

Introduction

Animal welfare is a major concern for consumers and this concern is not unnoticed by the sector stakeholders, especially egg producers.

One of the fundamental changes likely to affect egg producers is in relation with modes of production introducing **additional risks** that are

- ❑ **Technological:** a move from conventional cages to a free range system may affect the safety/quality of the eggs;
- ❑ **Economic/marketing:** consumers' concerns for animal welfare drive some of these new production modes. A modification of consumers' beliefs can reduce the premium associated with these particular modes of production;
- ❑ **Eggs price variability:** a number of new "types" of eggs production are classified as specialty products. They are not "full" protected from international competition by the high level tariffs.
- ❑ **Cost of production variability:** hens productivity are different between types of eggs as well as the share of inputs used in the production.

Egg producers are involved in more than one type of production.

When resources are limited and level of risk vary according to the types of eggs, investment decision is complex despite perfectly intuitive efficiency conditions (Bobtcheff et al., 2008; Algalith, 2010).

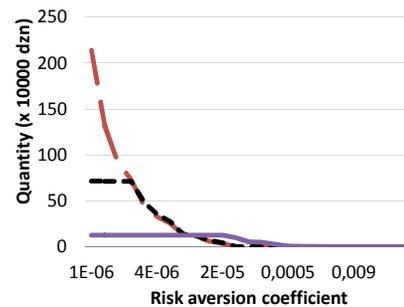


Objectives

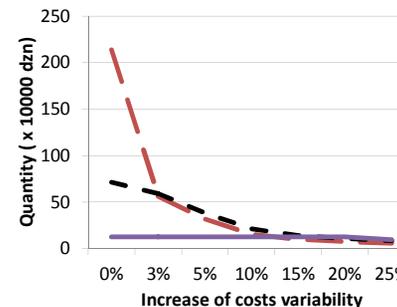
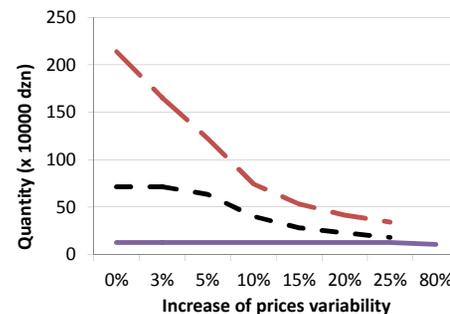
- ❑ To document the level of risk in the Canadian eggs sector (conventional and specialty eggs) using data from 2008 to 2010;
- ❑ Using a quadratic programming approach applied to expected mean-variance models, to analyze the impact of risk on decision to invest when limited resources must be allocated to different type of production with risk that vary according to the types of eggs.

Results

- ❑ Eggs produced under in free range system of production are less sensible to an increase in the perceived risk level.



- ❑ An increase of the variability of prices of eggs and costs of production have an impact, first on the production of conventional eggs following by Omega 3 eggs and finally eggs produced under de free range system.



Results and discussion

- ❑ Given risk aversion parameters, producers achieve minimum risk level by devoting their resources to the least risky type of eggs.
- ❑ Producers' optimal choices under correlated multiples uncertainties (type of eggs prices, costs of production and the correlation between prices and costs of production).
- ❑ Supply management, by reducing the perceived risk level, has favoured the development of specialty eggs, to the benefit of consumers.

The policy implications of this research are important given the structural change in the demand for eggs, coupled with technical and economic issues associated with eggs production.

Références

- Algalith, M.** 2010. Theory of the firm under multiple uncertainties, *Economics Bulletin* 30, 2075-2082.
- Bobtcheff et al.** 2008. Resource allocation when projects have ranges of increasing returns. *Journal of risk and uncertainty* 37, 1-33.
- Peng et al.** 2011. A new optimal portfolio selection strategy based on a quadratic form mean-variance model with transaction costs. *Optimal Control Applications and Methods* 32, 127-138.

