IMPLICATIONS OF BRM PROGRAM PARTICIPATION ON THE FEASIBILITY OF BENEFICIAL MANAGEMENT PRACTICES ADOPTION

Dawn Trautman, Scott Jeffrey, and Jim Unterschultz
Department of Resource Economics and Environmental Sociology
University of Alberta

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INTRODUCTION

- Business risk management (BRM) programs aid producers in coping with risks associated with agricultural production.
- Practices that are valuable to the surrounding environment are beneficial management practices (BMPs) and contribute to the production of ecosystem services (ES).
- Land use decisions may be altered by BRM program participation which may contribute to or diminish ES on agricultural lands.

OBJECTIVES

I. Evaluate the impact of BRM programs on economic performance of agricultural operations in Alberta.
II. Investigate the economic effects of BRM program participation on BMP adoption.

REPRESENTATIVE FARMS

Specifics of the representative cropping and mixed (i.e., cropping and cow-calf) enterprises used in the analysis are provided in Tables 1 and 2, respectively. The probabilities of catastrophic yield and cattle price events are 4%.

RESULTS

METHODOLOGY

Net Present Value (NPV) analysis with Monte Carlo simulation is used to model cash flow relationships (Figure 1) of representative farms.

RESULTS CROPPING ENTERPRISE

The baseline annualized mean NPV of the cropping operation is $106.10 per hectare. With participation in BRM programs specified under Growing Forward the value is $145.53 per hectare. Mean NPVs and standard deviation NPVs of these scenarios are provided in Table 3.

Table 3. NPV variable results

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Mean NPV</th>
<th>Standard Deviation NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>1,374,048</td>
<td>373,686</td>
</tr>
<tr>
<td>BRM</td>
<td>1,559,452</td>
<td>255,128</td>
</tr>
</tbody>
</table>

The annual adoption benefits per hectare of selected BMPs, with and without BRM participation, are provided in Figure 2.

RESULTS MIXED ENTERPRISE

The baseline annualized mean NPV of the mixed operation is $50.79 per hectare. With participation in Growing Forward’s BRM programs the value is $66.90 per hectare. Mean NPVs and standard deviation NPVs of these scenarios are provided in Table 4.

Table 4. NPV variable results

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Mean NPV</th>
<th>Standard Deviation NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>1,184,011</td>
<td>267,696</td>
</tr>
<tr>
<td>BRM</td>
<td>1,559,452</td>
<td>255,128</td>
</tr>
</tbody>
</table>

Figure 3 shows the adoption benefits of selected BMPs with and without BRM participation.

POLICY IMPLICATIONS

- In general, BMPs that remove land from production are costly and participation in BRM programs increases the net cost. Greater incentives for adoption of these practices may be necessary, which has cost implications for policy programs.
- Alternatively, participation in BRM programs further improves the farm wealth when certain crop rotation BMPs are adopted. For adoption of BMPs with net benefit further policy incentives are unnecessary and adoption levels may be improved with extension efforts.
- Goals of Growing Forward included BRM programs to mitigate producer risk, but also an environmental initiative; further planning could ensure better harmonization of objectives.

ACKNOWLEDGEMENTS

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Contact: scott.jeffrey@ualberta.ca or det@ualberta.ca
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