Producer Adaptive Responses to BSE

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Introduction

The negative consequences of the trade ban for the live-stock industry following the discovery of Bovine Spongiform Encephalopathy (BSE) in Alberta were significant and widespread. Although generally underestimated in subsequent media attention, the loss of these beef export markets caused livestock prices to plummet and significantly eroded the equity of many producers (McLachlan and Stozek 2006). Yet producers have long been accustomed to adversity. Indeed, many are finding ways of adapting to the added challenges associated with the BSE crisis. Both the impacts and these responses to BSE have implications that will continue to threaten the livelihoods of Canadian producers long into the future.

Objective

Our objective in this study was to assess the methods by which producers have been adapting to the BSE crisis, and to identify what factors characterized these adaptive responses.

Methods

On March 14th 2006, a questionnaire incorporating both Likert-scaled and open-ended questions was mailed to 9,713 producers in Alberta, Saskatchewan and Manitoba. It was designed to evaluate the impacts, adaptive responses and characteristics associated with BSE. In each prairie province, census districts (CDs) having some agricultural production were identified with one of four strata (i.e. cattle production density, low, high and proximity to the nearest federally inspected slaughterhouse, low, high). Two CDs were randomly selected from each stratum for each province resulting in 12 sampling regions. A total of 1,470 completed surveys were returned, resulting in a 33.9% adjusted response rate. A telephone survey was subsequently conducted with recipients and no non-response bias was found. This study focused on a subset of the survey data (n=828) that focused on adaptation. Factors underlying responses were identified using Factor Analysis, and logistic regression was subsequently conducted using SAS and models built using AIC (Burnham and Anderson 2002). Outcomes from qualitative data analyses were matched with qualitative responses to open-ended questions in the survey.

Results and Discussion

Factor analysis identified three factors that underlay producer responses to BSE (Table 1). The first factor was characterized by those who undertook novel adaptive measures ("innovated"), the second factor by those who operationally maintained the status quo to survive the crisis ("endured") and the third factor by those who either downsized or left the industry ("exited"). For many, and perhaps especially for those who "endured", the reduction in producer equity caused by BSE has been significant and will undoubtedly play a role in the future ability of producers to respond to other crisis in the future (Figure 3). However, those who “innovated” have explored new markets or otherwise altered their operations which may increase their ability to adapt to future crisis. As one "innovator" from central-eastern Manitoba stated, “When the value of cattle dropped we responded by direct marketing beef. Our income from beef returned to normal and then increased above pre-BSE levels.”

Binary logistic regression conducted to identify the influence of underlying independent variables indicated that cattle herd size and farm size (Table 2) were most strongly associated with innovating (Factor 1). Producers with medium sized herds and farms were least likely to have been characterized as innovators. Conversely, those with small or large farm and herd sizes were most likely to have innovative responses to BSE.

Respondents were asked to rank eight characteristics that might have better enabled producers to cope with the effects of BSE (Figure 4). Resourcefulness, determination and flexibility were all ranked as most important and arguably characterize producers who are willing to take chances when confronted with adversity.

Direct marketing and the need for alternative markets were both strongly associated with innovators (Factor 1), allowing producers to better cope with BSE (Figure 5). Although farm cash receipts for cattle were substantially lower during the heat of the BSE crisis (Dunn, 2004), wholesale and retail prices for beef remained substantially unchanged. By avoiding a volatile beef commodity market and by reducing the role of intermediaries, producers who find a niche in the local market can hypothetically extract more profitability out of the value-chain.

We are now exploring the role of direct marketing by working with a group of livestock producers meeting as part of the Harvest Moon Society, a rural NGO that promotes the significance of rural adaptation and farming as a whole. We are in the process of establishing a local distribution network in Southern Manitoba (Figure 6). One participating producer, Arvid Datzel, responded to the BSE crisis by reducing the size of his own cattle herd and by developing his own processing facility. He now successfully markets his products to 8 stores and 5 restaurants in his local area and connects directly to consumers by delivering to depots in over 140 nearby rural communities. This case study will be part of a broader research project that explores the potential for local food networks to increase profitability for producers and to reduce risks associated with future rural crises.

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References