

Cultivating a Culture of Curiosity

Farmer-led Research in Ontario

- by Sarah Hargreaves, PhD

If you farm, there is no doubt you are hardworking and independent and also curious and creative: the making of a researcher, whether you know it or not! So, what are you curious about on your farm? Your list of questions is likely long: ideas from other regions, an observation from last year, tweaks of a neighbour's practice, a well-guided hunch. Where do you start?!

The conventional model would have you seek help from the formal agricultural research and development sector. But for farmers using alternative practices or growing on small acreage, there is often a disconnect. One approach to circumvent this disconnect is farmer-led research. Farmer-led research is a bottom-up approach to creating farming knowledge - a paradigm shift from traditional agricultural sciences and how they translate into sustainable agriculture and natural resource management.

Farmer-led research is effective because it is strongly rooted in one of agriculture's founding approaches: *Campesino a Campesino* or farmer-to-farmer information sharing. Farmers' most trusted source of information is other farmers and farmer-led research builds from this. It supports an existing culture within farming communities that values farmers' knowledge and evidence-based information (1). Analyses of farmer-led research networks in Africa, Asia, Latin America, and New Zealand show that locally appropriate technical innovations emerge from farmer-led research and are readily taken up by other farmers; the local capacity to innovate is strengthened; and livelihood benefits are broad and substantial (1,2).

In North America, a notable example of farmer-led research in North America is Practical Farmers of Iowa's Cooperators' Program (practicalfarmers.org/farmer-knowledge). For over 35 years, hundreds of farmers have conducted over a thousand farmer-led research trials and fostered transformative change to the landscape. In large part because of farmer-led research, the number of cover crop acres in Iowa has increased from fewer than

10,000 acres in 2009 to about 600,000 acres in 2016 (3). At Practical Farmers' field days, where on-farm research is shared freely with participants, 98% of attendees reported a change in knowledge and 98% plan to share what they have learned. Of these, 81% reported considering making changes to production practices, 62% report thinking of changes to business management practices, and 73% report thinking of changes to conservation practices.

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Within the Ecological Farmers Association of Ontario (EFAO) - a membership-based organization established in 1979 with over 500 members across Ontario - farmers expressed a need for research networks to generate evidence-based information on diversified, ecological, and organic farms. To meet this need, the EFAO launched a farmer-led research program in 2016 (efao.ca/farmer-led-research). Modeled after the Cooperators' Program and funded by the Ontario Trillium Foundation and a Seeding Food Innovations grant from the Weston Foundation, the program provides training and logistical and financial support for member farmers across Ontario to conduct rigorous trials for their farms. Decisions around research foci are anchored in EFAO members' Research Priorities (efao.ca/research-details) and narrowed by an Advisory Panel comprised of eight farmers, one academic partner, and one agricultural non-profit partner. At every step, care is taken to ensure underlying principles of farmer-led research are embraced and practiced by all staff and at all levels within the EFAO (2).

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In its first year, 11 farmers conducted 13 trials ranging from evaluation of soil health indicators, cover crops for vegetable production, and breed comparison for raising chickens on pasture. This year, 13 farmer-researchers are working on 13 trials related to organic pest management, probiotics for pasture-raised chickens, interplanting for vegetable production, green mulches, seed saving techniques, and locally adapted vegetable varieties. All of the trials include at least four replicates, and farmers learn the important aspects of randomization, monitoring, analysis, and reporting of results. Farmer-researchers will meet at the end of the year, in conjunction with the Ecological Farmers of Ontario Conference in Blue Mountains, to discuss results from this year's trials and start the planning process for next year. Research protocols and research reports, along with links to past webinars and other resources, can be found at the EFAO's online Research Library (efao.ca/research-library).

The EFAO's program is starting small and scaling out gradually, with a focus on stimulating the culture of curiosity in the farming community. This gives time to find sustainable funding models that do not constrain the flexibility and creativity of farmer-researchers; find networks of scientists to share their knowledge and skills; help build farmers' capacity and credibility as researchers; and work out considerations such as intellectual property rights (2). In the end, farmer-led research has the potential to catalyze a virtuous circle: farmers learning from other farmers to be researchers; farmers sharing information with other farmers to make evidence-based decisions; these decisions and actions begging further questions and research projects; and so on.

Engaging farmers in evidence-based on-farm research has a rich history in Ontario, which accelerated with the formation of the Ontario Soil and Crop Improvement Association (OSCIA) in 1939. The OSCIA's commitment to engaging farmers in on-farm research continues today, "although staff resources and budgets are more limited than in previous decades,"

says Harold Rudy, the organization's Executive Officer, Research and Business Development.

User-driven research and co-production of solutions is also strongly represented in Ontario and across the country by participatory plant breeding programs such as the Bauta Family Initiative on Canadian Seed Security. Staff positions in government agencies, such as the Ontario Ministry of Agriculture, Food and Rural Affairs, also help support on-farm research, although dedicated extension services are lacking in Canada. The distinction between this support and farmer-led research programs is a specific focus on training and support for farmers as independent researchers. To our knowledge, program support to specifically train farmers to answer their own research questions is new in Canada, and in addition to the EFAO's program there are beginnings of other farmer-led research programs with PEI Organics.

Whether you are curious about cover crops or pest management or feed efficiency, there is a chance farmer-led research may offer an efficient way to answer the question or gain new insights. It is not for everyone, every farm or every question. But it is a powerful decision-making tool that can also energize your community, and an essential part of the overall fabric of a transformative, sustainable agriculture. Visit EFAO's website for more information on how you can join or support farmer-led research efforts in Ontario (efao.ca). ■

References

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3. Practical Farmers of Iowa Cover Crops, available online at: <http://www.practicalfarmers.org/member-priorities/cover-crops/>

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