2021 Research and Innovation Priorities for Field Vegetables*

Priority Areas	Strategic Outcomes	Investment Priority for Research
Optimize Production Practices	• A reduced need on farm inputs (i.e. fertilizers) • Labour issues/shortages • Support access to labour and encourages the development of labour application efficiencies	• Conduct research in the automation of production as a means to reduce labour costs; • Conduct research in order to reduce farm inputs (for instance fertilizer) without impacting yields; • Develop best practices to mitigate climate change effects and extreme weather events. • Irrigation technology and water management
Improve Pest and Disease Management Practices	• The sector employs effective integrated pest management methods widely; • Growers have access to knowledge regarding the emergence and prevalence of pests; • Growers have effective and cost-effective methods for detecting and monitoring pests; • Growers have thresholds for action for the control and management of pests as they relate to various crop development stages.	• Exploring alternatives to address *loss of product registrations and usage patterns* (e.g. chlorpyrifos) • Develop, understand and disseminate effective and safe integrated pest management methods that conciliate crop protection, economic profitability, environmental protection, public health, quality and safety of vegetables. • Improve and disseminate knowledge about new and existing pests • continued support for responsive minor use registration system • Develop and transfer tools and methods for detecting and monitoring crop pests • Determining genetic basis of disease resistance in breeding program germplasm, and understand the relationship of resistance/susceptibility between growth stages (i.e. spear and fern in asparagus); • Develop or modify action thresholds for pests as relating to crop development stage (i.e. number of scouted cabbage maggots per broccoli plant); • Develop and/or adapt predictive models for insects/disease • Priority pests including:, Pepper weevil, Aster Leafhopper, Carrot rust fly (fall), Carrot weevil (spring), Leafhoppers, Wireworms, Aphids, Cabbage maggot, Flea beetles, Onion maggot, Onion thrips, Leek moth, Tarnished plant bug, Seed corn maggot, Colorado potato beetle, Cucumber beetles, Asparagus beetle, Serpentine leafminers, Red headed flea beetle, Swede midge, Squash vine borer, Squash bug, Bean seed Maggot, nematode, and the 3 Lepidopterous larvae (Diamond Back, Imported, and Looper), sclerotinia white mold, carrot forking, neck rot in onion.
Optimize Post-Harvest and Storage Practices	• Growers use optimized storage methods and technologies that minimize losses and maximize produce quality; • Growers employ strategies and approaches that minimizes water usage. • Improve and maximize shelf life/time in storage of Canadian produce	• Conduct research in storage techniques to minimize losses and improve efficiency; • Research conditions required to improve storability of produce; • Research on wash water use on vegetable farms.
Plant Breeding, Variety Development and Evaluation	• Ongoing variety research is carried out that improves post-harvest shelf life and quality, adapt to new climatic conditions and increase resistance to bacteria and diseases, and quality & yield	• Conduct work on genetic breeding and selection to improve post-harvest shelf life and quality, to adapt to new climatic conditions & extreme weather events, to increase resistance to diseases (including physiological disorders) and to develop early and late varieties;

	• Growers benefit from national coordination of variety evaluation.	• Conduct variety evaluation on vegetable crops; • Develop high yielding, high quality, disease and replant resistant vegetable cultivars; identify the physiological basis of longevity in vegetables and assess genetic architecture for the trait; and conduct field testing of potential new vegetable varieties.
Marketing and Consumer Education	• Research on the Health Benefits of Vegetables • Encourage higher consumption of Canadian grown vegetables	• Consumer research and education working with ethnic populations to encourage consumption and change consumer perceptions of Canadian grown vegetables
Food Safety	• quantify products (new or emerging) that will need to be included in the Food Safety scheme (CanadaGAP) in the future	• CHC is currently pursuing funding through AAFC's AgriAssurance program; Complimentary research may be required

*including but not limited to, in no particular order