

Ontario Agri-Food Innovation Alliance
Research Funding Program

KTT EXAMPLE PLANS

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Forward

Knowledge Translation and Transfer (KTT) is defined under the Ontario Agri-Food Innovation Alliance as the transformation of knowledge into use through synthesis, exchange, dissemination, dialogue, collaboration and brokering among researcher and research users. The goal of KTT is to accelerate the transformation of knowledge from research into use, getting science 'off the shelf'.

A KTT plan is important to the Ontario Agri-Food Innovation Alliance Research Funding Program for the following reasons:

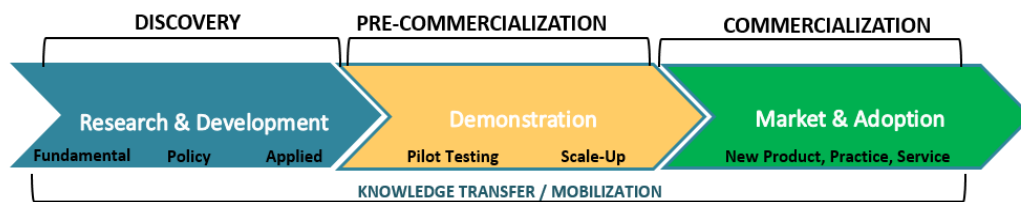
- KTT is used as a technique to accelerate research into use for the benefit of Ontario's agriculture, food and rural communities
- KTT contributes to the health, sustainability and competitiveness of Ontario's agri-food sectors and rural communities
- KTT is a tool to broaden the impact of research and it is used as a method to bridge the gaps between research and programs, policy and commercialization

In order to provide researchers with support in preparing a KTT plan, we've built six different examples of innovative KTT plans. The examples also outline user audiences and benefits to each user audience. The structure and identified fields of each plan is specific to the format outlined by the Ontario Agri-Food Innovation Alliance Funding Programs.

The contents of these plans were developed using the best practices outlined in the *Growing Knowledge Translation and Transfer in Ontario: Manual of Best Practices*. They highlight five areas of focus along the research and innovation continuum:

- **Discovery research:** To build the broader body of knowledge. Scientific research aimed to improve scientific theories for improved understanding and/or advances the body of basic knowledge in a given area of study. Fundamental research generates new ideas, principles, and theories, which may not be immediately utilized but nonetheless form the basis of progress and development in different fields.
- **Public policy research:** To inform evidence-based decision-making and program development. Public Policy Research is applying social scientific findings to the solution of problems to facilitate the sustainable development and long-term success of the agri-food sector and rural communities while ensuring that the public interest is served.

- **Applied research:** Applied research is designed to solve practical problems. It typically addresses the needs of future users of the research results and could be used to develop new technologies, products, processes, or systems. Applied research tends to look at the interaction of systems within the real world environment. It follows scientific practices (e.g. replication) and the results are scientifically defensible.
- **Pilot testing:** Pilot testing refers to new technologies, products, processes and systems which move from being evaluated under research conditions to being evaluated by experiments under on-farm or in-plant conditions. Includes demonstration trials.
- **Scale up:** Scale up refers to the migration of a product or process from the lab-scale or field testing scale to the pilot plant-scale or commercial scale.



Disclaimer Statement:

All mock mini research proposals were created for training purposes only and are not classified as real research proposals. For the examples below please assume a 2020 start date. Each one was generated to provide a background scenario, offering context to the respective KTT plan examples. They reflect the type of research that has previously been funded under the Ontario Agri-Food Innovation Alliance, however they are simulated scenarios. The details of each mini proposal are fictitious.

The organizations, names, events, etc. used within the user audience table and the example plans were made as fictitious as possible, while still trying to reflect the level of detail expected in these plans. No organizations, events, products or individuals have any association with these mock research proposals or example plans. The mock research proposals and example plans were drafted based on the research priorities outlined by the Ontario Ministry of Agriculture, Food and Rural Affairs therefore, any resemblance to current and/or past funded projects is purely coincidental and reflective of the fact that all research is occurring under set priorities.

Example KTT Plan #1

Discovery Research

Water erosion is a problem associated with bare soils after harvest, specifically those with a smooth surface and no vegetative cover. Bare soils are prone to detachment and transport of soil particles by water during the freeze-thaw cycle. Freeze-thaw cycles in late winter and early spring can lead to large volumes of water accumulating on the soil surface and subsequent spring runoff of crop nutrients into adjacent streams. This can result in soil nutrient accumulation in Ontario watersheds. Winter cover crops have previously been found to fix nitrogen from the atmosphere to the soil. However, it is unclear if winter cover crops can reduce soil nutrient loss during the freeze-thaw cycle. Runoff will be analyzed for total and dissolved nitrogen and phosphorus. Nutrients in the subsequent cash crop will also be measured. The knowledge gained from this research will help to better understand the impact of winter cover crops on nutrient loss through surface runoff during freeze-thaw cycles.

KNOWLEDGE TRANSLATION AND TRANSFER

KTT USER AUDIENCES

Who will you engage using your knowledge translation and transfer (KTT) Plan? The audiences you list here must be reached/engaged using the activities listed in your KTT Plan.

User Audiences	Audience Category <i>(Dropdown menu)</i>	Value to User Audience
Producer associations (Provincial Crops and Soil Association, Grain Growers)	Farmers, associations, NGOs	Knowledge will be shared with the Provincial Crops and Soil Association to inform them of how cover crops impact nutrient loss, soil health and environmental implications of agriculture. They will benefit from an improved understanding of the role cover crops may play in reducing nutrient loss during freeze-thaw cycles. This information will help producer associations to generate future practice change among producers towards the adoption of sustainable agricultural practices.
Certified crop advisors and agricultural consultants	Professional services	This audience will be informed about the capacity of cover crops to reduce nutrient loss due to runoff. This audience will benefit from an improved understanding about cover crops use, which will help inform advice about when and where cover crops may mitigate nutrient runoff and improve soil health. Advisors and consultants will obtain knowledge to enable them to inform farmers / producers on how to improve agricultural practices so they can change practices in the future.

OMAFRA crop and soil extension specialists	Government (policy and program development and delivery)	This audience will be informed about the capacity of cover crops to reduce nutrient loss due to runoff. This audience will benefit from an improved understanding about cover crops use, which will help inform advice about when and where cover crops may mitigate nutrient runoff and improve soil health. OMAFRA extension specialists will obtain knowledge to enable them to inform farmers / producers on how to improve agricultural practices so they can change practices in the future.
Ontario farmers / producers	Farmers, associations, NGOs	Awareness will be generated among Ontario farmers / producers of the impacts of cover crops in mitigating nutrient run-off, improving soil health and improving cash crop productivity. Ontario farmers / producers will benefit from an improved understanding of the impact of winter cover crops on nutrient loss within their fields through surface runoff during freeze-thaw cycles. The knowledge generated through this project may influence grower behavior in adopting agriculturally sustainable practice; however, behaviour change is beyond the scope of this project.
Soil, crop, agronomy and environmental sciences researchers	Other researchers	This audience will be informed with new knowledge of interest regarding the use of cover crops for soil health, crop growth and environmental impacts. Researchers will benefit from the knowledge generated from this research as it may guide and/or inform future research in the area of cover crops and nutrient loss through runoff.
*NOTE: Government policy makers and conservation authorities would also be good audiences to include.		

KTT PLAN

The KTT Plan lists all the activities that will be completed during the project to engage the User Audiences identified above.

User Audiences	KTT Activity (Dropdown menu)	Activity Details	Suitability of KTT Methods	Anticipated Number of Activities	Projected Timeline – Start	Projected Timeline – End	Estimated Cost (\$ Value)
Producer associations (Provincial Crops and Soil Association)	Networks	The research group will attend the Provincial Crops and Soil Association's Annual General Meeting in year 2022 and 2023 (typically held in the summer). This is an invite-only event that brings together an existing curated network of individuals. Team member Jane Doe from Provincial Crops and Soil Association has invited the research team to attend this event in year 2 and 3 of the research project and present our findings. The PI and	Network X has been expanding over the past 2 years. This network will allow us to engage and disseminate information in confidence knowing that it will be reaching the targeted group	2	06/01/2022	06/01/2023	<i>Costs to keep in mind:</i> <i>-travel fees</i> <i>-conference registration fees</i>

		graduate students will attend the event, with the PI being responsible for the oral presentation at the event.					
Certified crop advisors and agricultural consultants; OMAFRA crop and soil extension specialists	Consultations with stakeholder groups or government agencies	Two 'Lunch and Learn' sessions will be held to provide information on our experimental approach and preliminary results and to disseminate our findings. We have been in contact with OMAFRA extension specialists, certified crop advisors and agricultural consultants regarding our research and they have expressed an interest (see letters of support). These individuals will help us connect to other agricultural advisors interested in attending these sessions. One session will be held during each year of the study. At the final session in year 3, the results will be disseminated with the help of a plain language summary (see below). Feedback regarding the effectiveness of the 'Lunch and Learn' format to reach this audience will be completed following the final session via a Qualtrics follow-up survey.	We have successfully used Lunch and learns in the past as an effective approach to connect with these stakeholders. Past post event evaluations have confirmed this as an effective KTT approach.	3	01/01/2021	01/01/2024	<i>Costs to keep in mind:</i> -cost of supplies -room booking fees -catering fees
OMAFRA crop and soil extension specialists; Certified crop advisors and agricultural consultants	Other publications	A plain language research summary will be generated by students working at the Office of Research Communications on campus. The plain language summary will be provided at the final 'Lunch and Learn' event with agricultural advisors. The summary will then be archived on the online institutional repository for accessible viewing by others interested in the results.	Reading a summary version will help the audience to know if they need to read the complete report; that it contains relevant information	1	01/01/2023	01/01/2024	<i>Costs to keep in mind:</i> -cost of plain language summary creation
Ontario farmers / producers	Non-academic workshops and seminars (including webinars)	Research results will be integrated into the one-day free Environmental Farming Practices workshop offered to farmers through the Provincial Crops and Soil Association. The research team will work together with the Provincial Crops and Soil Association to add in the research findings to the workshop as an educational piece. The workshops' purpose is to provide	Farmers often attend targeted and established workshops and seminars during the winter to get information to address problems. It will be effective to share project	1	10/01/2022	09/01/2024	<i>Costs to keep in mind:</i> -cost of materials required to incorporate findings into workshop

		farmers with a free educational event to learn more about on-farm environmental practices and recent research advances. After the first implementation of the research findings into the workshop in Summer 2024, the content will be evaluated through the existing workshop evaluation methods.	information at these events.				
Ontario farmers / producers	Field days and demonstrations (including trade shows)	Ontario farmers / producers will be invited to see the research first-hand at the Ridgetown, Elora and Winchester trial locations. Field days will be held in October each year. Ontario farmers / producers will be able to see the impacts of winter cover crops on soil health and cash crop health. Team member Jane Doe from the Provincial Crops and Soil Association will play a large role in advertising these field days to growers. An in person survey will be presented to the farmers following the field day event to evaluate attendance and satisfaction with the event.	These events have been in place for years and are known as key places where farmers come to gather new information	3	08/01/2021	10/30/2023	<i>Costs to keep in mind: -staffing fees - -advertising costs -catering fees -cost of supplies</i>
Ontario farmers / producers	Social media	Communication channels within OMAFRA will be used to generate research awareness and communicate research results to Ontario farmers / producers. Tweets will be posted through the OMAFRA twitter (14k followers) and the Agri-Food and Rural Link twitter (3.5k followers). The Field Crop News forum will also be used to generate project awareness and share research results.	An easy way to reach both a broad and specific audience with key research messages/ updates	3	01/01/2021	04/30/2024	<i>Costs to keep in mind: -none</i>
Soil, crop, agronomy and environmental sciences researchers	Presentations at scientific conferences	Abstracts will be submitted to the Annual Soil Health and Water Sciences Conference (Spring 2022 and 2023) and the Annual Cover Crops Conference (Spring 2023). Findings will be presented by the graduate students in poster format. The PI and graduate students will attend the conference.	As per academic requirements	3	02/01/2022	05/30/2023	<i>Costs to keep in mind: -poster printing fees -conference registration fees -travel fees</i>

Soil, crop, agronomy and environmental sciences researchers	Academic and technical publications	Manuscript submissions will be made to peer-reviewed journals, such as the Journal of Soil Health. Two papers are anticipated, and the articles will be published shortly after the duration of the current project due to manuscript publication timelines.	As per academic requirements	2	01/01/2021	04/30/2024	<i>Costs to keep in mind: -open access publication fees</i>
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Example KTT Plan #2

Public Policy Research

It is estimated that Canadian food waste is valued at more than \$31 billion per year. Consumers contribute to approximately 47% of total food waste in Canada, while the remaining 53% is wasted across the value chain from farm to consumer. This research will identify barriers that exist, such as infrastructure gaps and social attitudes surrounding edible food recovery, to increase the amount of surplus, edible food that is recovered in Ontario. We will explore and identify current food waste systems and food distribution systems in place in other provinces. This research will enhance understanding of misconceptions about perishability and stigma associated with recovered food, improve public policy surrounding food waste recovery, and guide future decision-making in infrastructure and systems development to reduce food waste in Ontario.

KNOWLEDGE TRANSLATION AND TRANSFER

KTT USER AUDIENCES

Who will you engage using your knowledge translation and transfer (KTT) Plan? The audiences you list here must be reached/engaged using the activities listed in your KTT Plan.

User Audiences	Audience Category (Dropdown menu)	Value to User Audience
Policy Analysts / Advisors at OMAFRA (Senior Policy Advisor Organics, John Brown; Senior Policy Advisor Food Waste, Jane Smith; Senior Policy Advisor Food and Beverage Industry, John Doe)	Government (policy and program development and delivery)	The research results will address specific policy priorities that are the responsibility of OMAFRA under the Reduce Waste Initiative Act. The Act ensures that farmers bear responsibility for food waste at the production level. This audience will be informed of food waste systems and food distribution systems in place in other provinces and of current infrastructure barriers that exist in Ontario. This audience will benefit from an improved understanding of the misconceptions about perishability and the stigma associated with recovered food and infrastructure barriers, enabling them to respond to policy priorities under the Act.
Policy Analysts / Advisors at Ministry of the Environment, Conservation and Parks (MOECP)	Government (policy and program development and delivery)	The Ministry of the Environment, Conservation and Parks is leading the Reduce Waste Initiative Act. Knowledge will be imparted to inform this audience of existing barriers, infrastructure gaps and social attitudes surrounding food waste recovery in Ontario, and the food waste distribution systems in place in other provinces. This audience will benefit from an improved understanding to generate informed policy action and regulations surrounding food waste in Ontario.
NGOs involved in food waste reduction: National	Farmers, associations, NGOs	The knowledge obtained from this research will be imparted to NGOs involved in food waste reduction. This audience will benefit from up-to-date research findings and this knowledge will

Food Waste Committee; Zero Food Wasted Ontario; Ontario Food Waste Policy Council		help them work towards a shared goal of reducing food waste in Ontario. These NGOs are working to create a circular economy among governments, businesses and NGOs. Therefore, sharing research with all three parties ensures everyone is receiving the same information to come together and work towards change.
Food and beverage industry and waste management industry representatives	Processors, manufacturing, companies	This audience will benefit from an improved understanding of the social attitudes surrounding edible food recovery, and the food waste and distribution systems in place in other provinces. Knowledge will be shared about the clear link between food waste and financial performance to incite behaviour change and encourage the food and beverage industry to place food waste as a high priority.
The Agri-Food Coalition (association representing Canadian food and beverage processors and manufacturers)	Farmers, associations, NGOs	This audience will benefit from an improved understanding of the social attitudes surrounding edible food recovery, and the food waste and distribution systems in place in other provinces. The Agri-Food Coalition will obtain the knowledge to inform food processors and manufacturers to improve food waste practices with the intended outcome of generating behaviour change.
Municipal government representatives, Waste Management Division	Government (policy and program development and delivery)	Residential waste management is mandated by the provincial government; however, it is carried out by local municipalities. Each municipality develops its own waste management program; therefore, local municipal governments will benefit from knowledge of barriers, infrastructure gaps and social attitudes, as well as food waste and distribution systems in other provinces. The knowledge imparted on municipal government representatives is intended to generate policy action and practice change.
Food and waste systems researchers	Other researchers	This audience will be informed with new knowledge of interest regarding food and waste systems. Researchers will benefit from the knowledge generated from this research as it may guide and/or inform future research in the area of food waste.
Broader public with an interest in food waste	Public or consumer groups	Research results will be shared with the broader public with an interest in food waste to generate awareness. This audience will benefit from an improved awareness of research regarding food waste in Ontario. While this consumer segment has no direct involvement in the research, they will be informed of the research results to promote a broader discussion regarding food waste and social attitudes to food waste recovery in Ontario.

KTT PLAN

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User Audiences	KTT Activity (Dropdown menu)	Activity Details	Suitability of KTT Methods	Anticipated Number of Activities	Projected Timeline – Start	Projected Timeline – End	Estimated Cost (\$ Value)
Policy Analysts / Advisors at OMAFRA (Senior Policy Advisor Organics, John Brown; Senior Policy Advisor Food Waste, Jane Smith; Senior Policy Advisor Food and Beverage Industry, John Doe)	Committees including research, advisory and expert groups	An advisory committee has been formed of key OMAFRA staff. Meetings will be held to allow these key OMAFRA staff to provide input into the development of policy briefs to respond to policy priorities under the Reduce Waste Initiative Act coming from the Ministry of Environment, Conservation and Parks. They will also inform the development of policy briefs for local municipal government representatives. This has a dual benefit in also ensuring that OMAFRA policy staff are intimately familiar with the final products and remain up-to-date on all project findings. They will provide input throughout at bi-annual meetings.	Advisory meetings provide targeted opportunities to engage with key audiences and provide updates at regular intervals during the project. This will ensure early and ongoing updates on research findings.	6	05/01/2020	04/30/2023	<i>Costs to keep in mind: -hospitality fees for food and/or beverages throughout meetings</i>
Policy Analysts / Advisors at Ministry of the Environment, Conservation and Parks (MOECP)	Other publications	Policy brief(s) (1-2) will be created under the advisement of key OMAFRA staff. These policy brief(s) will outline policy, regulation or program recommendations to MOECP based on the research findings. These will be disseminated to MOECP through team member Jane Smith and advisory committee member (Senior Policy Advisor Food Waste). She will act as a liaison with MOECP.	Policy briefs enable policy staff to have project summaries for input into policy development	2	05/01/2021	04/30/2023	<i>Costs to keep in mind: -none</i>
Municipal government representatives,	Other publications	Policy brief(s) (1-3) will be created under the advisement of key OMAFRA staff. These policy brief(s) will outline program recommendations to local	Policy briefs provide user audiences with concise overview of research for	3	05/01/2020	04/30/2023	<i>Costs to keep in mind: -none</i>

Waste Management Division		municipal government representatives. The PI will contact the Municipal Waste Management Division for each local municipality. This will be done at the beginning of the project to get in touch with the right people and provide an overview of the project and its goals. Policy briefs will be sent to individuals the PI is able to get in touch with.	input into policy development				
Policy advisors / analysts at OMAFRA and MOECP; municipal government representatives; NGOs; The Agri-Food Coalition; Food and Beverage Industry and waste management industry representatives; Food and waste systems researchers; General public with an interest in food waste	Other Publications	A set of clear language case studies (3-5) will be created by the research team. These case studies will highlight effective food waste and distribution systems in place in other provinces at both the residential and industry level. The number of case studies generated will be dependent on the findings of the study, however a set of 3-5 are expected. These case studies will largely be the responsibility of the graduate students on the study, under the PI's advisement. These case studies will be housed under the resource tab on the Agri-Food Coalition website (association representing Canadian food and beverage processors and manufacturers), will be highlighted and analyzed at the workshop (see below) and will be sent out through the Ontario Food Waste Community of Practice email.	The case studies will enable policy and industry representatives to have research results presented in applied format.	5	10/01/2021	04/30/2023	<i>Costs to keep in mind: -printing fees -design fees</i>
Policy advisors / analysts at OMAFRA and MOECP; Municipal government representatives; NGOs; The Agri-Food Coalition; Food and Beverage Industry and waste	Non-academic workshops and seminars (including webinars)	We will apply to the KTT Mobilization Funding Program. If successful, we will host (in partnership with the Zero Food Wasted Ontario NGO) a 1-day roundtable symposium to discuss the study findings and the case studies. It will provide the means for policy people, NGOs, industry and researchers to come together and discuss food waste. The morning will	This symposium brings together the key players who are involved in making change. This KTT activity will enable the research results directly with the	1	04/30/2022	04/30/2023	<i>Costs to keep in mind: -catering costs -venue booking fees -rental equipment costs -printing fees</i>

management industry representatives; Food and waste systems researchers		showcase the study results and the problems surrounding food waste. The afternoon portion will involve roundtable discussions of the case studies. The research team and Zero Food Wasted Ontario will run the symposium. The morning half will be filmed in webinar style and will be posted to the Zero Food Wasted Ontario website for viewing at any time. To determine the turnout, efficacy of the roundtable discussion and satisfaction with the event overall, a Qualtrics survey will be sent to all attendees directly following the symposium.	people who can influence policy and programs for an improvement of food waste system.				<i>-cost of supplies</i>
Food and waste systems researchers	Academic and technical publications	A manuscript will be submitted to a peer-reviewed journal. It is anticipated that this paper will be published shortly after the duration of the current project due to manuscript publication timelines.	As per academic requirements	1	05/01/2020	08/01/2023	<i>Costs to keep in mind: -open access publication fees</i>
Broader public with an interest in food waste	Podcast	A podcast episode will be used to raise project awareness and disseminate research findings to the broader public with an interest in food waste. The PI has contacted the No Food Wasted podcast to star in a few episodes. Dates have been set to record the podcasts, one at the beginning of the project on June 11 th , 2020 and one at the end of the project on April 1 st , 2023.	Convenient and targeted tool to share information that is accessible when people choose to access it.	2	06/11/2020	04/01/2023	<i>Costs to keep in mind: -travel fees</i>
Broader public with an interest in food waste; NGOs; Policy advisors / analysts at OMAFRA and MOECP; Food and waste systems researchers	Social media	Twitter will be used to promote the workshop and share the podcast, as well as other publications (such as the case studies). Tweets will be posted through the PI's twitter handle (1k followers).	A quick, concise way to reach both a broad and key audience with key research messages/ updates.	1	02/01/2020	04/30/2023	<i>Costs to keep in mind: -none</i>

Example KTT Plan #3

Applied Research

A common challenge for dairy goat producers is ensuring consistent feed utilization during the transition from kidding to lactation in dairy goats. Nutrition and health disorders in early lactation due to inconsistent feed intake can affect peak milk. A novel alternative feed with additional nutrients will be trialed in dairy goats during this transition period to determine if: 1) feed utilization is improved, 2) health disorders are reduced, and 3) peak milk yields and milk composition are improved. The proposed research will investigate an alternative feed and its ability to reduce the risk of disease during the first two weeks of lactation and increase peak milk yield and composition in dairy goats. Recommendations will be made to Ontario dairy goat producers and animal nutritionists.

KNOWLEDGE TRANSLATION AND TRANSFER

KTT USER AUDIENCES

Who will you engage using your knowledge translation and transfer (KTT) Plan? The audiences you list here must be reached/engaged using the activities listed in your KTT Plan.

User Audiences	Audience Category (Dropdown menu)	Value to User Audience
Dairy goat producers, producer associations, and industry representatives: Dairy Goat Producers of Ontario, Dairy Goat Producers of Canada, Livestock Research Corp.	Farmers, associations, NGOs	Knowledge will be imparted to dairy goat producers involved in the study, dairy goat producer associations, producers across the province and country wide, and to industry representatives. This audience will benefit from an improved understanding of how novel feed alternatives may alter feed utilization during the transition period and improve production efficiency through reduced health disorders and higher peak milk yields and improved milk composition. Dairy goat producers will receive recommendations on feed utilization and suggestions on how to implement nutritional management practices, with the intended outcome of practice change.
Dairy goat nutritionists	Professional services	This audience will be informed of the efficacy of feed nutrient additives on improved feed utilization, peak milk yield, milk composition, and health status. Dairy goat nutritionists will benefit from an increased understanding of feed nutrient additives and this knowledge will help them to better inform and make recommendations to dairy goat producers on best practices for nutritional management.
OMAFRA dairy specialists: Dairy Specialist (Jane Doe), Dairy Goat Specialist	Government (policy and program development and delivery)	Knowledge will be shared with this audience to keep them up-to-date on research advances and help them to make recommendations to dairy goat producers. This audience will benefit from an improved understanding of feed nutrient additives to inform recommendations on transition goat feeding management, production factors and profitability for dairy goats, dairy goat health, best

(John Smith), Feed Ingredients and By-Products Specialist (Jane Brown)		management practices for feed ingredients and introducing new feed ingredients to the animal feed market.
Feed industry salespeople: Bucket Nutrition Inc., Goat Feed Ltd.	Processors, manufacturing, companies	Knowledge will be shared with this audience to assist the adoption of a novel alternative feed with additional nutrients. This audience will benefit from an improved understanding of the efficacy of novel feeds with feed nutrient additives. The intended benefit is to inform the commercial production of a novel feed that ensures consistent feed utilization during the transition period.
Dairy goat veterinarians	Professional services	This audience will receive information on the potential benefit of nutritional feed additives. Dairy goat veterinarians will gain an improved understanding of how novel feed alternatives may reduce the risk of disease during the first two weeks of lactation and improve health status. This knowledge will help them to better inform producers on health management.
Dairy goat scientists	Other researchers	This audience will be informed with new knowledge on novel feed alternatives. Researchers will benefit from the knowledge generated from this research as it may guide and/or encourage future research in the area of nutritional feed additives.
General agriculture community	Public or consumer groups	An increasing concern among the general agriculture community is the health and welfare of food production animals. This audience would benefit from an improved awareness of the research regarding the welfare of dairy goats following the use of a novel feed alternative. Confidence in the Ontario dairy goat sector will be promoted by highlighting the importance of feeding practices in enhancing animal welfare.

KTT PLAN

The KTT Plan lists all the activities that will be completed during the project to engage the User Audiences identified above.

User Audiences	KTT Activity (Dropdown menu)	Activity Details	Suitability of KTT Methods	Anticipated Number of Activities	Projected Timeline – Start	Projected Timeline – End	Estimated Cost (\$ Value)
Dairy goat producers	Consultations with stakeholder groups or government agencies	Research progress, preliminary results, and final results will be presented to local dairy producers at extension meetings held by the University of Guelph throughout the project. Feedback will be obtained on all aspects of the project. Informal communications will also occur with local dairy goat producers. Meetings will be held on a bi-annual basis (at minimum) in the spring and fall of each year. Plain language documents will be prepared and circulated.	A targeted, timely approach to keeping the key audiences up to date on the project's progress augmented with plain language documents that can be circulated widely	4	05/01/2020	04/30/2022	<i>Costs to keep in mind: -travel fees</i>

Dairy goat producer associations and industry representatives: Dairy Goat Producers of Ontario, Dairy Goat Producers of Canada, Livestock Research Corp.	Committees including research, advisory and expert groups	The PI will meet with dairy goat producer associations once annually (September 2020 and December 2021). The first meeting will help determine the best means to exchange findings to producers in a workshop format. The second meeting will inform producer associations of the research results. Plain language documents will be prepared and circulated.	A targeted, timely approach to keeping the key audiences who can use the research outcomes, up to date on the project's progress which will be augmented with plain language documents that can be circulated widely	2	07/01/2020	12/01/2021	<i>Costs to keep in mind: -travel fees</i>
Dairy goat scientists; Feed industry salespeople: Bucket Nutrition Inc., Goat Feed Ltd.; OMAFRA dairy specialists: Dairy Specialist (Jane Doe), Dairy Goat Specialist (John Smith), Feed Ingredients and By-Products Specialist (Jane Brown)	Consultations with stakeholder groups or government agencies	Results will be presented at OMAFRA's Feed Industry Day (typically held in the fall of each year). Master's student will help the PI in preparing the slide deck for the presentation. OMAFRA dairy specialist (Jane Doe) on the team will provide feedback on the presentation to ensure it is appropriately tailored to dairy industry professional audience. PI will present the findings. OMAFRA staff will share the information presented internally through internal OMAFRA communication channels. To determine turnout and applicability of the results shared, a survey will be provided in-person directly following the event.	This KTT approach will provide the masters' student with the opportunity to connect with industry and, connect with OMAFRA staff for capacity building. It will provide input on the way users want to receive research results.	1	09/01/2021	10/01/2021	<i>Costs to keep in mind: -poster printing fees -event registration fees -travel fees</i>
Dairy goat producers	Non-academic workshops and seminars (including webinars)	Research results will be presented to Ontario dairy goat producers as well as Canadian dairy goat producers. The workshop format will be developed through advisory meetings with dairy goat producer associations. We are partnering with the Canadian and Ontario producer associations to ensure this workshop meets the needs of producers. The workshop will be run by the PI, dairy goat producer team member and OMAFRA dairy specialist (Jane Doe) team member. The workshop will be held following the Dairy Goat	We have successfully used workshops in the past as an effective approach to connect with these stakeholders. Past post event evaluations have confirmed this as an effective KTT approach with	1	07/01/2020	04/30/2022	<i>Costs to keep in mind: -travel fees -catering costs -venue booking fees -rental equipment costs -printing fees -cost of supplies</i>

		Producers of Canada Annual Meeting (location TBD) in April 2022 to reduce travel fees and increase national dairy producer turnout. The workshop will also be streamed online in a webinar format to ensure those who cannot attend in person have access to the event. To determine the turnout and satisfaction with the way content was shared, a survey will be provided directly following the workshop. A follow-up survey will be sent to producers via email two months following the workshop to determine the applicability and impact of the results shared.	dairy goat producers				
Dairy goat producers	Other publications	The research and research results will be featured in producer oriented magazines (Dairy Goat Producer, Ontario Dairy Goat Producer and Ontario Goat Farmers) throughout the project. The master's student will be responsible for writing 2 lay communications per year under the guidance of the PI, dairy goat producer team member, and other UofG faculty on the team. Our co-funder (Farmers of Ontario) is a featured business in the Ontario Goat Farmers magazine and can aid in featuring one of our articles. The articles will also be shared through twitter (see below).	The KTT method will ensure that the key research results are shared where producers find new information that they can use in their operations, written using a plain language style	4	08/01/2020	04/30/2022	<i>Costs to keep in mind: -article publication fees</i>
Dairy goat veterinarians; Dairy goat nutritionists	Other publications	Two factsheets will be created outlining the study results that are most relevant to 1) dairy goat veterinarians and 2) dairy goat nutritionists. The fourth-year undergraduate student that will be brought onto the team for an undergraduate research project will create these factsheets under the guidance of the master's student. OMAFRA dairy specialist (Jane Doe) team member will help to disseminate factsheets to the industry professionals. Factsheets will also be disseminated at the Annual Animal Health and Nutrition Conference (see next activity).	These targeted, factsheets will provide research results in a way to meet the nutritionist and vet needs for information. They will be able to share this information with their clients	2	01/01/2022	04/30/2022	<i>Costs to keep in mind: -printing fees - design fees</i>

Dairy goat scientists; Dairy goat nutritionists; Dairy goat veterinarians	Presentations at scientific conferences	Abstracts will be submitted to the Annual Animal Health and Nutrition Conference to present findings in a poster format. Both the PI and master's student will attend the conference and the master's student will create the poster(s) and present the findings at the conference. The master's student will also hand out factsheets to dairy goat veterinarians and nutritionists when presenting their poster (see previous activity).	As per academic requirements	1	02/01/2022	04/30/2022	<i>Costs to keep in mind:</i> <i>-poster printing fees - conference registration fees -travel fees</i>
Dairy goat scientists	Academic and technical publications	Manuscript submissions will be made to peer-reviewed international journals. Two papers are expected. It is anticipated that these papers will be published shortly after the duration of the current project due to manuscript publication timelines.	As per academic requirements	2	05/01/2020	08/30/2022	<i>Costs to keep in mind:</i> <i>-open access publication fees</i>
General agriculture community	Social media	Project awareness and research results will be disseminated to the general agriculture community through twitter. The master's student will be responsible for drafting tweets and sending them to @GoatsAtGuelph twitter handle (1k followers) and our co-funder's twitter handle @FarmsOntario (15k followers).	A quick, concise way to reach both a broad and key audience with key research messages/ updates.	2	05/01/2020	04/30/2022	<i>Costs to keep in mind:</i> <i>-none</i>

Example KTT Plan #4

Applied Research

Soybean Pest A is an identified problem in Ontario. Recent research has shown that Pest A is not only a soybean pest, it also affects dry beans. Trials have shown that this pest can reproduce on cranberry, dark red kidney, adzuki and some white bean varieties. This research will investigate current integrated pest management (IPM) strategies being used to control Pest A on soybeans to determine their efficacy on dry bean crops. The efficacy of different Pest A pesticides, mechanical controls and biological controls will be investigated on the four bean types affected. The information gained will help to develop new IPM strategies for Pest A on dry beans in Ontario.

KNOWLEDGE TRANSLATION AND TRANSFER

KTT AUDIENCES

Who will you engage using your knowledge translation and transfer (KTT) Plan? The audiences you list here must be reached/engaged using the activities listed in your KTT Plan.

User Audiences	Audience Category <i>(Dropdown menu)</i>	Value to User Audience
Bean growers in Ontario and Canada, and bean grower associations: Bean Growers of Ontario, Bean Growers of Canada	Farmers, associations, NGOs	Knowledge will be exchanged with growers involved in the study, bean grower associations, and growers across the province and country wide. This audience will benefit from an improved understanding of the efficacy of different pesticides, mechanical controls and biological controls. Ontario growers will be directly involved in the field trials. Bean growers and bean grower associations will receive recommendations on the control of Pest A and how the research results can inform the development of new IPM strategies, with the intended outcome of behavioural change among growers (i.e. the acceptance of novel IPM strategies and participation of growers in future trials).
Grower consultants and agronomists	Professional services	Consultants and agronomists will benefit from up-to-date information on the management of Pest A on dry bean varieties to provide information to growers. Knowledge will be imparted to inform recommendations on pesticide use, and the use of biological and mechanical controls for growing cranberry, dark red kidney, adzuki and some white bean varieties. Consultants and agronomists will obtain the knowledge to inform grower audiences on how to improve pest management practices, with the intended outcome of generating practice change through the acceptance and uptake of new IPM strategies.

OMAFRA extension specialists: Dry Bean Specialist (Jane Smith), Soybean Specialist (John Doe), Pathologist-Field Crops (John Brown)	Government (policy and program development and delivery)	OMAFRA extension staff will benefit from up-to-date information on the management of Pest A on dry bean varieties to provide information to growers. Knowledge will be imparted to inform recommendations on pesticide use, and the use of biological and mechanical controls for growing cranberry, dark red kidney, adzuki and some white bean varieties. Extension staff will obtain the knowledge to inform grower audiences on how to improve pest management practices, with the intended outcome of generating practice change through the acceptance and uptake of new IPM strategies.
Plant pathologists, pesticide researchers and crop scientists	Other researchers	This audience will be informed with new knowledge of interest regarding pesticides and biological and mechanical controls. Researchers will benefit from the knowledge generated from this research as it may guide and/or encourage future research in the area of IPM strategy development for dry bean pests.
General agriculture community	Public or consumer groups	An increasing concern among the general agriculture community is pesticide use in crops. This audience would benefit from an improved awareness of the research regarding pest management and the controlled use of pesticides. Confidence in the Ontario crop sector will be promoted by highlighting the importance of pesticide use for the management of pests and the importance of research into pest management.

KTT PLAN

The KTT Plan lists all the activities that will be completed during the project to engage the User Audiences identified above.

User Audiences	KTT Activity (Dropdown menu)	Activity Details	Suitability of KTT Methods	Anticipated Number of Activities	Projected Timeline – Start	Projected Timeline – End	Estimated Cost (\$ Value)
Grower consultants and agronomists; OMAFRA extension specialists: Dry Bean Specialist (Jane Smith), Soybean Specialist (John Doe), Pathologist-Field Crops (John Brown)	Consultations with stakeholder groups or government agencies	The research team will meet with grower consultants, agronomists, and OMAFRA extension specialists once annually (winter 2021 and early spring 2022). The first meeting will help to determine effective ways of reaching growers and informing behaviour change among growers. The second meeting will involve presenting the research results to these stakeholders. The presentation will be created by the two master's students. The PI and co-PI will deliver the presentation. Results will also be disseminated through factsheets at this meeting (see below) to allow this group to appropriately inform growers.	A targeted, timely approach to keeping the key audiences up to date on the project's progress augmented with a presentations and widely circulated factsheets that summarize progress to date.	2	01/01/2021	04/30/2022	<i>Costs to keep in mind: -travel fees</i>

<p>Grower consultants and agronomists; OMAFRA extension specialists: Dry Bean Specialist (Jane Smith), Soybean Specialist (John Doe), Pathologist-Field Crops (John Brown)</p>	<p>Other publications</p>	<p>The master's students will create factsheets (1-3) regarding research results with support from OMAFRA staff. These will be approved by team member, Dry Bean Specialist (Jane Smith), to ensure language and content is appropriate for the grower advisory audience. Factsheets will be disseminated at the second consultation meeting with the grower advisory group.</p>	<p>These targeted, factsheets will provide research results in a user friendly fashion for the grower advisory audiences who can then share them with their clients.</p>	<p>3</p>	<p>09/30/2021</p>	<p>04/30/2022</p>	<p><i>Costs to keep in mind:</i> <i>-printing fees</i> <i>-design fees</i></p>
<p>Bean growers in Ontario and Canada; Grower consultants and agronomists; OMAFRA extension specialists: Dry Bean Specialist (Jane Smith), Soybean Specialist (John Doe), Pathologist-Field Crops (John Brown)</p>	<p>Field days and demonstrations</p>	<p>Growers and grower advisory groups will be able to see the research first-hand at grower field days at the Ridgetown Campus trial location. They will be held annually around late August to early September when dry beans are ready to harvest. Growers and grower advisory groups will be able to observe the crop viability and yield, following the application of different pesticides and use of biological and mechanical controls. Our co-funders (Ontario Bean Crop Committee) will also play a large role in promoting these events to growers across Ontario and Canada to ensure a large turnout. Results on the efficacy and benefits of farmer participatory research (see below) will be showcased during the second field day.</p>	<p>These events have been in place for years and are known as key places where farmers come to gather new information</p>	<p>2</p>	<p>08/01/2020</p>	<p>09/30/2021</p>	<p><i>Costs to keep in mind:</i> <i>-catering fees</i> <i>-staffing fees</i> <i>-advertising costs</i></p>
<p>Bean growers in Ontario</p>	<p>Committees including research, advisory and expert groups</p>	<p>In addition to trials occurring at the Ridgetown Campus trial location, trials will occur on 3 farmer's fields. This is occurring for two purposes: 1) to determine the efficacy of different pesticides, mechanical controls and biological controls on bean crops in different locations across Ontario, accounting for differing environmental and soil conditions; and 2) as a participatory research KTT strategy. Growers will have first-hand experience with the</p>	<p>Integrating farmers in this research will promote or incentivize behavior change.</p>	<p>3</p>	<p>05/01/2020</p>	<p>04/30/2022</p>	<p><i>Costs to keep in mind:</i> <i>-travel fees for PI or graduate students to perform research activities across farms in Ontario</i></p>

		<p>pesticide application and use of biological and mechanical controls and will receive the research results by directly observing crop health and yield on their farm. Integrating farmers in this research will also aid in inciting behavior change. This participatory research KTT strategy will encourage participation of growers in future trials and possibly increase future adoption of novel IPM strategies. An entrance and exit survey will be completed by farmers when beginning the trial and when the trial wraps up. The results from these two surveys will be showcased at the second field day to demonstrate knowledge exchange that occurs between farmers and researchers.</p>					
<p>Bean growers in Ontario and Canada, and bean grower associations: Bean Growers of Ontario, Bean Growers of Canada</p>	<p>Other publications</p>	<p>Clear language articles will be published in Crops Ontario, Bean Crop News and The Plant Path Newsletter. Team member, OMAFRA's Dry Bean Specialist (Jane Smith), is editor of Crops Ontario and is a frequent author of Bean Crop News. She will be responsible for generating two articles outlining the results of the trials. The master's students will be responsible for creating an article highlighting research awareness to submit to The Plant Path Newsletter. Content will also be shared through twitter (see below).</p>	<p>This publication is where growers go to find new industry information. We are confident that using this method will be another way to ensure the information is getting to the right people who can use it.</p>	<p>3</p>	<p>04/01/2021</p>	<p>04/30/2022</p>	<p><i>Costs to keep in mind: -article publication fees</i></p>
<p>Plant pathologists, pesticide researchers and crop scientists</p>	<p>Presentations at scientific conferences</p>	<p>Abstracts (2-4) will be submitted to the Annual Canadian Conference on Plant Pathology (occurs in the spring of each year) to present findings in a poster format. The PI, co-PI, and master's students will attend the conference. The master's students will create the posters and present the findings at the conference. The poster(s) in year one will generate awareness of the project and the</p>	<p>As per academic requirements</p>	<p>4</p>	<p>04/30/2021</p>	<p>04/30/2022</p>	<p><i>Costs to keep in mind: -poster printing fees - conference registration fees -travel fees</i></p>

		project goals. The poster(s) in year two will showcase the findings.					
Plant pathologists, pesticide researchers and crop scientists	Academic and technical publications	Manuscript submissions will be made to peer-reviewed journals. One paper is expected, possibly two, dependent on findings. It is anticipated that the paper(s) will be published shortly after the duration of the current project due to manuscript publication timelines.	As per academic requirements	2	05/01/2020	08/30/2022	<i>Costs to keep in mind: -open access publication fees</i>
General agricultural community	Social media	The PI will generate a new twitter handle for this research: @GrowingOntarioBeans. The graduate students will be responsible for posting weekly research updates. Posts will be re-shared through the PI's twitter account (5k followers) and co-PI's twitter account (6k followers). Audience-appropriate tags will also be used to generate a following. At the end of the project, the twitter handle will be retained and will be used for future projects regarding bean crop pathology.	This KTT approach gives an opportunity to provide quick, concise ways to reach both a broad and key audience with key research messages/ updates and a change to connect to people specifically interested in the research results. The audience is already engaged	1	05/01/2020	04/30/2022	<i>Costs to keep in mind: -none</i>

Example KTT Plan #5

Pilot Testing

Sorting fresh produce for downstream manufacturing of canned and bagged goods can be time-consuming. Manufacturers also must make decisions regarding the fate of selected produce (e.g. which tomatoes should be made into tomato paste, pasta sauce, or diced tomatoes). Decisions are based on the size of tomatoes and quality, but also on retailer demand to prevent a surplus of food that may go to waste. This research aims to develop a new sensor-based optical sorting system, which is informed by AI technology that monitors retail demand. The AI sorting system prototype will be pilot tested for its sorting performance as well as its ability to monitor retailer demand to minimize food surplus.

KNOWLEDGE TRANSLATION AND TRANSFER

KTT AUDIENCES

Who will you engage using your knowledge translation and transfer (KTT) Plan? The audiences you list here must be reached/engaged using the activities listed in your KTT Plan.

User Audiences	Audience Category (Dropdown menu)	Value to User Audience
Industry partner: SmartSorting Tech	IP staff, commercialization partners	This audience will benefit from an understanding of the efficacy and economics of this new technology to sort food and monitor retail demand. SmartSorting Tech can use this research to create improved sorting technologies for commercialization and attract new clients.
Food manufacturing partner: Tomatoes Inc. and other food manufacturers	IP staff, commercialization partners	Research results will identify the efficacy and economics of this new technology. If it is successful, Tomatoes Inc. will benefit from this research by obtaining new technology that can improve their sorting efficiency, refine their retail demand metrics, and reduce their food surplus and food waste disposal costs.
Researchers in food manufacturing and technology	Other researchers	This audience will be informed with new knowledge of interest regarding food processing technologies. Researchers will benefit from the knowledge generated from this research as it may guide and/or encourage future research in the area, as well as related areas for similar/competing applications.
Research Innovation Office	IP staff, commercialization partners	This audience will be informed of research results to generate their interest in the project and gain their support in the path to commercialization.
Canadian regulatory body for food manufacturing	Government (policy and program development and delivery)	This audience will be informed of research results to generate their interest in the project and gain their help in ensuring that the pilot tested technology meets regulatory requirements with respect to food safety and the health and safety of employees.

Graduate students with an interest in the agri-food sector	Students	This audience is the next generation of forward thinkers in the agri-food sector. It is important that they understand and rationalize the impacts of the changing demands in agri-food and rural sectors. This audience will benefit from an improved understanding of technology in the agri-food sector and help them to conceptualize these impacts.
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KTT PLAN

The KTT Plan lists all the activities that will be completed during the project to engage the User Audiences identified above.

User Audiences	KTT Activity (Dropdown menu)	Activity Details	Suitability of KTT Methods	Anticipated Number of Activities	Projected Timeline – Start	Projected Timeline – End	Estimated Cost (\$ Value)
Industry partner: SmartSorting Tech	Committees including research, advisory and expert groups	The research team will meet with SmartSorting Tech every two months (6 times yearly). Communication will occur through conference calls and in-person meetings. Team member John Doe (Managing Director at SmartSorting Tech) will be the liaison between the research team and SmartSorting Tech. Meetings will consist of project updates, revisions to the work plan based on feedback, preliminary findings updates, and research findings dissemination. Final research results will also be disseminated through a research factsheet at the end of the project (see below).	Research team needs to maintain frequent contact with industry partners to ensure new technology/products will meet industry/consumer needs.	12	05/01/2020	04/30/2022	Costs to keep in mind: -travel fees
Industry partner: SmartSorting Tech	Other publications	A research factsheet outlining the final pilot testing results of the technology will be shared with SmartSorting Tech. Results including sorting efficacy, retail demand metrics performance, food surplus reductions and disposal cost reductions of the prototype will be shared. Recommendations will also be provided for scale-up and commercialization.	This will provide a simplified summary of all results required by the industry partner.	1	01/01/2022	04/30/2022	Costs to keep in mind: -printing fees -design fees
Food manufacturing partner: Tomatoes Inc.	Consultations with stakeholder groups or government agencies	Performance data will be shared with Tomatoes Inc. for feedback, recommendations, scale-up and commercialization plans. Meetings will be held twice annually via conference calls and in-person meetings. These meetings will be	The research team needs to maintain frequent contact with the industry partner to ensure that the technology is	4	05/01/2020	04/30/2022	Costs to keep in mind: -travel fees

		coordinated through team member Jane Smith (Director of Tomatoes Inc.) to gain the customer perspective.	meeting their requirements and to ensure the research is following the direction they need. This is supported by the latest theories on product development				
Researchers in food manufacturing and technology; Food manufacturing partner: Tomatoes Inc. and other food manufacturers	Field days and demonstrations (including trade shows)	The product prototype will be exhibited at the Annual Food Manufacturing and Technologies Conference and Expo, an event that brings food manufacturers and researchers together to see the future of technology in food manufacturing. Sorting efficiency improvement values and cost reduction values of this new technology will be presented. The PI and the master's students will attend the conference and expo. The event is typically held in April of each year. Food manufacturer engagement with the product and feedback will be recorded through an in-person paper copy survey at the expo booth.	While the Tomatoes Inc. is a key potential customer, there are other potential customers. A number of these customers will be attending this Conference & Expo allowing the research team to gain further insights from potential customers regarding the requirements of this new technology.	1	02/01/2022	04/30/2022	<i>Costs to keep in mind:</i> <i>-expo booth fees</i> <i>-conference and expo registration fees</i> <i>-travel fees</i>
Researchers in food manufacturing and technology	Academic and technical publications	Manuscript submissions will be made to peer-reviewed international journals, such as the Journal of Food Manufacturing and Technology. AI-informed optical sorting technology and sorting efficiency data will be published. One paper is expected. It is anticipated that the paper will be published shortly after the duration of the current project due to manuscript publication timelines.	As per academic requirements	1	05/01/2020	08/30/2022	<i>Costs to keep in mind:</i> <i>-open access publication fees</i>
Research Innovation Office	Committees including research, advisory and expert groups	Research results will be shared with the Research Innovation Office support staff through a report of invention form. Once the Research Innovation Office is informed about our research results, the technology transfer specialists will help us in next steps to commercialization.	There is potential IP coming from this project and we want to engage with RIO to ensure proper procedures are met.	1	01/01/2022	04/30/2022	<i>Costs to keep in mind:</i> <i>-none</i>
Canadian regulatory body	Committees including	The research team will consult with the Canadian regulatory body for food manufacturing throughout the project to	To ensure this technology will be in compliance with all	3	05/01/2020	04/30/2023	<i>Costs to keep in mind:</i>

for food manufacturing	research, advisory and expert groups	ensure the technology is compliant with regulatory requirements. Meetings will be held via phone as necessary throughout the project (1-3 meetings).	regulations. We want to engage early to ensure we fully understand any requirements & are prepared to go through any necessary approval process					<i>-none</i>
Graduate students with an interest in the agri-food sector	Courses developed / offered	The prototype concept and pilot testing results will be disseminated in the form of a case study to graduate students taking UNIV*6050 Innovation and Entrepreneurship in Agri-Food Systems course. Students will be instructed to conduct a case report analysis on the social, environmental and sectoral impacts of this new technology. Feedback on the case report and analysis format will be evaluated through the course evaluation system at the end of the first semester it is implemented (Fall 2022). The PI and SmartSorting Tech industry partner will be responsible for creating the case study.	As per academic course requirements	1	05/01/2021	04/30/2022		<i>Costs to keep in mind: -design fees</i>

Example KTT Plan #6

Scale Up

The present research proposes to build on the successful pilot testing project on food waste-derived packaging for vegetables sold in bulk. The previous project demonstrated successful use of the sustainable packaging material for carrots and potatoes sold in bulk in Ontario grocery stores. The food waste derived packaging was successful in consumer appeal trails, sustainability trials and food preservation trials. The research will be continued to optimize and scale-up the manufacturing process. The current project will investigate methods to scale-up production to generate large quantities for use in fruit and vegetable packaging and distribution industries that reach the end consumer, as well as provide analysis to support commercialization methods and terms (pricing and costing, self-manufacturing or contracting, options for distribution channels, selling or licensing IP, etc.).

KNOWLEDGE TRANSLATION AND TRANSFER

KTT AUDIENCES

Who will you engage using your knowledge translation and transfer (KTT) Plan? The audiences you list here must be reached/engaged using the activities listed in your KTT Plan.

User Audiences	Audience Category <i>(Dropdown menu)</i>	Value to User Audience
Industry partner: GreenPack Foods Co.	IP staff, commercialization partners	Research results will aid GreenPack Foods Co. to increase their visibility to food distributor, food processor and grocer markets. The scale-up research results will create new packaging technologies and commercialization avenues for GreenPack Foods Co. and will help them to attract new customers and investors. GreenPack Foods Co. will benefit from an improved understanding of production costs and pricing estimates.
Food distributors	Processors, manufacturing, companies	Research results will identify the scaling possibilities of this new food packaging for commercialization. The knowledge generated will provide compelling data to form return on investment calculations for potential purchasers of technology. Food distributors will benefit from an improved packaging technology that is environmentally sustainable, appealing to consumers and more effective than traditional food packaging in preserving food.
Retailers (including FoodWorld, FoodCo and ReadyFood)	Processors, manufacturing, companies	Research results will be shared with this audience, with the intended benefit of encouraging behaviour change towards the purchase of foods in sustainable packaging from food distributors. This audience will benefit from an improved understanding of the impact of sustainable food packaging on their outward image to consumers. Retailers have significant influence on those upstream and can act as champions in driving behaviour change towards sustainable packaging

		among food distributors. They can also act as champions for behaviour change at the consumer level.
Packaging technology, bioproducts and food waste researchers	Other researchers	This audience will be informed with new knowledge of interest regarding scaling possibilities of food packaging technology and bioproducts and food waste endpoints. Researchers will benefit from the knowledge generated from this research as it may guide the creation of new knowledge in the area of food waste endpoints.
General public	Public or consumer groups	Project awareness will be promoted among the general public to encourage behavior change towards environmentally friendly products. This audience will benefit from an improved understanding of the impacts of their purchase choices and the importance of a circular economy.
Undergraduate students in marketing management and engineering	Students	This audience is the next generation of forward thinkers in product innovation for the agri-food sector. This audience will benefit from an improved understanding of industry partnerships, scaling-up, and commercialization of research.

KTT PLAN

The KTT Plan lists all the activities that will be completed during the project to engage the User Audiences identified above.

User Audiences	KTT Activity (Dropdown menu)	Activity Details	Suitability of KTT Methods	Anticipated Number of Activities	Projected Timeline – Start	Projected Timeline – End	Estimated Cost (\$ Value)
Industry partner: GreenPack Foods Co.	Committees including research, advisory and expert groups	The research team will meet with GreenPack Foods Co. once every four months (3 times yearly). Communication will occur through conference calls and in-person meetings. Team member John Doe (Director at GreenPack Foods Co.) will be the liaison between the research team and the industry partner. Meetings will consist of project updates, discussions surrounding research results and next steps for commercialization.	The research team needs to maintain frequent contact with the industry partner to ensure that the technology is meeting their requirements and to ensure the research is following the direction they need. This is supported by the latest theories on product development	9	05/01/2020	04/30/2023	Costs to keep in mind: -travel fees
Food distributors	Consultations with stakeholder groups or government agencies	Results will be shared with specific food distributors, such as ProduceSelect Distribution Inc., to gain the customer perspective on proposed cost-analysis, commercialization and market adoption	Frequent engagement with potential customers will give the research team a	3	05/01/2020	04/30/2023	Costs to keep in mind: -travel fees

		plans based on the scale-up results. Meetings will be held once annually via conference calls and in-person meetings. These meetings will be coordinated through network connection Jane Smith, Director of ProduceSelect Inc., and supporter of our research (see letter of support) to gain the customer perspective.	better understanding of their pain points. Furthermore it will help differentiate between the 'nice to have' & the 'need to have'. This is industry practice.				
Retailers (including FoodWorld, FoodCo and ReadyFood)	Consultations with stakeholder groups or government agencies	The research team will meet with each retailer once throughout the project to pitch the concept of sustainable packaging. Both the PI and GreenPack Foods team member, John Doe, will conduct a marketing pitch presentation to retailers to influence the use of sustainable packaging to improve their outward consumer image. These meetings will indirectly influence food distributors, if retailers drive the desire for sustainable food packaging. If these meetings are successful, retailers will also act as champions in influencing consumer behaviour towards the purchase of foods sold in bulk with sustainable packaging.	Customers will never see the product if retailers do not put them on their shelves. As such, pitching to the retailers, as is standard business practice in this industry will provide this opportunity.	3	05/01/2020	04/30/2023	<i>Costs to keep in mind: -travel fees -marketing materials costs</i>
Food distributors; Packaging technology, bioproducts and food waste researchers	Field days and demonstrations (including trade shows)	The scaled product will be exhibited at the Annual Sustainable Food Packaging Conference and Expo, an event that brings food distributors and researchers together to see the future of packaging technology, twice throughout the project duration (typically held in the spring of each year). Spec sheets will be developed and used to market the technology to food distributors at the expo booth. The PI, commercialization partner and the master's students will attend the conference and expo. This event will also provide a networking opportunity with potential food distribution consumers and understanding pain points of the technology for improvements at the commercialization stage.	A number of potential customers will be attending this Conference & Expo allowing the research team to gain further insights from potential customers regarding the requirements of this new technology.	2	02/01/2022	04/30/2023	<i>Costs to keep in mind: -expo booth fees -conference and expo registration fees -travel fees</i>

Packaging technology, bioproducts and food waste researchers	Presentations at scientific conferences	Abstracts will be submitted to the Annual International Conference on Sustainable Food Packaging (occurs in the spring of each year). The scale-up capacity of this new food waste derived packaging will be presented by the PI in an oral presentation format.	As per academic requirements	1	02/01/2023	04/30/2023	Costs to keep in mind: -conference registration fees -travel fees
General public	Media interviews	Project awareness will be promoted through news outlet interviews targeted towards the general public. Interviews (2-3) will be done to promote awareness regarding environmentally friendly food packaging products and the importance of a circular economy. The intent of these interviews will be to encourage behavior change among the general public so that market adoption is successful at the consumer level once the commercialization stage is reached.	These interviews will provide the researchers a platform of reaching a large and varied audience who may be influenced.	3	05/01/2020	04/30/2023	Costs to keep in mind: -none
Undergraduate students in marketing management and engineering	Courses developed / offered	The scale-up results will be disseminated in the form of a case study and a course unit on industry partnerships, scaling-up, and commercialization to undergraduate students taking MCS*4040 Management in Product Development course and ENGG*3830 Bio-Process Engineering course. Students will receive training on how to scale-up and commercialize research. Feedback on the case study and course unit will be evaluated through the course evaluation system at the end of the first semester it is implemented (Fall 2023). The PI will be responsible for creating the case study and course unit.	As per academic course requirements	2	05/01/2021	04/30/2023	Costs to keep in mind: -design fees for the case study