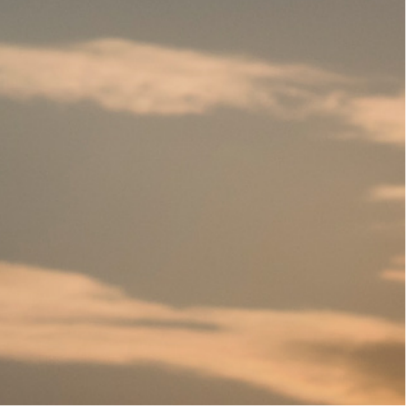
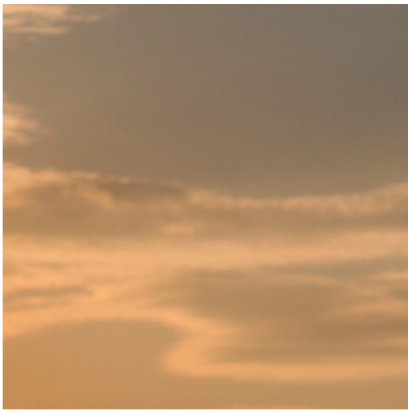
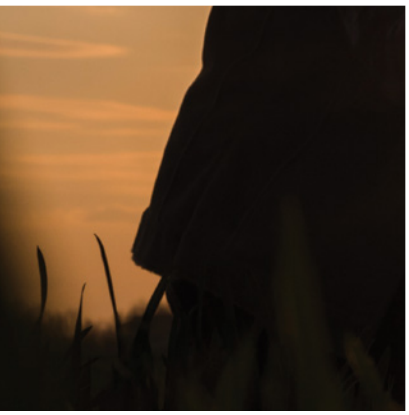
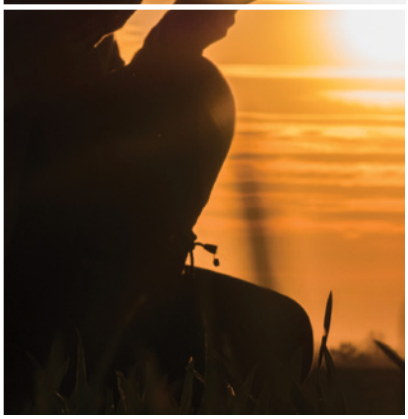


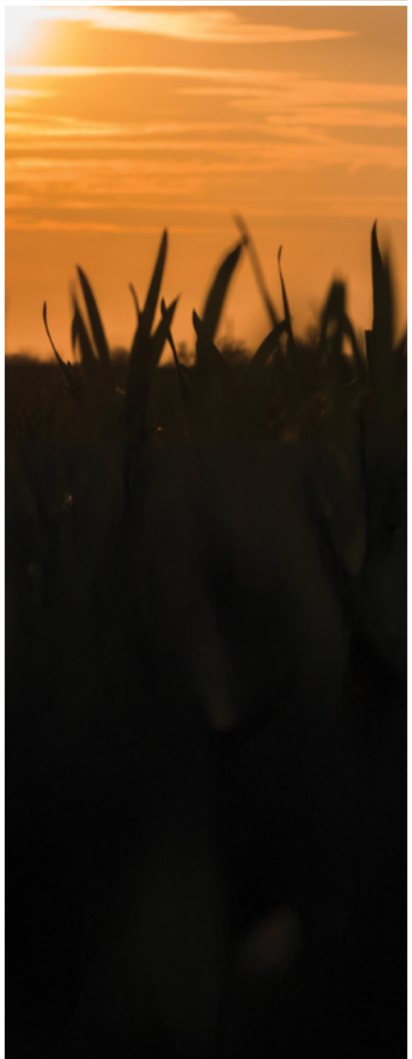
Grain Farmers of Ontario

KNOWLEDGE TRANSFER FOR IMPACT









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Knowledge Transfer for Impact: The Framework at Grain Farmers of Ontario

In the realm of field crop research in Ontario, effective transfer of research findings is essential to generate value for Ontario's grain farmers and the broader sector. At Grain Farmers of Ontario, a comprehensive framework for approaching knowledge transfer (KT) has been developed to maximize the impact of research outcomes.

Understanding Knowledge Transfer

Knowledge transfer of research can be categorized into two end goals:

1. FOR AWARENESS

This aspect focuses on informing end users about solutions and opportunities that are either in development or already exist. The aim is to build familiarity and pique interest, encouraging potential adoption of new ideas.

2. FOR ADOPTION

This aspect requires detailed instructions and information to facilitate the implementation of research outcomes.

It's important to note that individual research projects rarely lead to wholesale adoption by end users, such as farmers. Instead, effective knowledge transfer for adoption often requires synthesizing results from multiple studies that address a problem or opportunity from various perspectives. This comprehensive communication plan is typically executed by individuals with expertise in communications and extension rather than solely by researchers.

While both types of knowledge transfer to end users come into play after the research is complete, for either of them to be effective, we need to back up to the very beginning.

Step 1: Start with the Problem and Identify the Target Audience(s)

The journey toward impactful knowledge transfer begins with a deep understanding of the problem or opportunity at hand. Skipping or minimizing this step substantially reduces the chance of generating meaningful impact by the end of the project. The priority-setting process led by Grain Farmers of Ontario is essential, but researchers must ask more detailed questions of those potentially impacted by a problem or opportunity to grasp the specific nuances of the issues they aim to address.

Getting to know the audience is equally critical. Researchers should identify both the immediate audience for their specific project (e.g., downstream researchers) and the ultimate audience (e.g., farmers) who will benefit from the research (sometimes, these are the same audience). Engaging with farmers through initiatives like Grain Farmers of Ontario researcher bus tours and regional farmer and agronomist events (e.g., Ag Breakfast Meetings, farm shows, and the twilight meetings), or farmer-focused events such as Grain Farmers of Ontario March Classic and district meetings, allows researchers to ask questions and gather insights about how their research can provide value or may need to shift to provide more value. It is essential to recognize that farmers and their operations are not identical; understanding the diverse operations, growing conditions, needs, perspectives, and practices of different farmers enhances the potential for effective knowledge transfer. In other words, there is no "one-size-fits-all" solution to effective knowledge transfer.

Step 2: Design Research with the Problem and End-user(s) in Mind

Once researchers have a clear understanding of the problem and the audience, the next step is to design studies that address these elements directly.

Robust scientific design is crucial to ensure reliable answers to important questions, including the ability to be confident in results (e.g., whether positive, negative, or neutral).

Incorporating the perspectives of immediate end users and farmers into planned deliverables, treatment choices, and study design is vital (e.g., examples 1 & 2 below). If the outcome product, practice, or process is unrelatable to the final audience, the opportunity for meaningful impact is minimal. Grain Farmers of Ontario helps provide grower perspectives through feedback on pre-submission, Letter of Intent and Full Proposal project concepts; however, direct connections with end users and farmers are also highly encouraged.

EXAMPLE 1: Field sites for a trial should reflect the variability in soil types and environmental conditions that farmers can relate to. Trial treatments should also be practical for farmers to adopt, if effective.

EXAMPLE 2: The development of molecular markers for breeders should first target traits that farmers need as the ultimate end user. Next, consider the germplasm base within which breeders, as the immediate end user, require the marker to function, identify the type of molecular marker that could be easily used by breeders, and assess how the newly developed molecular marker would be beneficial compared to currently available markers or traditional manual collection of phenotypic data.

Incorporating farmers into the implementation of field studies enables researchers to scale the research beyond traditional research stations to functioning farms and can help identify and address challenges that arise during execution. Grain Farmers of Ontario Farmer-Researcher Connect, established in 2024 (www.gfo.ca/research), facilitates direct involvement of farmers. Agronomists can also serve as trusted intermediaries to provide perspectives and link researchers with additional farmers.

Step 3: Develop a Communication Plan at the Start

Developing a core communication plan is essential at the outset of a research project. This should include a clear rationale for the various components. Grain Farmers of Ontario has created a knowledge transfer rubric for researchers submitting full proposals to our funding program (page 7). The rubric outlines the minimum KT activities necessary for a given target audience and the rationale behind them. Also important is to consider who will assist with executing the plan (e.g., Ontario Ministry of Agriculture, Food and Agribusiness (OMAFA) field crop specialists, graduate students, farmer association publications, agricultural media, etc.). Regardless of the communication avenue, funders (e.g., Grain Farmers of Ontario, etc.) should be given credit for funding the research.

Researchers should consider both end goals of knowledge transfer when planning communications, as well as the role of peer-reviewed journal articles:

- **AWARENESS COMMUNICATIONS**

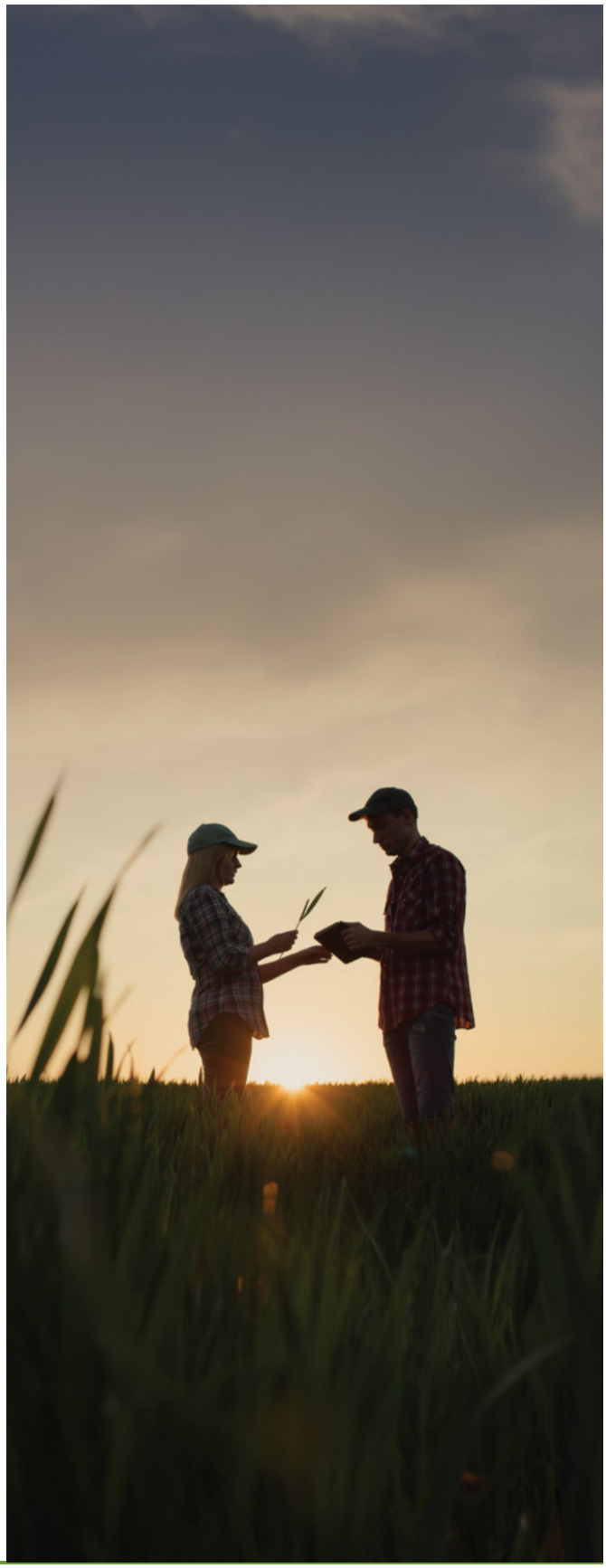
These efforts, often delivered through agricultural media, farmer association communications, social media, and sometimes farmer/agronomist conferences, aim to build general awareness. They typically provide minimal details to aid adoption but can reach broad audiences effectively.

- **ADOPTION COMMUNICATIONS**

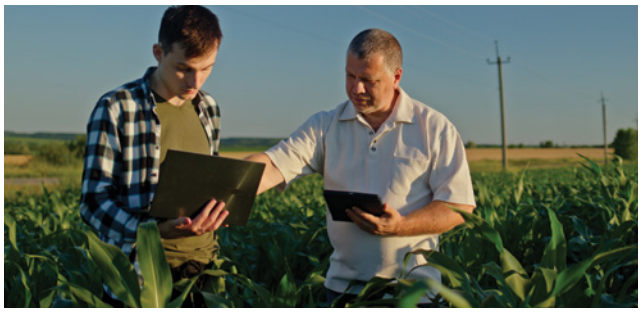
These require more technical insights tailored for agronomists who can interpret the results for farmers. Communication tools include fact sheets, which present technical, actionable information in a concise and accessible format and can be stored indefinitely. Information snippets from fact sheets can be repurposed quickly and communicated through other avenues at the appropriate time.

- **PEER REVIEWED JOURNAL ARTICLES**

Journal articles (or an equivalent) play a crucial role, providing a permanent and detailed description of the research conducted and the results. These publications ensure that findings can be built upon in the future and help identify unaddressed gaps in understanding the problem or opportunity.



Step 4: Communicate Effectively



TIMING MATTERS: Communicating results too early, too late, or during periods of heightened activity on farms can lead to missed opportunities for impact as the audience might miss the communications, or they won't stick. Disseminate communications when the audience is likely thinking about the subject matter.

METHODS MATTER: Utilizing a diverse array of communication methods is vital, as surveys of our farmer members revealed that they obtain information from multiple sources, and they are not all engaging with the same sources. Repetitive communication of the same messaging across multiple sources also helps solidify recognition by the target audience.

AUDIENCE MATTERS: Understand your audience's needs and clearly describe why the research matters. Write or speak in plain language with a level of complexity that the audience is familiar with. For example, farmers are often concerned about how a recommendation would improve their current practices, on-farm practicality of adoption, return on investment (ROI), adoption risks and benefits, and regulatory clarity. Pictures, figures and tables can be helpful visuals.

Consider using large language models (e.g., ChatGPT) to help with catering messaging to specific audiences. Note that their outputs ALWAYS need to be checked for accuracy and require additional editing before release.

Step 5: Engage Post-project Communications Expertise for Higher Impact

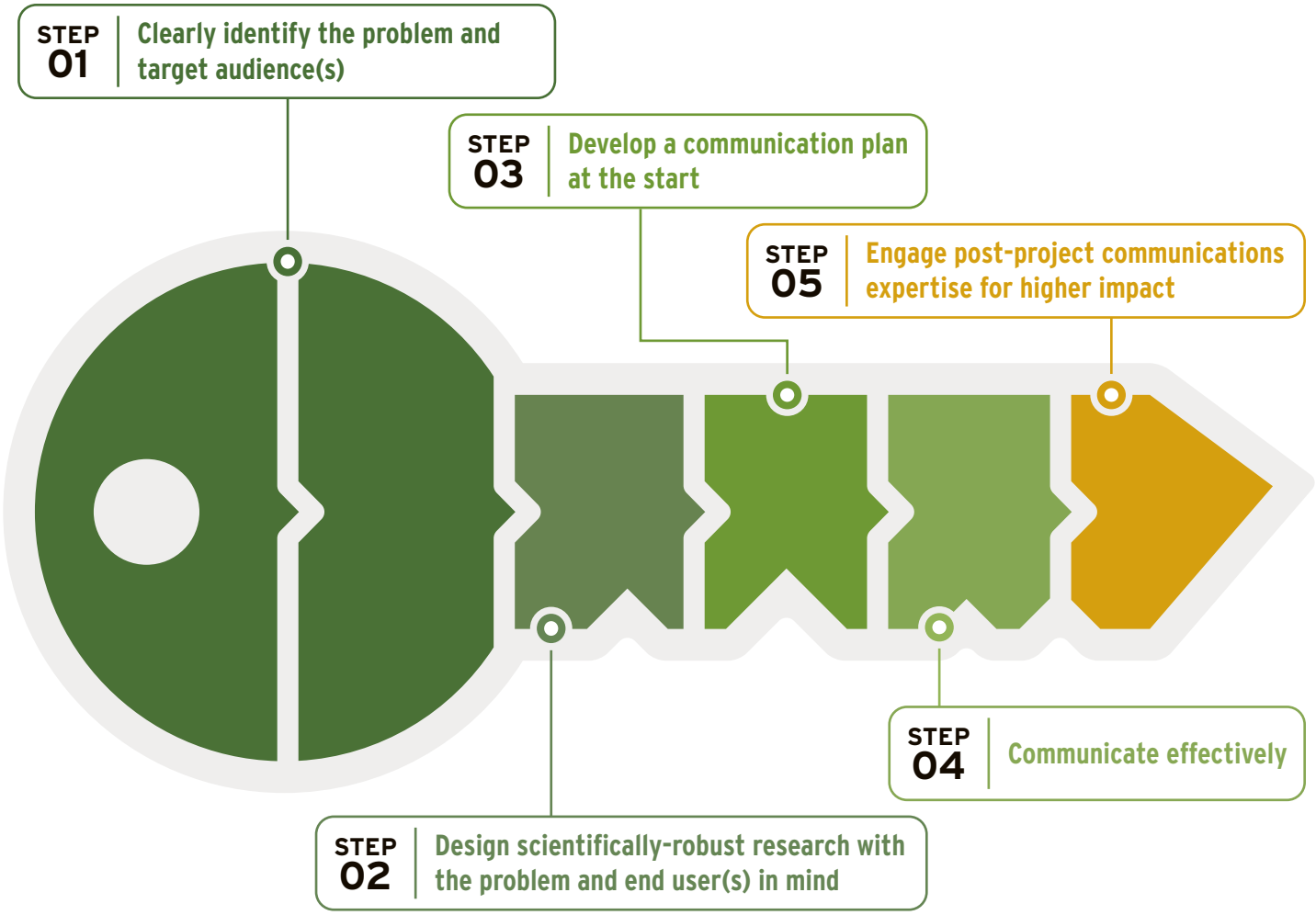
Post-project communications should involve dedicated resources familiar with the farmer target audience, such as OMAFA field crop specialists and agronomists (such as the Certified Crop Advisor network). A strategic approach is necessary to identify the most important topics to communicate over a longer period and through diverse communication channels, synthesizing results from multiple research projects to create a compelling case for change. Fact sheets and scientific publications are important content for these syntheses.

Summary

Effective knowledge transfer involves a clear linear progression from understanding the problem to designing studies, planning communication, and communicating for impact. By following these structured steps, researchers can significantly enhance the impact of their work for the benefit of Ontario's grain farmers.

Knowledge Transfer for Impact

Printable Quick Reference Guide



End Goals of Knowledge Transfer Activities

FOR AWARENESS

The aim is to build familiarity and pique interest, encouraging potential adoption of new ideas.

FOR ADOPTION

Requires detailed instructions and information in an accessible format to facilitate the implementation of research outcomes.

When Communicating

Audience matters • Timing matters • Methods matter

Common Target Audiences and Preferred KT Deliverables for Ontario Grains Research Projects

Note: Green cells indicate highly preferred KT activities; yellow cells indicate optional KT activities.

Select the Audience(s) that can use the direct outcomes arising from your research project (to facilitate adoption of results) ⟶	Farmers	Other Researchers	CCAs/ Agronomists	Government Policy Makers	Conservation Authorities	OMAFA Crop Specialists	Private Companies
ADOPTION-FOCUSED KNOWLEDGE TRANSFER (KT)							
PEER REVIEWED JOURNAL ARTICLE(S) or equivalent. GOAL: To provide a detailed, permanent record of the research and its results to build on in the future.	✓ (Required for all projects)						
FACT SHEET(S) (using Grain Farmers of Ontario template or similar) GOAL: To provide a concise, two-page, plain language summary for each of the main research outcomes, focusing on providing appropriate information to assist with the adoption of results. These will be part of an accessible research library (posted on the Grain Farmers of Ontario website) from which content can be retrieved as-is or repurposed quickly when the right time arises for communicating it broadly. The topics of each expected fact sheet should be clearly outlined in the full proposal.	✓ (Required for all projects)						
ADD RELEVANT OMAFA FIELD CROPS SPECIALIST TO THE PROJECT TEAM GOAL: To provide on-the-ground perspectives in project design and to assist with KT efforts through their broad networks.	✓		✓	✓	✓	✓	✓
FARMER/CCA CONFERENCE PRESENTATION(S) GOAL: To directly engage in a two-way dialogue with a broad group of engaged end users.	✓		✓		✓	✓	✓
SCIENTIFIC CONFERENCE PRESENTATION(S) (Includes Ontario Cereal Crops Committee and Ontario Soybean and Canola Committee research events) GOAL: To directly engage in two-way feedback with a broad group of engaged researchers.		✓					✓
DIRECT COMMUNICATION TO RELEVANT PEOPLE/ORGANIZATIONS (e.g., email, phone) GOAL: Provides direct awareness of the research and its relevance to end users when they are a small, niche group. It can be as simple as passing along peer-reviewed articles or fact sheets.		✓		✓	✓	✓	✓
SHARE RESULTS WITH ESTABLISHED DECISION SUPPORT SYSTEM/KT PROVIDERS WHERE THEY EXIST. Groups by topic: **Diseases:** Crop Protection Network (CPN) **Cover crops:** Midwest Cover Crops Council (MCCC) **Weed science:** Ontario Crop Protection Hub **Soils:** Ontario Soil Network (OSN), Ontario Soil and Crop Improvement Association (OSCIA) **GHG modelling:** Ward Smith (AAFC) and Roland Krobel (AAFC) **Carbon modelling:** Ward Smith (AAFC), Roland Krobel (AAFC) & Bert VandenBygaart (AAFC) **Nutrients:** Ontario Soil Management Committee (OSMC)	✓		✓	✓		✓	✓
OTHER AWARENESS-FOCUSED KNOWLEDGE TRANSFER (KT)							
Initial project description (to post on the Grain Farmers of Ontario website)	✓ (Required for all projects)						
Ontario Grain Farmer magazine article (coordinated by Grain Farmers of Ontario staff)	✓		✓			✓	
Social media (e.g., X (Twitter), Facebook, LinkedIn, etc.)	✓		✓		✓	✓	✓
Other online ag media/newspapers (e.g., Real Ag, Ontario Farmer, Glacier FarmMedia, Top Crop Manager, etc.)	✓		✓		✓	✓	✓

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