



**University
of Victoria**

Graduate Studies

Notice of the Final Oral Examination
for the Degree of Master of Arts

of

XUAN LIU

MA (East China Normal University, 2001)

BA (East China Normal University, 1998)

**“The Impact of Changes in the AgriStability Program on Crop
Activities: A Farm Modeling Approach”**

Department of Economics

Monday April 20, 2015

10:00 A.M.

David Strong Building

Room C124

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Abstract

The objective of this paper is to examine the impacts of changes in Canada's AgriStability program on crop allocation, particularly the change in the payment trigger associated with the shift from Growing Forward (GF) to Growing Forward 2 (GF2). To examine whether this change could affect production decisions, and thereby potentially violate the WTO's 'green box' criteria, farm management models are constructed for representative farms in six different Alberta regions. To incorporate risk and uncertainty into the farm model, I assume that, instead of maximizing overall gross margin, a farmer varies her crop activities to maximize expected utility subject to technological and market constraints. The models are calibrated using positive mathematical programming (PMP), which then facilitates their use for policy analysis; however, PMP is not straightforward in the case of expected utility maximization because a risk parameter also needs to be calibrated. Possible ways to address this issue are examined. Results indicate that the initial introduction of the AgriStability program tilted farmers' planting decisions towards crops with higher returns and greater risk, but that a change in the AgriStability payout trigger (going from GF to GF2) would not further alter land-use decisions. However, the latter shift does reduce indemnities and farmers' expected profits; increases in farmers' aversion to risk will lead to changes in crop allocations, although it is not clear to what extent it impacts trade.

Key words: Agricultural business risk management; AgriStability program; positive mathematical programming and risk aversion