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# FARE Share

## What's Inside?

This issue of *FARE Share* paints a picture of what it will take for Prime Minister Trudeau to deliver on his commitment of reducing boil water advisories on First Nation reserves.

Inside, a professor from the University of Mississippi shares lessons learned from one of the largest multiple-peril crop insurance (MPCI) programs in the world.

Also inside, we include coverage of an undergraduate study about agricultural biotechnology reporting.

The back page takes a look at the amount of agricultural land in Ontario and the implications for land-use planning.

If you have any questions, don't hesitate to "Ask The FARE Economist" online at: [www.uoguelph.ca/fare/institute/ask.html](http://www.uoguelph.ca/fare/institute/ask.html).

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*The FARE Share Newsletter features research and analysis from faculty and students in the Institute for the Advanced Study of Food and Agricultural Policy in the Department of Food, Agricultural and Resource Economics (FARE).*



## Trudeau's Promise to End Boil Water Advisories

By: Brady Deaton, Professor, and Bethany Lipka, Sessional Lecturer, FARE

Prime Minister Justin Trudeau has vowed to reduce boil water advisories on First Nation reserves. But fulfilling this important campaign promise will require a bridge of trust.

A United Nations study published in 2009 found that First Nation reserves were 90 times more likely to be without safe drinking water than non-First Nation households. A 2011 study identified 28 percent of water systems on Canadian reserves to be under a boil water advisory.

However, there is a way to bring quality water to many reserves. In a recent article, published in the *Journal of Water Resources and Economics*, we provide empirical evidence that First Nations that partner with nearby municipalities to supply their drinking water are less likely to have a boil water advisory.

Our research finds that First Nation reserves take advantage of trade in water and sewer services just like many other municipalities do throughout Canada. For example, the York Region contracts with Toronto for drinking water, and the City of Guelph provides sewer services for the Village of Rockwood. In both cases, municipalities voluntarily entered into these agreements and mutually benefit from the partnership.

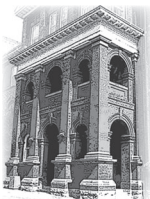
While it may not be feasible for many First Nations to enter into water servicing agreements with municipalities due to their remote locations, those First Nations that have entered into these agreements appear to benefit.

While not all First Nations that could enter into water servicing contracts will want to, barriers to this option can be diminished.

It is critical to know that investment in physical infrastructure – water lines, for example – must be accompanied by investments in social infrastructure – trust, transparency, and improved communication between First Nation and non-First Nation communities.

**“Building trust and providing high-quality water services between municipalities and First Nations requires investments in physical and social infrastructure.”**

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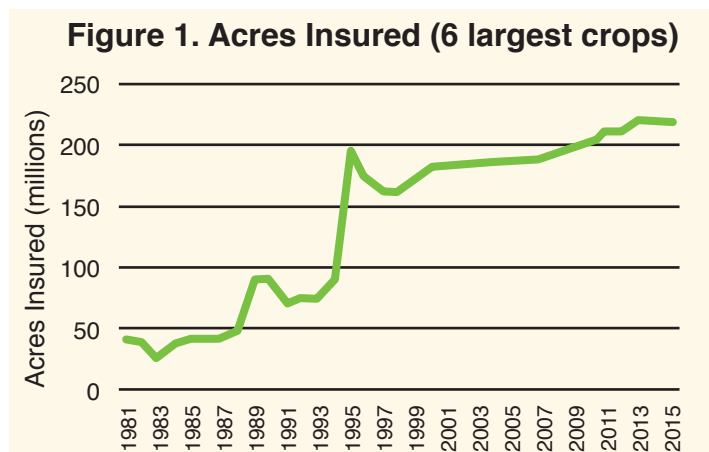
# Crop Insurance Public-Private Partnerships

By: Barry J. Barnett, Professor, Mississippi State University

The United States (U.S.) is home to one of the largest multiple-peril crop insurance (MPCI) programs in the world through a public-private partnership. This article describes the U.S. MPCI experience and suggests some “lessons learned” since its introduction in 1980.

In the U.S., private insurance companies sell all MPCI policies and adjust all claims. The federal government provides premium subsidies to insured farmers and an administrative and operating expense reimbursement to the private insurance companies (an indirect premium subsidy, since these costs would otherwise need to be recouped in premiums). The federal government also develops all the policy language and establishes all premium rates. The revenue from premiums as well as the cost of claims is shared between the federal government and private insurance companies through a reinsurance agreement.

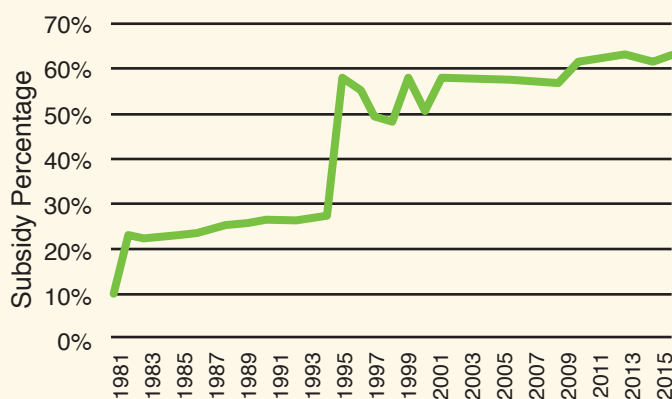
When the public-private partnership was created, U.S. policy makers hoped that increased crop insurance purchasing would reduce political pressure for ex post disaster assistance. The partnership made use of the private-sector insurance delivery system while allowing for continued federal subsidization and federal control over key aspects of the MPCI program. As a result of these changes and increased subsidy levels, the program has experienced tremendous expansion since 1980. Figure 1 shows that insured acreage for the six largest crops (corn, cotton, grain sorghum, rice, soybeans, and wheat) has increased from less than 40 million acres in 1981 to more than 218 million acres in 2015.



This increase in crop insurance purchasing is largely the result of increased premium subsidies. Figure 2 shows that the portion of the total premium that is paid for by federal subsidies has increased from an average of 10% in 1981 to more than 62% in 2015. In 2015, the total value of crop insurance premium subsidies was just under US\$6 billion (down from a high of US\$7.4 billion in 2011). In addition to premium subsidies, the federal government pays insurance companies approximately \$1.5 billion per year to reimburse their administrative and

operating costs for selling and servicing crop insurance policies. A rough estimate is that the crop insurance program costs U.S. taxpayers approximately US\$7 to 9 billion annually. It is fair to say that crop insurance has become the primary means by which the federal government supports U.S. agriculture.

**Figure 2. Subsidy Percentage (6 largest crops)**



## Lessons learned from U.S. crop insurance

First, private insurance companies need to have some “skin in the game.” If the interests of taxpayers are to be protected, the private insurance companies that conduct claims adjustments must share in both gains and losses. Second, policy-makers generally have multiple goals for agricultural public policy (e.g., domestic food security, risk management, soil health, provision of scenic amenities, export promotion). It is not possible to effectively address all of these multiple goals through a crop insurance program – especially a public-private program where much of the money at risk is coming from private-sector firms rather than from the government. Third, governments can generally borrow at lower cost than private firms, so some level of government-provided reinsurance is likely a cost-effective strategy for reinsuring national crop insurance programs.

## Has the U.S. public-private MPCI program been successful?

As a result of increased crop insurance purchasing, no significant federal disaster assistance has been provided for almost 15 years. Thus, one might argue that the political goal has been accomplished, though at extremely high cost to taxpayers.

Professor Ker from FARE and I are currently looking into these many issues surrounding involvement of private industry in crop insurance in the Canadian context.



# Biotech Reporting and Complex Societal Issues

Research by: Andreas Boecker, Associate Professor, FARE; and Zhuli Cui, MSc Student, Western University and University of Guelph BSc Graduate

How complete is the picture presented in Canadian newspaper articles about societal issues related to agricultural biotechnology? This is the question posed in an undergraduate independent study about agricultural biotechnology reporting, the second to be featured in *FARE Share*.

For this analysis, researchers picked a controversial and tragic topic that has fueled the criticism of agricultural biotechnology: the alleged link between Bt cotton adoption and farmer suicide in India. Suicide is a highly relevant issue to rural India; in addition to the technological dimension, it involves natural, economic, socio-cultural and political factors. Using this topic for analysis may seem cynical, however, misrepresentation of complex problems may shape public opinion and influence policy and private action in a way that could lead to addressing the wrong factors.

As in a previous study (reported in *FARE Share* #11), the sampling frame is limited to articles that appeared in the top ten Canadian newspapers and could be retrieved online. As a result, the sample does not claim to be representative. A total of six articles were retrieved.

## Impact of Bt cotton

The issue of suicide among Indian farmers has been researched in previous decades, indicating its relevancy well before the introduction of Bt cotton in 2001/02. Further, research has shown that Bt cotton has, at most, marginally contributed to farmers' suicide and thus refutes the claims of genetic modification (GM) opponents that it was the main, or even sole, factor. The study does not assess whether the media content was correct in this sense, but which contributing factors were presented.

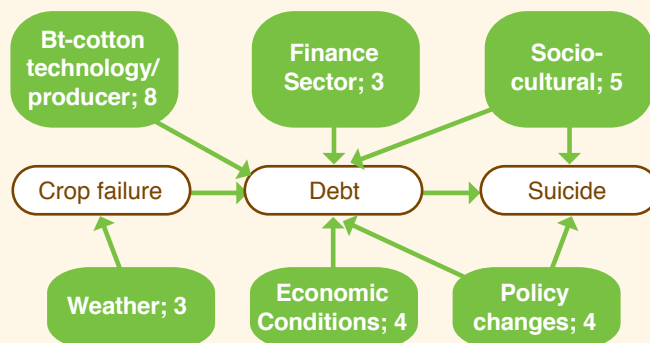
After reviewing the literature, researchers found six factors related to farmers' suicide:

- Economic: import competition, increase in cost of living
- Policy: reduced subsidies; compensation payments for widows
- Socio-cultural: family problems and payment obligations; self-respect
- Finance sector: prices of private money lenders; reduced loan approvals by banks
- Natural/weather: excess monsoon rains, drought leading to crop failure
- Bt cotton technology/producers: sale of expensive GM seed; aggressive (...) marketing practices

**“...misrepresentation of complex problems may shape public opinion and influence policy and private action in a way that could lead to addressing the wrong factors.”**

**Figure 1: Presentation of factors contributing to farmers' suicide**

Three articles with neutral to positive tone about Bt technology or Bt seed producers (frequency of mentions indicated by number in box)



Three articles with negative tone about Bt technology or Bt seed producers (frequency of mentions indicated by number in box)

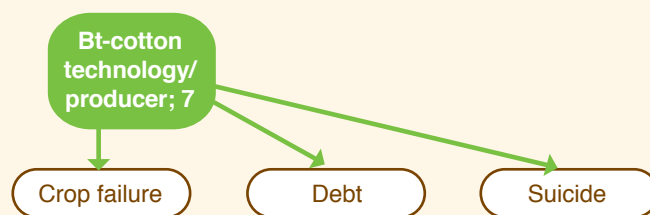


Figure 1 presents the frequency of factors being mentioned in the six articles and their linkages to outcomes 'Crop Failure,' 'Debt' and 'Suicide.'

Overall, the articles present all factors involved in the Indian farmers' suicide tragedy. However, one important factor was omitted: the dynamic, highly fragmented regional seed markets. Several studies provided accounts of patent infringements and fraudulent activities of local seed producers/dealers who sold regular or substandard cotton seed as Bt seed at large premiums.

## Contributing factors vary

Further, articles varied greatly in their coverage of contributing factors. A pattern emerged when grouping them according to overall tone towards Bt cotton technology/producer into negative vs. neutral/positive. The first group with three articles of predominantly negative tone, focused on the triangle Bt cotton technology/producer – crop failure – debt (Figure 1) and made direct links from technology/producer to suicide without referring to moderating factors in between. Conversely, the three neutral/positive articles provided a more comprehensive picture of the factors contributing to the Indian farmer suicide tragedy, showcasing the complex dynamics at work that have been studied in peer-reviewed academic literature on the topic.



Continued from page 1

## Building Trust

This social infrastructure is critical to a successful water servicing agreement. For example, under some service agreements, municipalities agree to allow the contracting municipality to inspect their records at any time during work hours. This access promotes transparency and engenders trust. But such agreements may be more difficult to secure between First Nations and municipalities, particularly if there have been limited historic links between First Nations and municipalities. But it need not remain this way, and efforts are being made to improve these relationships.

For example, with funding from Aboriginal Affairs and Northern Development Canada, the Canadian Federation of Municipalities runs the First Nation-Municipal Infrastructure Partnership Program. The program helps to facilitate water servicing agreements between First Nations and municipalities. It provides workshops and other resources – such as agreement templates and case studies – to reduce costs.

Building trust and providing high-quality water services between municipalities and First Nations requires investments in physical and social infrastructure. We can all help by communicating and learning more about each other.

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# Agricultural Land Economics

*Research by: Glenn Fox, Professor, FARE; Kenneth P. Green, Senior Director, Natural Resource Studies, Fraser Institute; and Yi Wang, MSc Graduate, University of Guelph*



Residents of urban or suburban areas in Ontario – and that is most of the population – recall a different pattern of land use than what they see today. In some places, what used to be agricultural land is now used for other purposes.

But Ontario is a big place, and what is happening to land use in urban areas may not be indicative of land use elsewhere in the province. In a recent report from the Fraser Institute, based on the 2015 MSc thesis research of Yi Wang, we examined the empirical evidence on the amount of agricultural land in Ontario from 1951 to 2013.

The area of cropland (i.e. used for growing crops) in Ontario actually increased slightly between 1951 and 2013, from about 3.5 million hectares to about 3.6 million hectares. Farmland area, which includes woodlots, wetlands and pasture, did indeed decrease during this time period, from about 8.4 million hectares to about 5.1 million hectares.

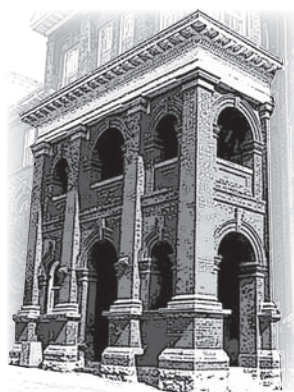
But at the same time, farming efficiency has improved so much that less land is needed to produce more food. Consider that between 1981 and 2013, grain corn yields increased from about 6,000 kg per hectare per year to over 10,000 kg per hectare per year. As the amount of land required for agriculture shrinks due to higher productivity, some land probably should find its way to other uses, whether that's industrial, recreational, parkland or whatever land-markets demand.

And that's where the other interesting part of our findings come in: we looked at whether or not the land-use changes of the region were, or were not, representative of "market failure." Our findings, similar to previous researchers, suggest that the problem is more one of planning

failure than market failure. Measures to limit the amount of agricultural land used for non-agricultural purposes are based on a theory of "absolute advantage," that the best agricultural land should be reserved for agriculture. But the best agricultural land is often the best land for use in other ways, and only markets, not planners can determine this.

Land-use planning can also lead to injustice. For example, the widespread reliance on land use designation, and the abandonment of the prior provincial policy approach of purchasing environmentally sensitive lands financed through tax revenue have created important equity concerns for rural landowners, who have ended up bearing a disproportionate share of the burden of providing benefits shared among the citizens of the province. Under the designation approach, landowners retain title to their land but regulation can reduce the benefits that they derive from that ownership substantially. If all citizens benefit from these designations, shouldn't all citizens contribute in interest of fairness?

When governments introduce policies to regulate rural land use, the unintended consequences can extend beyond the farm economy. Preserving rural land for agricultural use restricts the supply of land for residential construction, commercial use, infrastructure development, and even use of land for wildlife habitat and recreation. Higher housing prices, reduced employment opportunities and more traffic congestion can result. More economic thinking could help planners direct land to its better uses, but at the end of the day, only markets can determine the best use for a parcel of land.



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