DEANS COUNCIL
AGRICULTURE, FOOD & VETERINARY MEDICINE

CONSEIL DES DOYENS
AGRICULTURE, ALIMENTATION & MÉDECINE VÉTÉRINAIRE

INVESTMENT PROPOSAL:

THE CANADIAN ONE HEALTH NETWORK AND SUSTAINABLE AGRICULTURE & FOOD SYSTEMS

Written Submission for the Pre-Budget Consultations in Advance of the Upcoming Federal Budget
prepared by the

Deans Council - Agriculture, Food and Veterinary Medicine (Deans Council AFVM)

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Summary of Recommendations

The Deans Council - Agriculture, Food and Veterinary Medicine proposes a 5-year, $450 million investment for the following:

- **Recommendation 1:**

  The government comprehensively address current and emerging public health risks from zoonotic disease and pandemic threats by supporting the establishment of the Canadian One Health Network. The Network will provide a cross-sector platform engaging all stakeholders to coordinate trans-disciplinary research and strengthen capacity to prepare for, prevent, detect, and respond to complex health threats at the intersection of human health, animal health, food and the environment.

- **Recommendation 2:**

  The government invest in a coordinated Federal, Provincial & Territorial investment strategy for Sustainable Agriculture and Food Systems
  a. **to support research and development, innovation, and skills training**
  b. **for co-location sharing of renewed basic or foundational infrastructure between universities, governments, and industry.**

Deans Council AFVM Investment proposal

Overview

The COVID-19 crisis has highlighted key issues critical to Canadians. The Deans Council - Agriculture, Food and Veterinary Medicine (Deans Council AFVM) has identified two intertwined and complementary themes during this pandemic: **The Canadian One Health Network**, and **Sustainable Agriculture and Food Systems**.

Canada must ensure that we can respond quickly and effectively to current and future public health and food security emergencies. Targeted investment in these themes will result in a more nimble and innovative *systems* approach to public health issues, while ensuring the agri-food supply chain can pivot quickly in response to the next pandemic. Investment in research and capacity supporting these themes will substantively aid in protecting the plants and animals upon which our food supply and our health depends, and enhance Canada's preparedness, resilience, and economic recovery.

The Deans Council AFVM represents a network of 13 Faculties at 11 leading Canadian universities. These universities bring together interdisciplinary One Health teams representing the fields of medicine, public health, veterinary medicine, agriculture, food and nutritional sciences, environmental and social sciences. The network has the capacity and expertise to make a substantive contribution to solutions for emerging zoonotic diseases and their environmental triggers, and the food safety and food security problems that directly impinge on the health and standard of living of Canadians. Deans Council AFVM members have sustained partnerships with industry in interdisciplinary teams in areas such as informatics, advanced diagnostic and vaccine technology, animal health and welfare, and advanced manufacturing and robotics as they pertain to health, agriculture, food processing and nutrient innovation.

Deans Council AFVM member universities have longstanding and productive research and training partnerships with the Government of Canada. We continue to work closely with various ministries (AAFC, Health Canada, ISED) and related agencies (CFIA, PHAC, CIHR) to promote collaboration in research, innovation, training, and career preparedness. The Network will complement the Canadian government's Regulatory and Security Sciences cluster, contributing to its work in animal health, zoonosis, food safety, emergency preparedness, border security, international trade, and regulatory cohesion by, for example:

- Further developing advanced diagnostic platforms for improved detection capabilities
- Bolstering collaboration for disease surveillance testing
- Improving food safety risk management across the food chain
- Innovating animal feeding strategies that minimize impacts on human health
- Strengthening innovation capabilities in food and nutritional sciences
- Developing and promoting sustainability practices, innovations, and technologies

In order that Canada's response to present and tomorrow's challenges to its food and health systems be second to none, Canada must make strategic investments in our national academic teaching and research capacity. Our discussions during recent months have identified Canada's critical needs for food security/ sustainability/ sovereignty, and safety brought about by the COVID-19 crisis. Our member Faculties have completed collaborative discussions identifying an immediate investment of $200 million within 18 to 24-months, and longer-term (3-5 years) strategic investments totalling an additional $250 million in transformative infrastructure and networks.

1. The Canadian One Health Network

Understanding and Controlling Emerging Risks to Human Health and Food Safety

The COVID-19 crisis has identified various issues critical to the socio-economic welfare of Canadians. To respond to the current challenges and protect the health of Canadians and our food security, we propose creation of the *Canadian One Health Network (COHN)*. The COHN as an interdisciplinary network will create and integrate knowledge in infectious disease, epidemiology, food safety, emergency preparedness and pandemic response. Importantly, COHN integrates with the Government of Canada long-term science agenda to enhance food security, human, animal and environmental health, emergency preparedness and trade, while supporting the training and career preparedness of the next generation of scientists and policy makers.

The vulnerability of Canada to infectious diseases, demonstrated earlier through BSE, SARS and H1N1 episodes, was again demonstrated by the zoonotic SARS-CoV-2 pandemic. While the earlier epidemics caused billions of dollars in losses, COVID-19 shows how a pandemic will bring our social and economic life to a crisis point. COVID-19 will not be the last zoonotic pandemic to threaten the health of Canadians and our economy. These diseases, which originate in animals and threaten the health of humans as well as our food production systems, underscore the connections between animal and human health. COHN will use a systems approach to study and exploit the inextricable links between human, animal and environmental health to create strategies and technologies that will protect Canadians and our food production system from the threat of infectious diseases, especially zoonotic diseases. The investment proposed will leverage existing strengths to create a much-needed coast-to-coast integrated research and training network. COHN will form a vital link in Canada's risk management strategy. During the recent fiscal update, $325 million in funding was documented for Protecting Health and Safety, Direct Support Measures and Tax Liquidity Support (https://www.canada.ca/en/department-finance/economic-response-plan/fiscal-summary.html). COHN will help mitigate some of these costs for future pandemics.

To undertake a complementary and synergistic approach against COVID-19 pandemic, COHN will exploit and expand existing interdisciplinary capacity in three key areas:

- Response – COHN will provide immediate emergency preparedness for pandemics and other health emergencies, including surge human resource and testing capacity
- Research and Innovation – COHN will develop and enhance rapid biomedical, technological and epidemiological research, including research in infectious diseases, antimicrobial resistance/AMR, microbiome research, vaccine/anti-viral development in Biosafety Level 2 and 3 laboratories, and technological advances in disease detection and management
- Training – COHN will support interdisciplinary frontline veterinarians and public health professionals, as well as other scientists in the skills required to identify and respond to emerging disease issues, particularly zoonotic diseases.

COVID-19 has shown the impact of a human disease on Canadian animal and plant food production systems as well as local and global food security. The animal health focus of COHN seamlessly integrates it with the sister Sustainable Agriculture and Food Systems proposal through such areas as zoonosis and food safety involving foodborne pathogens, many of which are animal related, illustrating the high degree of interconnectivity between veterinary science and agriculture and food.

2. Sustainable Agriculture and Food Systems

Innovation in food supply chains can ensure domestic food security and the sustainability, resilience and accelerated growth of Canada's agriculture and food sectors

The COVID-19 pandemic has clearly highlighted the primary importance of the agriculture and food sector, its sustainability, resilience, and growth, to all Canadians. The Canadian government recognized this by deeming workers across the food supply chain as an essential service. More importantly, in early May, the federal government announced $252 million in funding to farmers, food processors and food businesses to get through this pandemic. Recently (June 9 2020) Agriculture Minister Marie-Claude Bibeau announced more funding in support of food security. The total amount to the sector is currently $453 million with an additional $63 million for fish and seafood processors (https://www.canada.ca/en/department-finance/economic-response-plan/fiscal-summary.html). COVID-19 has highlighted the importance of food processing especially food preservation technologies to help address food security/sustainability. The pandemic crisis signals our responsibility and opportunity to use modern innovation, practices and technologies to renovate our agriculture and food systems, literally, from the ground up, making them more resilient, sustainable and competitive.

In reimagining our agriculture and food system, the innovation tools are remarkably like the technology-focused terms of the pre-COVID-19 food system. Examples include:

- Blockchain permitting agricultural commodities and food ingredients to be actively traced throughout the supply chain, enhancing food safety by allowing rapid recalls to protect Canadians and international customers, and protecting consumers from food fraud.
- Accelerated invention, development and use of sensors, robotics and automation as recommended by an industry consortium, partnered with ISED and AAFC to automate and make more resilient and competitive, Canada's $105 B food processing sector.
- Facilitate small-scale food processing operations to be more intrinsically flexible, to respond with agility to a variety of seasonal food processing and preservation demands better serving local food systems and a broader scale of farmers.

Finance Minister Bill Morneau noted that Canada's agricultural sector is interconnected. The Deans Council AFVM is a national integrated research and advanced education network that works collectively across the interconnected agriculture and food systems in Canada, with government and with industry, committed to advancing the sustainability of this sector. As we enter the post-COVID-19 world, our call to action is to recognize the intimate links between soil, plant, animal and human health, and re-imagine food supply chains from a one-health perspective so that they readily absorb the effects of the next big challenge.

Summary

These two themes, The Canadian One Health Network and Sustainable Agriculture and Food Systems, identify the key proposals for investments to prepare for, prevent, detect, and respond to complex health threats and that will yield strong economic growth in a sustainable economic sector, shield the economy from future pandemic impacts, develop skills in areas of greatest opportunity for Canada's youth, and advance globally-leading innovation.

The Deans Council AFVM are uniquely positioned across Canada to bring together a core of excellence to support sustainable economic recovery, to establish an interdisciplinary network connecting new technologies such as AI and automation, to support a renewed strategy in agriculture and food sovereignty, and to integrate the One Health approach connecting human health – animal health – food – and the environment together.

We recommend that the government increases coordination between the Departments and Agencies responsible for food sovereignty, food safety, public health and disease transmission, and food innovation. We have an exceptional opportunity to harness Canada's natural resources to further develop a sustainable and strong agriculture and food sector. In so doing, we can create jobs, support our rural communities, assure Canadians of their food supply, and help feed a growing world.

The Deans Council AFVM recommends the government enable Canada's innovative food ecosystem to build towards the multiple goals of public health, food security, economic growth, and competitiveness, especially in the context of COVID-19. Our agriculture and veterinary faculties need a healthy infusion of investment dollars to:

- drive the commercialization of new technologies created in academic/ research settings
- improve skills development to provide outstanding careers for our youth
- find solutions to the challenges our primary agricultural production sector currently faces and to better support rural communities, addressing an increasing shortfall in critical infrastructure including rural veterinarian services and broadband.

* Deans Council – Agriculture, Food & Veterinary Medicine includes 11 university partners:

- University of British Columbia
- University of Alberta
- University of Calgary
- University of Saskatchewan
- University of Manitoba
- University of Guelph
- McGill University
- Université de Montréal
- Université Laval
- University of Prince Edward Island
- Dalhousie University

* Association of Canadian Faculties of Agriculture & Veterinary Medicine