CMD 523

523 – Canadian consumers' assessments of potential risks and benefits of plant molecular farming and potential food industry implications

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Research Summary

This project involves analysis of Canadians' views of risk and benefits that may be associated with the prospective commercial introduction of novel crop plants for purposes of plant molecular farming (PMF); possible implications for the Canadian food industry will also be assessed. PMF anticipates applications of agricultural biotechnology to develop plant-based pharmaceuticals and industrial products (like industrial enzymes, bioplastics and biofuels), as well as potential nutritionally enhanced food products. One focus of the study is statistical analysis of two existing data sets consisting of Canadian respondents' assessments of the nature of different types of possible risks and benefits for four different types of potential PMF activities (specifically, genetic modification of plants to produce: medicines; industrial products; increased nutritional quality of foods; or increased crop production). The association between individual's risk rankings, socio-economic and demographic characteristics and other measures will be analysed using statistical and econometric methods in order to identify socio-economic, demographic and/or attitudinal factors that may be associated with individual's risk perceptions for these agricultural innovations. The second component and focus of this study will involve an assessment of potential strategies to reduce risks of accidental food contamination from no-food PMF and implications of these. This study will support the research of a MSc student in the department of Rural Economy. It will complement and be extended by related work funded by Genome Canada through the Alberta Genome GE3LS project.

Significance of Research

Applications of agricultural biotechnology to develop plant-based pharmaceuticals, industrial products and enhanced food products are expected to be of increasing importance in crop-based agriculture. However, these prospective cropping innovations involve many unknowns and uncertainties relative to risk-benefit situations that may be involved with different types of products and containment scenarios. The regulations for commercial release of "plant molecular farming" plants with novel traits are under consideration but not yet developed. Better knowledge of the attitudes of Canadian citizens and consumers to possible benefits of plant molecular farming and to potential risks that could occur from accidental contamination of food supplies or the environment should shed light on the nature of the risk perceptions and risk-benefit assessments that are perceived by Canadians relative to these issues. Similarly, there is

little knowledge of the actions that may be/are being taken by food industry firms in response to public perceptions of genomic technologies and the possibility of food contamination from non-food products. More knowledge of both features should aid in policy development for such agricultural innovations.