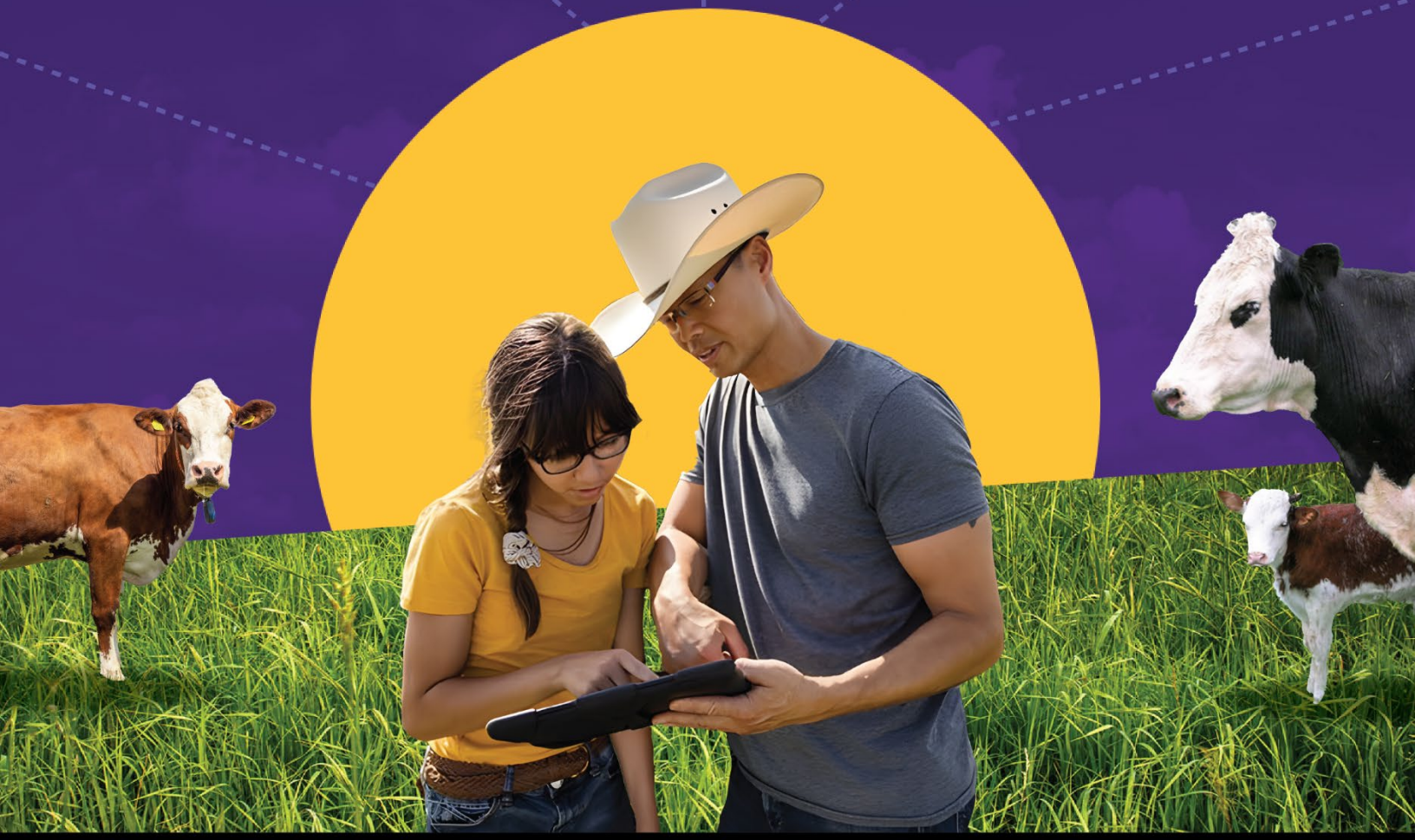
Agricultural Methane Reduction Challenge

Stage 1A: Concept application

Applicant Guide



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This guide will:

- Provide you with directions and explanations to assist you in completing the Stage 1A application form for the Agriculture and Agri-Food Canada (AAFC) Agricultural Methane Reduction Challenge, herein referred to as “the Challenge”.
- Help you determine if you may be eligible for funding under the Agricultural Methane Reduction Challenge.

Once selected, semi-finalists from Stage 1A will receive further reporting requirements and instructions for Stage 1B.

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1 About the Challenge

Methane is a short-lived but potent greenhouse gas (GHG) that is 80 times more powerful than carbon dioxide at warming the planet over a 20-year period. Methane accounts for 17% of GHG emissions globally. The agricultural sector produces approximately 1/3 of Canada's methane, where 86% of emissions are due to enteric fermentation from ruminant livestock such as cattle and sheep. The Agricultural Methane Reduction Challenge aims to support solutions that can reduce methane emissions from the cattle sector in Canada. For the purpose of this challenge, the cattle sector is limited to the cow-calf, feedlot and dairy sector. Despite decades of ongoing research in this area, there are several innovation gaps in advancing methane reduction solutions and reducing barriers to their adoption, especially in cow-calf operations.

1.1 Challenge Objectives

The objectives of the Challenge are to:

1. Reduce net enteric methane emissions in the cattle sector;
2. Accelerate innovative methane reduction solutions, particularly in the cow-calf sector;
3. Invest financial and non-financial resources in the rapid development of methane reduction solutions;
4. Increase awareness of the impact of methane and ways to reduce emissions in the sector;
5. Support the successful adoption and scale-up of solutions on-farm;
6. Facilitate knowledge and technology transfer activities within the sector to encourage adoption;
7. Improve measurement tools and data to account for methane emissions reduction;
8. Facilitate collaborations between the industry, producers, scientists, innovators and AAFC.

Results achieved through the Challenge will contribute to Canada's efforts in reducing methane emissions, thereby supporting its commitment towards the Global Methane Pledge which aims to reduce global methane emissions by 30% below 2020 levels by 2030.

For more details on definitions used throughout this Guide, please refer to Annex A.

1.2 Challenge Statement

This Challenge aims to advance **innovative**, **scalable** and **economically viable** practices, processes, and technologies that contribute to the net reduction of enteric methane emissions from the **cattle sector**.

The Challenge is designed and delivered by Agriculture and Agri-Food Canada in partnership with Privy Council Office's Impact Canada.

2 Applying to the Challenge

2.1 Eligible Applicants

Eligible applicants for this Challenge include:

- Businesses or other for-profit organizations incorporated in Canada;
- Not-for-profit organizations registered in Canada;
- Producers, producer organizations and associations within Canada;
- Indigenous (First Nations, Métis, Inuit) individuals, organizations or groups of individuals located in Canada;
- Post-secondary/academic institutions located in Canada;
- Individuals or groups of individuals based in Canada;
- Collaborations between one or more of the above categories of applicants and international parties.

International individuals or groups of individuals are encouraged to apply but will be required to establish a Canadian legal entity in order to be eligible to receive funding.

Note: Eligible applicants must be legal entities capable of entering into legally binding agreements.

2.2 Eligible Solutions

In order to be considered for selection, solutions must be aimed at leveraging innovation to achieve specific outcomes tied to reducing enteric methane emissions as described in the above mentioned Challenge Statement.

While ideas and concepts can originate from anywhere globally, successful applicants will be required to test and scale their solutions in Canada.

Potential innovation areas include, but are not limited to the following:

Feed additives and related technologies

Solutions could include feed additives, improving forage quality, precision feeding, and increasing diet digestibility

Pasture and grazing management

Solutions could include traditional and novel grazing practives, nature-based solutions, winter feeding, improved pasture quality

Production efficiencies and animal management systems

Solutions could include improved forage quality, feed efficiency practices, genetic selection, animal health improvements

3 Challenge Structure

3.1 Stages

The Challenge follows a stage-gated approach to support a cohort of innovators. At each stage, different financial and non-financial incentives will be available to successful participants. At every stage, solutions will be reviewed against the assessment criteria, and selected winners will be invited to move to the following stage.

Stage 1A: Concept application: In this stage, you are required to complete an online submission describing your solution, its initial application in reducing enteric methane and the scientific validity of your approach. You will need to describe how your solution aligns with the Challenge Objectives. A cohort of up to 20 semi-finalists will be selected to move on to Stage 1B of the Challenge.

Note: This guide will help you complete an application at Stage 1A. Once selected, successful participants from Stage 1A will receive further reporting requirements and instructions for Stage 1B. The following information is provided to give you an idea of what would be required of you for Stages 1B, 2 and 3 of the Challenge.

Stage 1B: Prototype development: In this stage, you will be required to build or complete an existing prototype of your technology, practice or process. You will be required to rigorously test your technology, practice or process by measuring and reporting against the assessment criteria. Prototypes need to demonstrate readiness in an operational environment and/or for farm testing.

Stage 2: Testing and measurement: In this stage, you will be required to test your solution in an operational environment in partnership with end users of the solution. You will need to demonstrate a measurable reduction in methane emissions achieved by your solution. You are to evaluate the effectiveness of your solution by measuring and reporting against the assessment criteria. Up to 10 finalists will be selected to move on to Stage 3 of the Challenge.

Stage 3: Grow and scale: In this stage, you will be required to accelerate and scale up the commercialization and/or adoption of your solution by acquiring new customers or users for your solution and scaling the solution to new contexts. You will be required to report on the growth of the solution in the Canadian market and, similarly to Stage 2, you will be required to rigorously test and evaluate the effectiveness of your solution by measuring and reporting against the assessment criteria.

3.2 Prize Amounts

Up to $12 million in total will be awarded to semi-finalists, finalists and winners of the Challenge alongside a host of non-financial supports such as mentorship, advisory and training supports.

Stage	Stage duration	Number of winners	Prize amount
Stage 1A: Concept application	4 months	Up to 20 semi-finalists	$100K per semi-finalist
Stage 1B: Prototype development	9 months	Up to 20 semi-finalists	$150K per semi-finalist
Stage 2: Testing and measurement	9 months	Up to10 finalists	$500K per finalist
Stage 3: Grow and scale	19 months	Up to 2 winners	$1M per winner

The number of winners and prize amounts may vary depending on the applications received.

4 Assessment and Selection Process

4.1 Assessment Criteria

Below are the assessment criteria for the Challenge. These criteria will be assessed at every stage, with a different focus and weighting at each stage.

Assessment Criteria	Stage 1	Stages 2 and 3
Net reduction in enteric methane emissions	Potential for enteric methane emission reduction estimated using secondary data sources, and modeling and simulation techniques	Direct measurement of methane reduction in a controlled setting and on-farm with support from AAFC
Innovation	Approaches to methane reduction that target areas where solutions are limited, improve existing solutions and/or focus on equity deserving groups in the sector	Robust data to support the applicability and added value of the approach over existing solutions within the chosen context
Scalability	Coverage potential and applicability of the solution across different farm sizes and farm intensities	Evidence of scalability from the operational environment, ability to integrate within existing processes and systems in the sector
Economic viability	Pathway for generating economic value or maintaining financial sustainability while reducing methane emissions	Analysis of economic impact, financial sustainability and profitability of the solution
Commercialization and/or adoption	Solutions are at Minimum Viable Product stage with a plan for market adoption and widescale implementation	Implementation of commercialization and/or adoption plan, generate demand for the solution and build partnerships with end users
Environmental co-benefits	Environmental co-benefits (such as carbon sequestration, improved soil quality, etc.) identified and with a potential risk mitigation plan	Assessment and monitoring of environmental benefits and risks
Social assessment of solution	Anticipated social goods or risks. Potential impact on workers, animal health, product quality, and specific demographic groups. Consultations with equity deserving groups in the sector such as Indigenous peoples, racialized persons, people with disabilities, women, and 2SLGBTQI+	Evidence of social goods created by solution. Mitigation of social risks

4.2 Selection Process

AAFC will convene an independent and voluntary external review panel composed of subject matter experts (e.g. representatives of private sector, stakeholder groups, academia) to assist in the assessment of applications referred to as “the jury”. The jury will review applications and provide recommendations to support AAFC in determining the semi-finalists, finalists and winners. Additional expertise from AAFC officials and/or other government departments may be sought in the review process, based on application content.

AAFC will take the necessary measures to avoid conflict of interest for any external review committee members or others involved in the assessment process, and will execute non-disclosure agreements to protect applicants’ information.

Further to the jury’s recommendations, AAFC will select and announce the semi-finalists, finalists and winners, as applicable to each stage of the Challenge. All of AAFC’s decisions and selections will be final and not subject to appeal.

Please note that even if a solution meets all eligibility and assessment criteria, the submission of an application creates no obligation on the part of the Minister of Agriculture and Agri-Food to provide funding for the proposed project.

5 How to Apply

5.1 Stage 1A Application

These application instructions apply to Stage 1A of the Challenge.

Only applications submitted through the Impact Canada website via the designated Challenge application portal will be accepted. **Applications must be submitted no later than February 7, 2024 at 11:59 pm Pacific Time.**

Additional information on the Challenge including timelines, prizes, and Frequently Asked Questions (FAQs), are available on the Challenge website.

A complete Stage 1A application package consists of:

- Challenge application form:
  - Applicant details;
  - Proposed solution details;
  - Declaration;
  - Survey *(optional);*
- Letters of support from partners (*optional);*
- Confirmation of legal entity and/or not-for-profit status *(if applicable).*

Incomplete applications will not be assessed or further considered.

Challenge Application Form
You must fill in the application form available online on the Impact Canada website. Solution details must be concise, but comprehensive (including only links to websites in a response will risk elimination especially if these are too general in scope and do not address a specific question or issue). The form consists of the following sections:

Section 1: Applicant Details
This section of the form requests basic information on your organization or individual(s) applying to compete in this Challenge and to receive funding if successful, as well as partner organizations supporting the development of the proposed solution.

Section 2: Proposed Solution Details
In this section, you must provide details on your proposed solution and answer questions that relate to the assessment criteria. Note that this is the main section that will be used by the jury in the assessment process. Make sure to include in this section all relevant information for the jury's consideration.

Attachments (optional)

The following attachments are optional at this stage of the application and should be provided only if available:

Letters of support from partners
If your organization is partnering or collaborating with others in the development of the proposed solution, you should provide information about the partner organization in Section 1 of the application form. You may also provide letters of support from partners that include details on their role and engagement.

Confirmation of legal entity and/or not-for-profit status (if applicable)
This can be a copy of the status certificate, incorporation documents, patent letters, or articles of incorporation (if applicable). Note that the lead (principal) applicant is required to establish a Canadian legal entity capable of entering into legally-binding agreements to receive grant funding. This requirement can be completed after submission of the application, but prior to receiving any funding.

Declaration
You must review and accept the terms and conditions for the Challenge, agree to the due diligence process as described below, and review and accept the Consent for Use and Disclosure requirements.

Survey (optional)
This section collects information on your experience with this Challenge, information about your organization, as well as demographic information. Note that any data collected will be used strictly for administrative purposes to help us understand if, and how, Challenges are an effective tool, and to improve upon their design in the future. The data collected in this survey will be aggregated and no individual answers will be published. Your answers to this survey will not be used in the assessment process and will not affect your chances of success in this Challenge or in any other federal funding application.

For detailed step-by-step instructions on how to answer each question in the application form, please refer to Annex B.

6 If you are Selected

Stages
Following recommendations from the jury, approximately 20 applicants will be selected in Stage 1A to be semi-finalists in the Challenge. Semi-finalists will receive a prize amount in the form of a grant and will be invited to proceed to Stage 1B of the Challenge. Semi-finalists should be committed to meeting the requirements of Stage 1B, which includes building or completing an existing prototype of their solution.

Grant Agreement
In order to receive the prize amount at each stage, each successful semi-finalist, finalist, and winner will be required to enter into a grant agreement with AAFC.

Prior to entering into the grant agreement, all selected participants will undergo a due diligence process to confirm that they meet all requirements to receive Challenge grant funding and that they have the capacity to undertake the work outlined in their concept application. The due diligence process may include, when applicable, the review of the following documents:

- Documentary proof establishing that the lead applicant constitutes a Canadian legal entity capable of entering into legally-binding agreements and may receive Agricultural Methane Reduction Challenge grant funding;
- Financial information, such as financial statements;
- For Quebec-based participants, documentation confirming compliance with the Province of Quebec's M-30 legislation prior to entering into an agreement with AAFC.

M-30 Act (Quebec organizations only)
The Province of Quebec's M-30 legislation may apply to Québec based applicants only. It is the Act Respecting the Ministère du Conseil exécutif (R.S.Q., c. M-30).

More information on the Act is available online or by contacting the Ministère de l'Agriculture, des Pêcheries et de l'Alimentation (MAPAQ) at dpci@mapaq.gouv.qc.ca.

M-30 applies to various types of Quebec organizations, for example, organizations located in Québec and receiving more than half of their financing from the Government of Québec may be subject to the Act.

All Quebec based organizations will have to address this matter and demonstrate their compliance with the Act during the project assessment process, and prior to entering into a contribution agreement.

7 General Terms and Conditions

Applicants to the Challenge agree to the following when submitting their application:

- Applicants agree to comply with all applicable laws;
- Applicants must be able to demonstrate ownership of, or permission to use any intellectual property (IP) used in the Challenge and provide necessary permission to AAFC for the purpose of administrating this Challenge;
- Applicants warrant that all information given in and with the Challenge application form for this solution is, to the best of their knowledge, complete, true and accurate;
- AAFC has the discretion to cancel this Challenge or any part thereof at any time.

Unpaid Debts to the Government of Canada
A recipient of AAFC funds must declare any amounts owing to the Government of Canada. Any amounts due to the recipient under AAFC programs may be offset against any such amounts owing to the Government of Canada under any agreement or any legislation with the Government of Canada.

Lobbying Activities
The applicant must ensure that any person lobbying on behalf of the applicant is registered and in compliance with the *Lobbying Act*. More information on the obligations in the *Lobbying Act* can be found on the website of the Commissioner of Lobbying of Canada.

Conflicts of Interest
Current or former public servants or public office holders are required to avoid conflict of interest situations while employed by the federal government and for a period of time following their service. The applicant acknowledges that any individuals who are subject to the provisions of the *Conflict of Interest Act,* the *Values and Ethics Code for the Public Sector*, the *Conflict of Interest Code for Members of the House of Commons*, any applicable federal values and ethics code or any applicable federal policy on conflict of interest and post-employment shall not derive any direct benefit resulting from this application unless the provision or receipt of such benefit is permitted in such legislation, policy or codes.

Privacy

Use and/or Disclosure
The personal information you provide in the Agriculture Methane Reduction Challenge Application Form, and in documents in support of the application, is collected under the authority of the *Department of Agriculture and Agri-Food Act* and the *Canadian Gender Budgeting Act*. Your personal information will be disclosed by Agriculture and Agri-Food

Canada (AAFC) to a panel of AAFC officers, representatives of private sector, stakeholder groups, and academia and used:

- to process the application, validate credentials, verify the accuracy of the information provided in this Application Form and in any additional documents submitted, and facilitate payment of the grant in the event the application is successful;
- to notify your organization of other federal (including AAFC) or provincial programs from which your organization might benefit;
- to evaluate the scope, direction and effectiveness of agricultural programming and research in Canada; and/or
- for program administration and evaluation, reporting, and statistical analysis, including for gender-based analysis plus purposes.

Your application may also be shared with other government organizations should additional expertise be required in the review process, based on application content, to determine the eligibility of a project.

Participation in this challenge is voluntary, and participants are not obligated to provide their personal information should they choose not to. Should you choose not to provide your personal information, it will not impact your relationship with AAFC; however, missing or omitted application information may render the application invalid or may result in processing delays.

Personal information will be handled in accordance with the *Privacy Act*. Individuals have the right to the protection and correction of, and access to, their personal information. For personal information under the control of AAFC, these rights may be exercised by contacting the AAFC Access to Information and Privacy Director at aafc.atip-aiprp.aac@agr.gc.ca. Individuals also have the right to file a complaint with the Office of the Privacy Commissioner of Canada concerning AAFC's handling of their personal information.

Intellectual property
Intellectual property created by an applicant will remain the property of the applicant.

Where it is to the advantage of Canadians, and not detrimental to the goals of the recipients, AAFC may negotiate the shared use of intellectual property developed by recipients or through a third party. The rights to use this material may include further use of data for research purposes and/or publishing the intellectual property online, in printed documents and in publications.

8 Contact Us

For more information on the Agricultural Methane Reduction Challenge, please contact us by:

E-mail: aafc.AMRC-DRMA.aac@agr.gc.ca
Telephone: 1-877-246-4682
TDD/TTY: 613-773-2600

ANNEX A: Definitions

Challenge prize: A challenge prize competition presents a clear problem or objective and offers a reward to the first or best solution to the problem, as judged by a panel of experts, based on a set of pre-determined criteria. Challenge prizes work best in addressing problems that are stuck or in domains that are new and emerging. In both scenarios, they serve to accelerate solutions and to bring new perspectives and approaches forward.

Cow-calf operations: A method of rearing beef cattle in which a permanent herd of cows is kept by a farmer or rancher to produce calves for later sale.

Enteric fermentation: Enteric fermentation is a natural part of the digestive process in ruminant animals such as cattle, sheep, goats, and buffalo. Microbes in the digestive tract, or rumen, decompose and ferment food, producing methane as a by-product, also referred to as enteric methane.

Equity deserving groups: Communities that identify barriers to equal access, opportunities, and resources due to disadvantage or discrimination, such as Indigenous peoples, racialized persons, people with disabilities, women, and 2SLGBTQ+

Farm intensity: Farm input intensity is expressed as the utilized agricultural area (UAA) managed by farms with low, medium and high input intensity, as percentage of total UAA.

Minimum Viable Product (MVP): A minimal viable product is a version of a product with just enough features to be usable by early customers who can then provide feedback for future product development.

Net Reduction: Net reduction is defined a measurable reduction relative to a baseline or standard.

Ruminant: Ruminants are hoofed herbivorous grazing or browsing mammals that are able to acquire nutrients from plant-based food by fermenting it in a specialized stomach prior to digestion, principally through microbial actions.

ANNEX B: How to Complete the Stage 1A Application Form

Section 2 of the Application Form is the main section that will be used by the jury in the assessment process. Below are detailed instructions to help you submit a high quality application.

Q2.1. Applicant and solution description

Q2.1.1 Please select the target area(s) that best fits your solution.

- Cow-calf operations: A method of rearing beef cattle in which a permanent herd of cows is kept by a farmer or rancher on pasture to produce calves for later sale.
- Feedlot: An intensive animal farming system, notably beef cattle, with the goal of growing and or fattening cattle until they reach an ideal slaughter weight.
- Dairy: On-farm agricultural activity focused on the long-term production of milk for human consumption and/or for processing into other dairy products.
- Other: If the target area you are working on does not fit into any of the above categories, please specify a broadly-defined target area for your solution.

Q2.1.2 Please select the category that best fits your solution. Should your solution fall into multiple categories, select the primary one.

Feed additives, improvements, and related technologies

- Feed additive
- Precision feeding
- Increasing diet digestibility
- Improve forage quality
- Other: Should your solution fall under the feed additives and related technologies category, but is not included in the above list, please specify a broadly-defined category for your solution.

Pasture and grazing management

- Grazing practice
- Cattle behaviour management
- Nature-based solution
- Winter or extended feeding
- Improving pasture quality/species composition

- Other: Should your solution fall under the pasture and grazing management category, but is not included in the above list, please specify a broadly-defined category for your solution.

Production efficiencies and animal management systems

- Feed efficiency practices
- Genetic selection and genomics
- Animal health improvements
- Other: Should your solution fall under the production efficiencies and animal management systems category, but is not included in the above list, please specify a broadly-defined category for your solution.

Q2.1.3 What is the problem? This question seeks to establish a clear understanding of the exact problem you are trying to solve and your rationale for why this is a problem in your context. In your description of the problem, describe how you identified the problem and its impact.

Q2.1.4 Why your solution? This is your elevator pitch to convince the jury why your solution should be selected in the Challenge. Using concise, non-technical, and simple language, describe your proposed technology, practice or process, how it works, what conditions are required, how it specifically tackles enteric methane emissions reduction as identified in questions Q2.1.3 and its comparative advantage over existing solutions. The purpose of this question is to allow you to concisely and precisely make your case for how your solution responds to the Challenge statement, which is: This Challenge aims to advance innovative, scalable and economically viable practices, processes, and technologies that contribute to the net reduction of enteric methane emissions from the cattle sector.

Q2.1.5 Why you/your organization? Tell us about yourself and/or your organization, your background, what brought you to work on your proposed solution and how you and/or your organization will advance this technology, practice or process. Include details on your skills, expertise and/or partners, to demonstrate your capacity in carrying out your solution. The purpose of this question is to give you the opportunity to talk about the path that brought you to the Challenge. In your narrative, you can include some of the barriers that you had to overcome and demonstrate how you are ready to advance your solution to reduce enteric methane emissions.

Q2.2 Net reduction in enteric methane emissions

Q2.2.1 Based on supporting data e.g. secondary data sources, and modeling and simulation techniques, explain how your solution will reduce enteric methane emissions. (Optional: You can attach reports, studies, or other materials to support

how your solution will reduce enteric methane emissions.) At this stage, your solution will be assessed on the potential impact of enteric methane emissions reduction. In your narrative you should describe your solution and its application to reducing enteric methane emissions as well as the scientific validity of your approach. You should describe the potential impact of enteric methane emissions reduction your solution can achieve by using secondary data sources, modeling and simulation techniques. Supporting data such as reports, studies, or other relevant materials can be attached to your application.

Q2.2.2 How much enteric methane emissions would be reduced by your solution over a period of time? (e.g. percentage reduction per Mt CO_2 equivalents or average estimated reductions per cow etc.). Explain how your figures are calculated. In your narrative, you need to quantify the potential impact on enteric methane emissions reduction by estimating what percentage reduction per Mt CO_2 equivalents or average estimated reduction per cow can be achieved by your solution. Ensure you properly reference all figures and data, and explain your reasoning and calculations. Sources can include literature reviews, primary data collected by your organization, secondary data acquired by your partners, early testing data if available, etc.

Q2.2.3 How will you measure emissions reductions from your proposed solution? In later stages of the Challenge, you will be required to directly measure the reduction of enteric methane emissions your technology, practice or process can achieve, using a rigorous and scientific methodology. At this stage, for this question, please discuss your approach and plan to integrate measurement of enteric methane emissions when your solution is in use. Include any potential support, techniques, methods, and technologies you will need.

Q2.2.4 Do you have access to testing sites and/or facilities for your solution? Should you have access to testing sites or facilities for your solution, please list them and briefly describe their use. Please enter any testing facilities or site you currently require to move your solution forward.

Q2.3 Innovation

Q2.3.1 What is innovative about your proposed technology, practice or process to reduce methane emissions? In your narrative, describe how your technology, practice or process is an innovative way to reduce enteric methane emissions. Innovation is defined as the application of ideas and methods that are novel and useful. It is not limited to new technology. You should explain in detail what the solution is, what technology/tools it employs, how it works, what conditions are required, and how it specifically produces the intended outcomes. Note that this question is linked to the

assessment criterion on innovation, therefore, make sure that your description is not generic and that it is focused on the innovative aspect of your technology, practice or process.

Q2.3.2 Please describe the target area that best fits your solution i.e. cow-calf operations, feedlot, dairy, and describe how your approach to methane reduction addresses a gap in that area. Describe how your approach to methane reduction addresses a gap in the selected target area(s) that best fits your solution. Refer to Q2.1.1 for more details on the target areas.

Q2.3.3 Describe how your technology, practice or process is different from existing solutions or how it improves existing solutions and/or focuses on equity deserving groups in the sector. For this question, first identify the space of existing solutions that are similar to your proposed solution, then identify the limitations of these solutions and how your solution is better at addressing the same problem. Make sure to clearly explain what is novel in your solution compared to existing solutions. If you have started working on your solution prior to this Challenge, make sure to explain what new elements you are planning to introduce to your solution to improve its effectiveness and reach.

Q2.4 Scalability

Q2.4.1 Describe how your solution can be applied and scaled across different farms with varying sizes and intensities. Scalability is defined as the capability of the solution to cope and perform well under an increased or expanding workload, scope or context. Please explain how your solution can cope with an increasing number of end users and be scaled across different farms with varying sizes and intensities. Farm intensity: Farm input intensity is expressed as the utilized agricultural area (UAA) managed by farms with low, medium and high input intensity, as percentage of total UAA.

Q2.5 Economic viability

Q2.5.1 What is the economic case for your solution? Include an analysis of the potential economic and financial benefits of using your technology, practice or process. In your narrative, you should identify and describe the economic value created by your solution. Describe the economic benefits to using your technology, practice or process e.g. increased financial returns to end users, possibly due to increased efficiencies generated by using your solution. You should try to quantify the financial returns to end users and other stakeholders, as applicable.

Q2.6 Commercialization and/or adoption

Q2.6.1 Describe the current stage of development of your solution and how you plan to move it forward for widescale adoption or commercialization. Your solution must be at Minimum Viable Product stage with a plan for market adoption and widescale implementation. Minimum Viable Product (MVP): An MVP is a version of a product with just enough features to be usable by early customers/adopters who can then provide feedback for future product development. Describe the current stage of development of your solution and how you plan to move it forward for widescale adoption or commercialization within the Canadian context. Describe how your prototyping and testing will be adapted to ensure successful adoption or commercialization in the future.

Q2.6.2 What types of challenges to adoption do you anticipate and how do you plan to facilitate adoption by end-users? In your narrative, identify any barriers to commercialization or adoption that might arise and how you will address them. Commercialization and/or adoption might involve behavioral change. Please discuss how you will manage this change to facilitate adoption of your solution by end users.

Q2.6.3 Are there regulatory considerations to your solution? If applicable, please explain how you propose to address these. You need to consider and identify any potential regulations that are pertinent to the implementation of your technology, practice or process in Canada. Discuss how you will meet regulatory requirements and describe your plan for compliance.

Q2.7 Environmental co-benefits

2.7.1 What are the environmental co-benefits (e.g. carbon sequestration, biodiversity, water quality, climate resilience, improved soil quality) to using your solution? List and describe the environmental co-benefits to using your solution. These can include carbon sequestration, biodiversity, water quality, climate resilience, improved soil quality, etc. If you are able to quantify the environmental co-benefits, you can include these measures, as applicable. Please explain how you calculated the environmental co-benefits, including any assumptions, coefficients and emissions factors used in the calculation(s).

2.7.2 What environmental risks do you anticipate, if any, and how will you mitigate these? Summarize the environmental impact assessment of your solution, focusing on risks that are directly associated with the use of your solution. If you are able to quantify these environmental risks, you can include measures such as the impact of your solution on other greenhouse gas emissions, water usage, and other environmental indicators, as applicable. Please explain how you calculated the environmental risks,

including any assumptions, coefficients and emissions factors used in the calculation(s). Discuss how you can mitigate those risks through adaptation in the prototype development and testing of your technology, practice or process.

Q2.8 Social assessment of solution

2.8.1 What social goods and/or risks, if any, do you anticipate to using your solution? If applicable, describe how you will mitigate social risks. Summarize the social impact assessment of your solution, focusing on goods and/or risks that are directly associated with the use of your solution. You should consider how your solution affects specific social processes and demographic groups. If you are able to quantify social impacts, you can include these measures, as applicable. If you have identified social risks, describe how these will be mitigated.

2.8.2 Describe the potential impact on workers, animal health, product quality, and specific demographic groups to using your solution. In your narrative, describe the potential impact in using your solution on workers, animal health, product quality, and specific demographic groups. Describe consultations held with equity deserving groups in the sector such as Indigenous peoples, racialized persons, people with disabilities, women, and 2SLGBTQI+, as applicable.

Q2.9 Supports needed

What are some existing skills and/or knowledge gaps that your solution is facing? What areas of support would contribute to your success? The Challenge follows a stage-gated approach to support a cohort of innovators. At each stage, different financial and non-financial incentives will be made available to successful participants. Non-financial incentives can include mentorship, advisory and training support. The Challenge team would like to know how we can support you in this Challenge. We would be interested to know what are some existing skills and knowledge gaps you are facing in using your technology, practice or process and the areas of support which would contribute to your success in this Challenge.

Q3.0 Additional information

Please provide any additional information about yourself or your solution that you would like us to know. In your narrative, provide additional information about yourself, your organization or your solution that hasn't already been captured in the previous questions.

Attachments (Optional)

The following attachments are optional at this stage of the Challenge and should be provided only if available:

- **Letters of support from partners** You may provide letters of support from partners listed in section 1.8 of the Application Form.
- **Reports, studies, or other materials to support how your solution will reduce enteric methane emissions** You may attach materials such as reports, studies, etc. to support your narrative under question 2.2.1 describing the potential impact on enteric methane emissions reduction that your solution could achieve.
- **Confirmation of legal entity and/or not-for-profit status (if applicable)** You are encouraged to provide confirmation of legal entity and/or not-for-profit status. This can be a copy of the status certificate, incorporation documents, patent letters, or articles of incorporation. Note that the lead (principal) applicant is required to establish a Canadian legal entity capable of entering into legally binding agreements to receive grant funding. This requirement can be completed after submitting the application, but must be in place prior to receiving any funding.