming practices, promoted more intensive practices and expanded the cultivation of monoculture crops. Compounding the problem is the fact that it is the public, rather than farmers, who bear the majority of the financial burden of CI. Perversely, since the state cover the majority of the CI premiums and administrative costs, farmers are likely to financially benefit from yield-loss or mismanagement. Consequently, they are less inclined to adopt agroecological practices that might better protect them from risk.

Footnotes:

ⁱ Nelsen, A. ‘Brexit would free UK from ‘spirit-crushing’ green directives, say minister’, the guardian, 30 May 2016

ⁱⁱ Babcock, B. ‘Crop Insurance: A Lottery That’s A Sure Bet’, Environmental Working Group 2016

ⁱⁱⁱ Babcock, *ibid*

^{iv} Babcock, *ibid*

^v Babcock, *ibid*

^{vi} Babcock, *ibid*

^{vii} Glauber, J. Sumner, D., and Wilde, P., ‘Poverty, Hunger and US Agricultural Policy: Do Farm Programs Affect the Nutrition of Poor Americans?’, American Enterprise Institute, 2017

^{viii} Eagle, A., Rude, J., Boxall, P., ‘Agricultural Support Policy in Canada: What are the Environmental Consequences?’, Environmental Reviews, vol.24(1), 2016

^{ix} Rajsic, P., ‘Cartels and Subsidies in Canadian Agriculture’, Mises Institutes of Austrian Economics, Freedom and Peace, 2014

^x Babcock, *ibid*.

^{xi} Eagle, Rude and Boxall, *ibid*.

^{xii} Horowitz J. and Lichtenburg E, ‘Insurance, moral hazard, and chemical use in agriculture’, American Journal of Agricultural Economics, vol.75(4), 1993

^{xiii} Hennessy, D., ‘The production effects of agricultural income support policies under uncertainty’, American Journal of Agricultural Economics vol.80(1): 1998,

^{xiv} Eagle, Rude and Boxall, *ibid*.

^{xv} Environmental Impacts of Canada’s Business Risk Management Programs, Agriculture and Agri-Food Canada, 8th Forestry and Agriculture Greenhouse Gas Modeling Forum, 2016

^{xvi} Babcock, *ibid*.

^{xvii} Babcock, B., ‘Taxpayer, Crop Insurance and the Drought of 2012’, Environmental Working Group, 2013

^{xviii} Devlin, S. Wheatley, H, ‘Agriculture subsidies in the UK after Brexit: a progressive solution’, Global Justice Now, 2016

^{xix} Glauber, J., ‘Agriculture insurance and the World Trade Organization’, International Food Policy Research Institute, 2015

^{xx} Ker, A. and McGowan, P. ‘Weather-Based Adverse Selection and the U.S. Crop Insurance Program: The Private Insurance Company Perspective’, Journal of Agricultural and Resource Economics vol.25(2), 2000

^{xxi} Cole, S. Gine, X., Vickery J., ‘How Does Risk Management Influence Production Decisions? Evidence from a Field Experiment’, Harvard Business School Working Paper 13-080, Sept 2014

^{xxii} Karlan, D., Osei, R., Akoto, I. Udry, C. ‘Agricultural Decisions After Relaxing Credit and Risk Constraints’, International Labour Office, Research Paper 23, Oct 2012

^{xxiii} Glauber, J. ‘Crop Insurance Reconsidered’, American Journal of Agricultural Economics, 2004 vol.86(5)