

## Risk and Safety Considerations of Precision Plant Breeding: Expert Opinion

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The advents of targetable nucleases and the amalgamation of a number of scientific disciplines, have enabled the development of a set of approaches and technologies that enable scientists to alter an organism's genome with greater accuracy and celerity. When applied to agriculture, these have resulted in new plant breeding technologies (NBTs) that provide technical and economic advantages over conventional breeding. Akin to the historical debate around genetically modified organisms (GMOs), the discussions about precision breeding are much more socio-political than scientific. This paper shows that such debate is both risk and non-risk motivated. It reports survey results and an analysis of expert's opinions of potential risk issues related to the use of gene edited crops in food and feed production. We also we examine the role that framing plays in decision making about the adoption of biotechnological innovation. A risk preferences test indicated no framing effects among experts regardless of their expertise and region of residence.

**Keywords:** Agriculturalgenome editing; biotechnology; confidence; expert opinion; food security; regulation; risk.

### Biography:

Dr. Stuart Smyth is an Associate Professor in the Department of Agriculture and Resource Economics at the University of Saskatchewan, where he holds the Industry Research Chair in Agri-Food Innovation. His research focuses on sustainability, agriculture, innovation and food. Dr. Smyth publishes a weekly blog on these topics at: [www.SAIFood.ca](http://www.SAIFood.ca). Recent publications include an authored book with William Kerr and Peter Phillips, *Biotechnology Regulation and Trade*, published by Springer (2017) and a co-edited book with Nicholas Kalaitzandonakes, Peter Phillips and Justus Wesseler, *The Coexistence of Genetically Modified, Organic and Conventional Foods*, published by Springer (2016).