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Submission to the Standing Committee on  
Agriculture and Agri-Food on the 2018 Study on  
'Advancements of Technology in the Agriculture  
Industry that can Support Canadian Exports'

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**Preamble:** The University of Guelph (U of G) is submitting expert testimonial and recommendations to the Standing Committee of Agriculture and Agri-Food in the course of their study of technological progress, innovation and research in the agricultural sector to encourage the growth of Canadian exports. Known as Canada's Food University, the U of G is globally recognized for strengths and expertise in agriculture and agri-food. As an educational and research leader, U of G is in a unique position to provide expertise and recommendations to the Standing Committee's for this study. The U of G can help provide a practical roadmap for the committee and the Federal Government in reaching their goal of advancing innovation and technology to grow agricultural exports to \$75 billion annually by 2025.

**Summary of Recommendations for the Study of 'Advancements of Technology in the Agriculture Industry that can Support Canadian Exports':**

- Support an Integrated Approach to Innovation and Research
- Invest in Agri-food Clusters that Assist Innovators and Entrepreneurs
- Prepare and Develop the Talent Needs of the Agricultural Sector's Workforce

**Recommendation 1: Support an Integrated Approach to Innovation and Research**

Looking forward, technological trends, including automation, internet of things, advanced sensing, computing power, data connectivity, and data science including artificial intelligence, will be critical components of Canada's agricultural sector. Advanced agriculture based on real-time information technology will help us better deliver and manage resources to produce food and reduce our environmental footprint. Application of new technologies along the entirety of the value chain is poised to enhance Canada's capacity to realize a leadership position as a global producer of safe, sustainable, nutritious food.

The Canadian agri-food sector is highly distributed, and is not localized to one specific geographic region or to one agricultural commodity or product. To achieve the expansion of agriculture exports to \$75 billion annually, the government and committee need to recognize that expertise, specifically innovation and research in the sector, is distributed across multi-commodities, multi-regions, and throughout the entire value chain.

This finding is consistent with the February 2017 Report by the Advisory Council on Economic Growth, which found that while the agri-food sector in Canada is widely dispersed across rural and urban areas, a lack of investment in innovation and new technologies exists.<sup>1</sup> Proper support for innovation and research requires recognition of the diverse nature of this sector and investments in research and innovation within each distinct sub-sector.

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<sup>1</sup> Advisory Council on Economic Growth, *The Path to Prosperity*. (Ottawa, 2017), p.8.

The Federal government has made excellent inroads in recognizing the distributed nature of the agri-food sector. Specifically, investments in the Canadian Agriculture Partnership (CAP), provide nationwide support, across commodities, across the value chain, across the country. This said, additional attention is needed to ensure that existing and future investments, intended to drive technology and innovation in the agriculture and food sectors, are not narrowly focused on a specific commodity or region, but rather harness the expertise, talent and potential that exists nationwide.

*The U of G recommends that the Federal Government increase support for fostering innovation and research across the agricultural sector, from farm to fork, across the country, with the goal of moving technologies, and the value-added products that arise from those technologies into the marketplace.*

## **Recommendation 2: Invest in Agri-food Clusters that Assist Innovators and Entrepreneurs**

Globally recognized, the U of G is also a regional hub for agriculture and supports Canada's strong agri-food cluster. As referenced by the Advisory Council on Economic Growth, the U of G is at the centre of government agencies, businesses and organizations that are partners and collaborators in agri-food research and innovation.<sup>2</sup> The U of G has a long-standing reputation for making inroads in innovation and research that make their way in the commercial space. Examples include breeding the Yukon Gold Potato, developing the world's first compostable coffee pods and producing a natural formula, hexanal, to prolong the shelf life of fresh produce. U of G works closely with the agri-food industry to help business scale to meet market demand, providing new solutions to old problems and helping to commercialize new products.

As a regional agri-food cluster, U of G's goal is to continue to help industry navigate available supports, partner on R&D and deliver future leading-edge innovation and technologies. Currently, there is a convergence of government, industry, and research located in Guelph and the U of G provides a type of concierge service to businesses looking to access support. To take the next step of effectively increasing the rate of which ideas are researched, supported and commercialized, there is a need for more Federal infrastructure and programming support. This could include directing some funding from Regional Development Agencies, like Fed Dev Ontario, to regional hubs or continuing to invest in successful programs like the Strategic Innovation Fund investment in post-secondary education infrastructure.

Agri-food clusters could then leverage investments from other levels of government to continue to grow and expand. For example, earlier this year, the U of G renewed our agreement with the Ontario Ministry of Agriculture, Food and Rural Affairs, which will provide \$713 million over the next decade to help us manage agri-food research and innovation programs, supporting knowledge mobilization and commercialization. This synergy with the provincial government has allowed U of G to create incubator spaces

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<sup>2</sup> Advisory Council on Economic Growth, *The Path to Prosperity*. (Ottawa, 2017), p.7.

that bring together research and development with commercialization. Examples of this include Gryphons LAAIR and Bio-Enterprise, both which provide phenomenal opportunities for collision and cross-pollination between innovators, fueling business growth, new product development, scaling for market demand, job creation, and export.

*The U of G recommends that the Federal Government should invest in the existing agri-food clusters, like the U of G, to build on their existing strengths and capacity to help business navigate the innovation space.*

### **Recommendation 3: Prepare and Develop the Talent Needs of the Agricultural Sector's Workforce**

As a post-secondary institution focused on educating and training the agricultural leaders of tomorrow, the U of G uniquely understands the current trends and needs of the agriculture and agri-food sector's workforce. To meet these needs, the U of G is looking to the future with the recognition that technology and innovation need to be better integrated into the workforce at every level of the agriculture and agri-food sectors.

Currently, the agriculture and agri-food workforce have a gap, both in the supply of the next generation of talent and in the skills that the current workforce possesses. For example, there are currently four jobs for every U of G, Ontario Agriculture College graduate entering our food and agriculture sector.<sup>3</sup> Engaging youth in agriculture and agri-food is an opportunity to broaden the sector and contribute to increasing the number of graduates in high demand Science, Technology, Engineering and Mathematics (STEM) disciplines. Additionally, by promoting diversity and gender equality and removing systemic barriers, the sector will be able to attract a more diverse labour pool and realize higher economic participation.

In order to attract the talent and workforce needed for the expansion of Canada's agricultural and agri-food sector, focused support for attracting, retaining and training a diverse and skilled agriculture and agri-food workforce is required. Focused support could be established through existing partners and programs like Mitacs and Tri-Agency Graduate Scholarships.

*The U of G recommends that to both meet the current labour demands of the agri-food sector and achieve export growth, the Federal Government should develop programs that focus on attracting a new generation of bright young minds and on promoting diversity and gender equality.*

### **Overview of the University of Guelph:**

The U of G is one of Canada's top comprehensive universities, both research intensive and learner focused. Across our three campuses, we have more than 30,000 students, with ninety-four percent of our graduates finding employment within two years of graduation.

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<sup>3</sup> Ontario Agriculture College, University of Guelph, *Planning for Tomorrow 2.0*. (Guelph, 2017), p.4.

Widely known as Canada's food university, we have a 150-year legacy in agri-food and a reputation for innovation. With expertise in developing the sector's highly skilled workforce and leading discoveries, research and development and commercialization, U of G is the driving force behind Canada and Ontario's agriculture and agri-food cluster. Food research spans the University's seven colleges and seeks to solve the complex challenges facing society, underpinned and leveraged by strong partnerships with government and industry and the desire to improve life.