

Comparing Agricultural Business Risk Management Programs:

An analysis of Ontario and Michigan Corn Producers



W&A ECONOMIC CONSULTANTS

EXECUTIVE SUMMARY

Agricultural Business Risk Management (BRM) programs play a crucial role in protecting crop producers from the uncertainties posed by weather patterns and market fluctuations. In Canada, discussions about reciprocal support were sparked by ad hoc payments made in the United States following the COVID-19 pandemic. Ongoing debates have highlighted concerns about the disparities in government support through these programs. This study, a collaboration between the Grain Farmers of Ontario and Watts and Associates, focuses on St. Claire County, MI, and South-central ON, with the aim of comparing the effectiveness of their respective BRM programs and identifying areas for improvement.¹

Our analysis reveals that producers in Michigan generally achieve higher returns through BRM programming compared to their counterparts in Ontario. The key factor contributing to this difference is the more extensive risk coverage provided to Michigan producers through the Revenue Protection program. Historical analysis also highlights the impact of ad hoc payments between 2019 and 2021, further contributing to higher BRM returns in Michigan.

The findings underscore the importance of evaluating and enhancing BRM programming in Ontario. Addressing disparities and striving for improved BRM support is crucial to ensuring that producers in the region have access to effective risk management tools and comparable returns to their counterparts in Michigan. By doing so, Ontario can bolster the financial security and overall viability of its agricultural sector.

¹ Watts and Associates is a financial consulting firm based in Montana, United States, specializing in providing risk management, insurance development, and crop insurance analysis services.

1. Introduction

Agricultural business risk management (BRM) programs are crucial for providing protection and support to crop producers in the United States and Canada. These programs help safeguard against price fluctuations and yield variability caused by unpredictable weather patterns, disease or volatile market conditions. However, the COVID pandemic resulted in US producers receiving ad hoc payments, leading to increased calls in Canada for reciprocal support to maintain producer competitiveness.² Ongoing debates between experts from both countries have raised concerns about the disparities in government support provided through these programs.

This study focuses on two specific regions and aims to compare the respective business risk management programs offered in each region. Our research seeks to determine which region receives greater government support on a per-acre basis. Through this analysis, we aim to contribute to the existing understanding of program efficacy and identify potential areas for improvement. Our findings will benefit the agricultural community and inform policymakers in their efforts to enhance the effectiveness of business risk management programs in Canada.

2. BRM programming in Ontario, Canada and Michigan, United States

In Ontario, Canada, Agricorp offers three risk management programs (BRM) for agricultural producers. These programs are AgriStability, Production Insurance, and the Risk Management Program (RMP). AgriStability and Production Insurance are jointly provided by the Federal and Provincial governments, while RMP is entirely provincial.

AgriStability protects a producer's entire farm income and pays out if their net farming income falls below 70 percent of their farm's recent average. Production Insurance provides coverage against yield losses due to various risks, with payments triggered if the covered yield falls below the guaranteed production level. The RMP safeguards producers from losses caused by low commodity prices or high production costs. It provides payments when the crop-specific average cost of production in Ontario falls below the market price of the commodity. In addition, several Ontario producers also participate in AgriInvest, a savings account delivered by Agriculture and Agri-Food Canada. Producers can deposit an amount equal to 100 percent of their Allowable Net Sales (ANS) and receive a 1 percent government contribution of their ANS.³

In the United States, agricultural producers have access to three different types of risk management programs. The first category includes the crop insurance suite provided by the Federal Crop Insurance Corporation (FCIC). Within this suite, there are 10 insurance plans

² <https://www.manitobacooperator.ca/news-opinion/news/a-tale-of-two-countries-farm-subsidies/>

³ <https://www.agricorp.com/en-ca/Programs/Pages/Default.aspx>

available to grains and oilseeds growers. Among these plans, the Revenue Protection (RP) plan is the most widely adopted.⁴

For our analysis, we focus solely on this insurance plan as it covers the majority of acreage. The RP plan offers insurance against revenue losses caused by various natural perils, with payments issued if the actual revenue falls below the guaranteed level. Additionally, it incorporates an optional add-on called the Supplemental Coverage Option (SCO). Producers can choose to purchase SCO, which provides coverage for county-level revenue losses. It is important to note that any crop on a farm selected for participation in the Agriculture Risk Coverage (ARC) program, which will be discussed next, is not eligible for SCO coverage.

In the United States, the second category of BRM programs consists of two specific programs under Title I commodity program: Agricultural Risk Coverage (ARC) and Price Loss Coverage (PLC). The ARC-CO (county) program offers income support based on historical base acres of covered commodities, rather than current production. Payments under ARC-CO are issued when the actual county crop revenue of a covered commodity falls below the ARC-CO guarantee for that commodity. On the other hand, PLC program payments are made when the effective price of a covered commodity is lower than the respective reference price established for that commodity. The effective price is determined by the higher of the market year average price (MYA) or the national average loan rate for the covered commodity.

Finally, the United States has introduced two ad hoc programs to assist producers in recent times. The first program is the Market Facilitation Program, which was established in 2018 as a response to a trade dispute with China. This program provided support to farmers and ranchers who experienced adverse impacts from unjustified foreign retaliatory tariffs, leading to the loss of traditional export markets. Assistance for non-specialty crops such as corn and soybeans was determined by multiplying a single-county payment rate by the total plantings of MFP-eligible crops on a farm for the year 2019. The second ad hoc program is the Coronavirus Food Assistance Program (CFAP), which offered financial aid to producers of agricultural commodities marketed in 2020 that faced market disruptions caused by the COVID-19 pandemic.

3. Materials and methods

The analysis in this study consists of two main components. The first component focuses on comparing the total returns for producers in Ontario (ON) and Michigan (MI). This is done by considering a hypothetical price and yield scenario and incorporating the BRM suite. The second component involves a historical comparison between ON and MI, specifically examining the years 2018 to 2022. The study narrows its scope to St. Claire County in MI and the south-central region of Ontario, chosen due to their geographic proximity (approximately

⁴ <https://www.rma.usda.gov/en/Policy-and-Procedure/Insurance-Plans>

two hours apart) and comparable weather patterns characterized by consistent temperatures and rainfall levels throughout the year.

To facilitate the comparison, actual target and realized yields are utilized. The input cost structure of a representative producer is established using target yields from the Ontario Ministry of Food and Agriculture (OMAFRA) crop budgets for ON and Michigan State University's crop budgets for MI. The target yield represents the trend yield, which has exhibited an upward trajectory in both ON and MI over the past decade. The analysis incorporates inputs such as seed, fertilizer, herbicides and insecticides, tractors, and machinery, as well as costs associated with drying and storage. Non-capital costs encompass interest costs and returns, depreciation, and land rent. Additionally, the cost of participating in the BRM programs is included as part of the overall cost structure for producers. The commodity chosen for this study is corn because it is the primary crop of both regions. However, our method is extendable to any other commodity. The cost profiles of both ON and MI can be seen in Table 1 in the Appendix.

4. Results

I. Same price and yield scenario in both ON and MI

We begin our analysis by comparing the overall return per acre of a representative producer in Ontario and Michigan. To trigger BRM payments, we assume a low price of C\$6.5/bu and a low yield scenario of 135 bu/acre. The cost profile of both producers is based on the targeted yield, which is derived from actual trend yield in Ontario and Michigan, respectively. In 2023, the target yield for Ontario's farm is projected to be 180 bushels per acre, while in Michigan, it is estimated to be 174 bushels per acre.

In Ontario, our chosen combination of price and yield will trigger payments from the AgriStability, RMP and PI programs at coverage levels of 85% and 90%. In Michigan, the revenue protection program will provide payouts along with additional payments for the SCO. However, payments from the PLC and ARC programs will not be triggered.

To evaluate the influence of these factors, we conduct a comparative analysis of two key variables: the "*total return*" for representative producers and the returns derived specifically from their respective BRM suites. The "*total return*" encompasses the revenue generated from a producer's operation inclusive of BRM payments (as outlined in section 2), while subtracting the cost of production. The "*BRM only*" category compares the total payments triggered in Ontario and Michigan from the chosen price and yield scenario. The "*Net BRM only*" compares BRM payments when the cost of participating in them is factored out. Figure 1 presents a comparison of these variables.

MI VS ON - 2023 SCENARIO ANALYSIS (\$/ACRE)

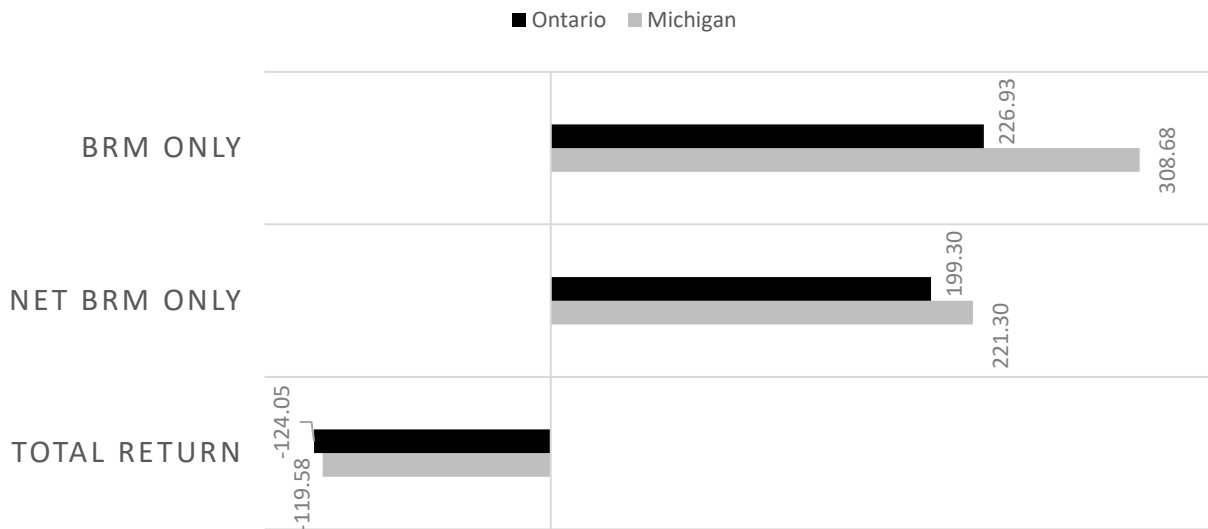


Figure 1

In our hypothetical scenario, both Ontario and Michigan exhibit negative "total return" values. This is primarily due to a significant yield loss of 135 bushels. The observed differences in "total return" between the two regions can be attributed not only to variations in business risk management (BRM) programs but also to differences in cost structures.

In 2023, Michigan's cost of production is approximately \$0.30 higher than that of Ontario. This is influenced by factors such as the higher cost of crop insurance in Michigan and differences in prices of key inputs such as fertilizers and chemicals.

According to Figure 1, in our constructed scenario, the Michigan producer outperforms the Ontario producer in terms of both total return and returns specifically derived from the BRM suite.

II. Historical comparison

Next, we conducted a comparative analysis of the "total return" and "BRM only" payments between the two regions, covering the period from 2018 to 2022. For the analysis, half of the MFP payment was allocated to the 2019 crop and half to the 2020 crop, as the payment was made in installments over the two-year period. The CFAP payment was allocated to the 2021 crop year and was based on the county average payment received. The results were computed using the actual average yield of each respective region. Figure 2 visually compares both the "total return" and the "BRM only" payments.

TOTAL RETURN WITH BRM PROGRAMMING SUITE (\$/ACRE)

MI V ON - 2018 -22

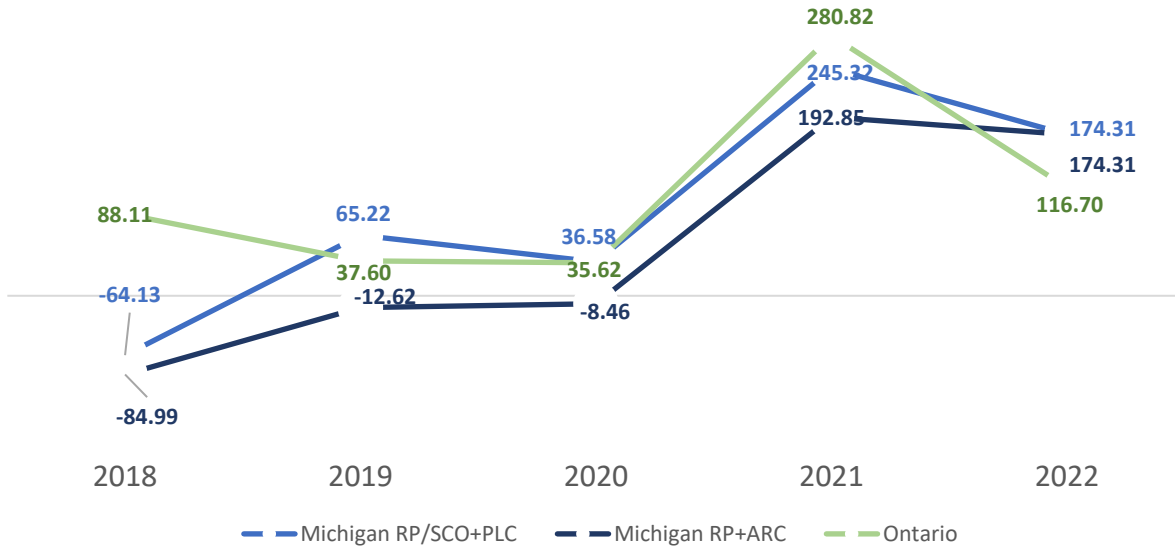


Figure 2

Our findings indicate a mixed picture in terms of total returns, with the ON producer earning significantly more than the MI producer in 2018. The ON producer also achieved higher returns in 2021, while experiencing slightly lower returns in the remaining years. However, it is important to note that the MI producer received ad hoc disaster support in 2019/20 through the MFP and CFAP payments in 2021.

\$/ACRE RETURN BRM PROGRAMMING SUITE MI V ON - 2018 -22

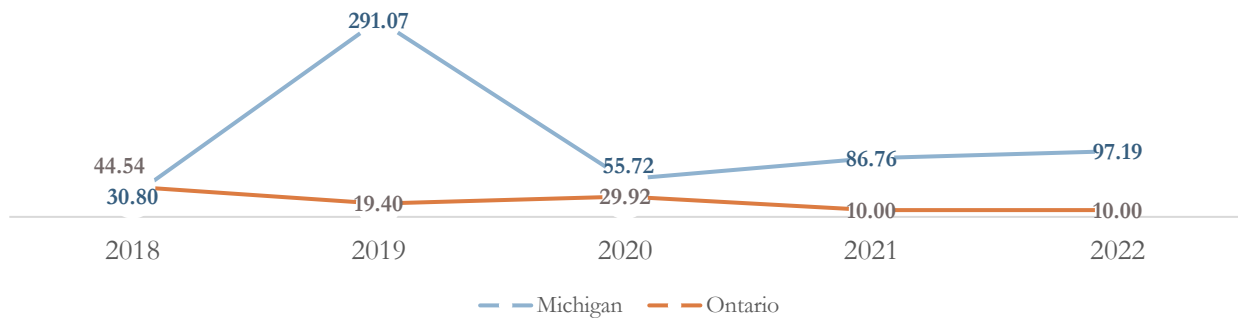


Figure 3

Figure 3 confirms that the MI producer consistently earns more through the BRM programs compared to the ON producer across all five years. These results highlight the greater effectiveness and financial benefits of the BRM programs implemented in Michigan compared to Ontario.

5. Conclusion

This study, which compares St. Claire County, MI, and Southern ON in terms of input use equivalence, reveals that producers in Michigan generally achieve higher returns through their BRM programming compared to their counterparts in ON. The main reason for this difference is the availability of more extensive risk coverage for MI producers through the Revenue Protection program. Additionally, the inclusion of ad hoc payments between 2019 and 2021, as observed in the historical analysis, further contributes to the higher BRM returns observed in MI compared to ON.

Future research should broaden the analysis to include multiple regions in US states, as well as other regions within ON. It is important to acknowledge that despite the close proximity of the selected locations, there may be significant variations in the application strategies of inputs such as fertilizer and chemicals due to different soil conditions in the two regions. These variations can have a significant impact on agricultural practices and overall outcomes. Furthermore, factors such as land rent and labor costs can vary significantly even within the selected regions. Local market conditions and labor availability are among the factors that can influence these costs, leading to variations within the study area. Therefore, it is possible that a neighboring county in MI, compared to the corresponding region in southwestern ON, may receive lower BRM payments.

Our findings underscore the importance of evaluating and improving BRM programming in Ontario. It is crucial to ensure that producers in the region have access to effective risk management tools and comparable returns to their counterparts in Michigan. By addressing these disparities and striving for improved BRM support, ON can enhance the financial security and overall viability of its agricultural sector.

Appendix

VARIABLE	DESCRIPTION	ON (C\$/ACRE)	MI (C\$/ACRE)
YIELD TARGET (BUSHELS)		180	174
ACTUAL YIELD (BU)		135	135
OUTPUT PRICE - CURRENT			
	OUTPUT PRICE	7.98	7.94
OUTPUT PRICE - USED			
	VALUE	6.50	6.52
SEED		115.00	144.03
	Insecticide seed treatment	1.60	-
FERTILIZER (\$/ACRE)			
	N (UAN - 28-0-0)	158.79	146.60
	P2O5 (MAP - @0.055t/acre)	64.47	76.56
	K2O (Potash - 0.09t/acre)	35.57	43.22
HERBICIDE			
	Annual grass and broadleaf weed	52.81	52.06
	Burndown	9.47	
	Other weed control		-
INSECTICIDE/FUNGICIDE		24.47	21.59
TRACTOR AND MACHINE			
	Fuel	62.90	42.01
	Repairs and maintenance	31.50	98.76
MARKETING BOARD AND GRAIN FINANCIAL PROTECTION FEES (\$0.411/TONNE)		1.90	-
CROP INSURANCE PREMIUM		17.9	87.38
AGRISTABILITY FEE		0.69	-
RMP PREMIUM		7.15	-
CUSTOM WORK			
	Fertilizer applications	14.85	-
	Pesticide applications	12.80	23.98
TRUCKING		70.75	27.48
DRYING (@\$27.86/TONNE)		127.38	68.77
LAND RENT (\$/ACRE)		200.00	123.51
LABOR		86.88	46.96
STORAGE		43.05	3.18
INTEREST ON OPERATING OVERHEAD EXPENSES		28.55	23.53
MACHINERY			
	Depreciation	40.00	114.17
	Management		71.56

	Interest on Investment	13.50	-
OTHER		6.50	87.14
	Total (\$/acre)	1,228.48	1,308.44
	COP (\$/bu)	6.82	7.52
	RMP OMAFRA COP (\$/bu)	7.02	
	Production margin (\$/acre)	25.32	85.01
	Net Return (\$/acre)	-350.98	-428.26
BRM PROGRAMS (1,000 ACRE PRODUCER)			
AGRIINVEST		10	
AGRISTABILITY		91.74	
RMP (100% COVERAGE ASSUMED)		37.44	
AGRIINSURANCE	Coverage level	90%	85%
		87.75	
REVENUE PROTECTION			294.36
SUPPLEMENTAL COVERAGE OPTION			13.82
	ARC		-
	PLC		-
NET INCOME - BEFORE BRM PARTICIPATION (PER ACRE)		-\$350.98	-\$428.26
TOTAL INCOME (LOSS PER/ACRE)		-\$124.05	-\$119.58