

2019 Gryphon's LAAIR - Product Development Grant - Program Guide**Deadline to Apply: Noon on Friday 15 March 2019****Purpose**

The purpose of this grant is to support the creation and optimization of a Minimum Viable Product (MVP) which has a strong potential to be commercialized and benefit the Ontario agri-food industry.

Vision

Gryphon's LAAIR (GL) Grants were created by the Ontario Agri-Food Innovation Alliance to provide financial support to UofG researchers who have identified an opportunity to accelerate adoption of new commercially viable technologies that will make the Ontario agri-food industry more competitive. These grants aim to increase the number of UofG technologies that are adopted and used by the Ontario agri-food industry.

The GL grants provide financial support for new technologies developed from previous applied research projects that have the potential to evolve into real products and services that will help grow Ontario's economy and make it more globally competitive.

New and disruptive technologies need continual support from the time they are first created and discovered to the time when they are launched into the market as new product. As these newly created technologies mature – so does their Technology Readiness Level (TRL, see below). GL Product Development Grants are meant to provide support to new technologies (TRL 3-6) immediately after completing a GL Market Validation Project or similar work to confirm there is a sufficiently large market opportunity to sustain/adopt a new product. The GL grants enable researchers to derisk a technology and optimize the features most desired by the commercial market, which should maximize the probability that the technology eventually gets adopted and used.

Annual Funding Envelope:

A total of \$350,000 will be allocated to successful proposals across both Market Validation and Product Development Grants.

Maximum of \$100,000 per project and lasting no more than three years.

Background

Continuous improvement of the Ontario Agri-food sector depends on the continual support of new technologies to enable them to mature into a Minimum Viable Product that can have an economic impact in the market place. MVPs require support from the time of discovery often called Technology Readiness Level 1 (TRL 1) to full maturity (TRL 9) when it is launched into the market place. Product Development Grants provide support after a significant amount of

applied-research has been completed and the market need for your new technology has been validated (see Market Validation Grants).

Product Development Grants are designed to enable UofG researchers to take proven applied-research results, often called new technologies, and develop them into a focused, useable, and practical product that can be tested, improved, and shared with potential customers for feedback and eventual commercialization. The first feasible product that meets the minimum requirements of the most important customer is called the Minimum Viable Product (MVP). It is critical to clarify the MVP because it is the starting point for planning a potential product launch to benefit the Ontario Agri-food industry.

Understanding “product-market fit” is crucial when launching a MVP whether it is a new product, process, or service. GL Product Development Grant funding is to be used to help remove the current barriers which are preventing industry from using or adopting your MVP.

A key goal of this funding is to help UofG researchers build and demonstrate their MVP to end users and payers, so you can obtain feedback for further optimization. Interacting with end users (customers and industry partners) will enable researchers and entrepreneurs to obtain objective data from the market which will dramatically increase the probability of launching a successful MVP.

A successfully completed Product Development project should better position the MVP to secure follow-on investment (time and funds) from government and industry to move the MVP even closer to a market launch.

The application should clearly describe the approach, activities and tools to be used to execute your project plan and if needed explain why these activities are better than those not chosen.

A portion (20% of budget but not more than \$20K) of the funds may be used to hire professional services or be used as leverage for additional grants related to commercializing your MVP

Upon completion of your Product Development project, you should be in an excellent position to create a launch plan for your MVP or have an industry partner willing to take over responsibility to bring your MVP to market.

Guiding Principles

- Develop new technologies (products & solutions) to make the Ontario agri-food sector more competitive
- Use market-based evidence to determine the commercial value of agri-food research and new technologies, now and in the future.
- Remove barriers preventing the adoption of technologies with commercial potential

Key Goals:

- Use current and validated primary and secondary market-based evidence to guide the development and optimization of your MVP to be commercialized. Ideally you will have completed a Market Validation project before applying for a Product Development grant.

- Better understand industry's needs and the challenges to bring new products and services to the agri-food market in Ontario Accurately and objectively understand how difficult it will be to get your technology adopted by industry and what barriers must be removed or managed to do so
- Advance the Technology Readiness Level of your MVP
- Better define and understand the path to market for your MVP
- Seek greater involvement of industry partners and stakeholders to help move your MVP closer to market
- Change, adapt and optimize your MVP to better meet the needs of industry and end-users.
- Generate data and reports that can be used to secure additional follow-on investment from industry or investors to create/launch a commercially viable MVP

Eligibility Criteria

- The Lead Applicant must be UofG faculty, CARG researcher, or eligible UofG adjunct ([Adjunct Eligibility Criteria](#)), with a well-defined and appropriate team assembled, that has demonstrated adequate experience and understanding of the project's field of research.
- The Project must fit appropriately within the scope of the [OMAFRA Research Advisory Network \(ORAN\)](#) and address at least one of the Ontario Agri-Food Innovation Alliance – Research Themes

Ontario Agri-Food Innovation Alliance – Research Themes:

- Agri-food and Rural Policy
- Bioeconomy – Industrial Uses
- Emergency Management
- Environmental Sustainability
- Food for Health
- Products and Value Chains
- Production Systems – Plant
- Production Systems – Animal

For more information, visit the [Ontario Agri-Food Innovation Alliance](#) website.

Lead Applicant's Responsibilities and Requirements

- Successful applicants must agree to prepare and submit a final project report using the Ontario Agri-Food Innovation Alliance's Research Management System (RMS) which will be used to inform OMAFRA. Incomplete or late reports will negatively affect the probability of securing future grants.

- Granted funds must be utilized according to the projected budget, within 36 months of the date of project start date and must be used for Ontario Agri-Food Innovation Alliance eligible and approved expenses.
- Projects must support Equality, Diversity and Inclusivity of all participants.
- Project Leaders may be asked to submit a separate confidential survey on Equity, Diversity and Inclusivity

Tips for Creating a Winning Proposal:

Proposals must identify and quantify a clear commercial need for the MVP or technology. If the need is not well supported, then you are not ready to apply for a Product Development Grant.

It is very important that you thoroughly understand the Value Proposition of your MVP. To help you clarify and communicate these benefits we recommend you review the YouTube video on the [Value Proposition Canvas](#). This video may help you create a well-articulated explanation of how the fully commercialized technology will eventually help industry and/or end-users.

Proposals to develop early-stage technologies (TLR 2-4) should focus on building a first prototype, testing it under field conditions (proof of relevancy) or completing pilot studies with the prototype to determine the product market fit of your first MVP.

Proposals to develop later-stage technologies (TLR 4-6) should be focusing on interacting heavily with industry partners and end-users to improve your MVP to a level that is commercially desired and can be evaluated in the field. Later-stage MVPs should have a higher probability of getting to market due to the previous completed research to derisk the MVP or technology.

Project efforts must focus on reducing barriers or filling knowledge gaps that are impeding the adoption of the MVP by industry; If customers strongly desire your MVP, then why are they not buying or using it? Find and eliminate those barriers.

Proposals should clearly define the specific barriers you plan to remove, and which barriers are the most important roadblocks that need to be removed at this time in the maturity of your MVP. The most obstructive barriers should be removed first. For example, there may be several less important barriers that can be easily removed in the future but unless a major barrier is removed (such efficacy level, risk vs reward ratio, return on investment, cost of implementation, regulatory approval etc...), customers will not even consider trying or adopting the MVP.

Proposals must build on an existing research project, past research or a recently developed technology that has significant potential to become a commercial product. You should be able to demonstrate your past experience and expertise in the research field specific to your proposal.

The MVP can be a process, product, platform technology, service, or management practice (method) that has the potential to significantly improve the competitiveness of the Ontario Agri-food and rural sectors.

Budget requirements should match the intended deliverables for the project. Requesting more funds dictates the delivery of greater value of the outputs, therefore many proposals may require less than the maximum allowable \$100K. Budget according to your current need. In all cases, the project outputs must be justified and commensurate with the level of funding requested and have clearly stated deliverables and follow a set of date specific milestones

events. Funding for larger proposals (over \$35K) will be delivered in tranches linked to the achievement of your milestones.

Expected Results

Obviously, the desired outcome is for all projects to speed forward with full adoption of the technology by the Ontario Agri-food sector, soon after the project is completed. However, the maturity of the technology and the degree of development required (timeline to commercial launch) will be highly variable. Some projects will achieve immediate success while others will require a longer and more complex development process and only advances the technology through one stage of development. This is expected, and this allows us to fund many projects of variable maturity, simultaneously. Some technologies will be expected to be adopted immediately by the industry partners supporting the project while others will require several more years of additional product development, business model creation and customer engagement, and regulatory approvals before a MVP can be launched. The important aspect is that barriers are removed which move the MVP significantly up the TRL scale.

Many early stage technologies funded through the Gryphon's LAAIR Program will not immediately advance to commercialization. This is not a failure but instead an important opportunity for course correction – often called a 'Pivot'. These positive and negative research results provide valuable feedback to researchers, entrepreneurs, companies, and investors developing new products and they help determine if or when additional resources should still be allocated to improve a technology, or should it be abandoned. A Pivot is recommended when it results in an improved MVP that is very likely to attract additional funding from industry or investors.

This valuable customer or supplier feedback is often overlooked in the academic research process of creating novel and innovative solutions to the world's problems. Research by nature is an iterative process of generating and testing the viability of hypotheses (i.e. new technologies). Customer and market feedback is critical to help researchers 'Pivot' their research plans, if they want to provide useful solutions societies future needs.

For example, conducting a scaled-up field trial of a MVP to industry stakeholders may indicate that commercialization is not feasible at this time due to cost, market size, regulations, changing market drivers, new competitive technologies or even just market timing (too late or too early). These are important insights and a prudent use of Gryphon's LAAIR resources because it provides a greater understanding of the real opportunity moving forward, before larger investments are made or potentially wasted. This process helps everyone make the best use of the limited funding available for the commercialization of applied research.

Likewise, a project may conclude that a well-developed technology is not economically attractive given the current market conditions or the reliability/quality of the MVP are insufficient. If market conditions change or quality can be improved then the MVP may be a viable product in the future. Again, this is useful to researchers and entrepreneurs to elucidate the real path forward, when the timing and market conditions are more supportive.

Examples of Proposals

The following are a few examples of eligible Product Development projects, but many more exist:

- Beta-testing an early-stage technology before transferring it to industry
- Preliminary or full clinical trials of new drugs or vaccines
- Field testing prototypes/devices that have never been used outside the lab
- Evaluating a significant advancement to an existing product, process or service;
- Enabling pilot plant demonstrations or supporting the scale up of industrial processes in development;
- Evaluation and testing of late stage technologies to support a regulatory approval submission;
- Exploring and advancing the certification of a product or process by a reputable association;
- Testing or improvement of a potentially disruptive technology;
- Improving an unproven technology considered too risky to attract funding from other agencies;
- Demonstrating Proof of Relevancy using a prototype made within the cost constraints determined by the market;
- Develop a new product for animals or agriculture based on technology for humans or non-agricultural purposes;
- Generate more data (proof of concept) from a novel technology to support filling a stronger patent application;
- Conduct customer discovery with a prototype to increase industry's awareness of the technical merit and value proposition of a new technology;
- Create an academic-industry research centre at an industry partner's site to co-develop and implement process improvements directly applicable to industry;
- Determine the technical merit, feasibility, and commercial potential of a technology by conducting public demonstrations (field trials) for key stakeholders.

Project Evaluation Criteria – Product Development

Project proposals will be scored on the merit of supporting the following factors:

	Criteria	Weight
1	Problem to be Solved Level of understanding and clearly identifying the industry problem that needs to be solved and the feasibility the MVP will adequately solve the problem	15
2	Market Demand Level of market demand for your MVP and the quality of data (evidence) to support it. Level of understanding of the customers' needs and the value proposition your MVP can deliver to customers	15
3	Economic Benefits Potential benefits your MVP will bring to the Ontario Agri-food industry	15
4	Team Relevant experience and capability of the project team and the quality of the experience for HQP being trained	5
5	Project Plan Quality, clarity and relevancy of the project plan to advance commercialization of your MVP as well as the probability of successfully executing according to the plan	10
6	Cost Effectiveness Cost vs Benefit ratio that justifies the expected deliverables. Is the project a good use of funds at the level requested?	5
7	Technology Readiness Level The current TRL and the predicted change/advancement of the TRL	5
8	Competitive Intellectual Property Probability of creating competitive and protectable intellectual property	5
9	Future Development and Adoption Probability that industry will invest (time or funds) in future product development of your MVP after the completion of this project	15
10	Communication Overall clarity and professionalism of the written proposal and especially the Executive Summary	10
	Total	100

Application Process

1. Discuss your preliminary proposal with the Research Innovation Office and get feedback on your work plan, barriers you plan to remove, the MVP you plan to build and your potential industry partners you plan to include.
2. Obtain access to the Research Management System (RMS) used by the Ontario Agri-Food Innovation Alliance. A login and password to RMS is required to complete your application on-line using RMS.
3. Complete the written application using RMS and always save your draft.
4. Read and click the Applicant's Declaration, as part of the application.
5. Complete an OR-5 and obtain signatures from your Chair and Dean (note: Office of Research signature is not required – this will occur if the project is approved)
6. Obtain any desired Letters of Support confirming industry interest in your MVP/project or Letters of Commitment confirming any financial support from an industry partner to help conduct your project.
7. Ensure that you have attached the following supporting documentation (PDF) to your submission in RMS.
 - a. OR5
 - b. Letters of Support or Letters of Commitment from industry
 - c. CV of the Project Leader
 - d. Any other relevant documents needed and referenced to support your proposal

Note: all supporting documentation must be submitted in RMS as a PDF file.

Questions

For more Information contact David Hobson at ext 58859 or dhobson@uoguelph.ca.

Appendix

Technology Readiness Level

Please refer to the following scale (developed and used by many governments, funders, investors and NASA) to determine the current Technology Readiness Level (TRL) of any commercially feasible product, process or technology according to the definitions below:

TLR-1 Basic Principles Observed: *The translation of basic scientific research into applied research. This is mostly the exploration of a technology's basic properties.*

TLR-2 Technology Concept Formulated: *The study of how technologies could be applied in the market. This is the point where the project's direction takes form.*

TLR-3 Experimental Proof-of-Concept Created: *At this phase, active product development begins, and a technological solution is developed. This stage looks at the critical function of the technology and attempts to determine what is required for this technology to meet the end user's requirements.*

TLR-4 Prototype Validated in the Lab: *The integration and testing of basic components in a laboratory environment. This can be done multiple times during technology development to ensure that the technology is progressing toward its desired purpose.*

TLR-5 Prototype Validated in the Field: *The integration and testing of basic components in a real or simulated field environment. This is done following lab testing and usually involves accessing better testing equipment to identify potential issues in the field.*

TLR-6 Prototype Demonstrated in an Industrial Relevant Field: *Upon completion of the technology's design, more thorough testing under industrial conditions can commence. This will provide data critical to the commercialization phase for which the technology is applied.*

TLR-7 Prototype Demonstrated under Industrial Operational Environment: *Using the prototype in an operational environment to understand how well it performs in non-simulated testing. Further development and optimization may be required to address performance issues.*

TLR-8 Final Testing and Evaluation: *Upon further testing and commissioning under all predicted operating conditions, the technology has proven itself to be successful.*

TLR-9 Successful Deployment: *The technology, in its final form, is manufactured and deployed to end users for use in real-life conditions.*