

FARMING SYSTEM CO-DESIGN: A NEW APPROACH TO FARM PLANNING

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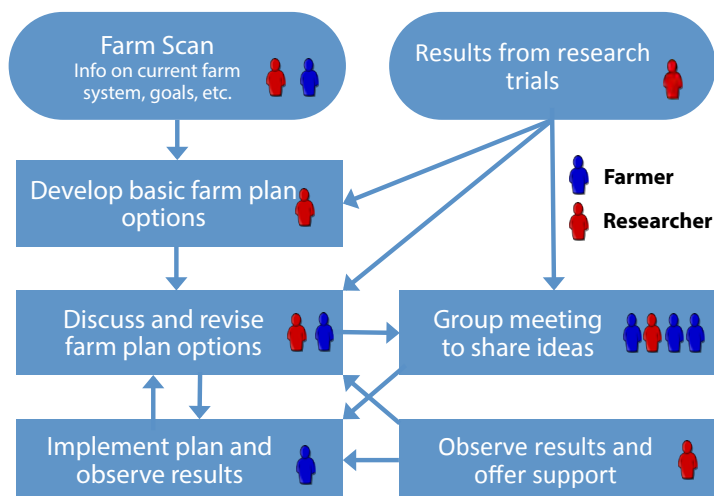
A small group of farmers in Manitoba tried something new last year. It wasn't the most recent app or most sophisticated equipment. It wasn't a new variety or an innovative weed control method. In fact, it wasn't something newly discovered at all. Rather, it was simply a new way of trying something new – an approach that brings farmers and researchers together in the farm planning process, particularly when changes are afoot.

This approach is called “farming system co-design.” The premise is simple: a farmer and a researcher work together to develop an individual farm plan. The researcher brings his or her knowledge of research results and theoretical principles. The farmer brings his or her knowledge of the intricacies of the farm – everything from soils, equipment, and market access for crops to labour resources and goals for the future. Together, the farmer and researcher come up with several scenarios that could help meet the farmer's goals. Then, with the support of the researcher, the farmer chooses a scenario, possibly tweaking it along the way, and tries it. Both the farmer and researcher observe what happens, learn from experience, and adapt the plan accordingly.

NEW RESEARCH MODEL IN THE U OF M'S NATURAL SYSTEMS AGRICULTURE LAB

In a unique project, the University of Manitoba's Natural Systems Agriculture Lab is using farming system co-design to support farmers who want to grow organic soybeans. Soybeans are no stranger to Manitoba, and organic farming has been around even longer, but organic soybean production presents some unique challenges and opportunities. Organic soybeans can be difficult to grow because they require careful weed management. However, they provide their own nitrogen (N) and the price and demand for organic soybeans is very strong. This can make soybeans a good fit in an organic crop

Figure 1. Farming system co-design follows a process that brings farmers and researchers together at almost every step. This helps to ensure that plans are relevant to farmers and are based on sound science. Observation and adaptation help to continually improve farm plans.



rotation for farmers who have good management skills.

Eight farmers from Manitoba participated in this new project in 2015, with their sights set on growing organic soybeans at some point in the next few years. Some of those are organic farmers who want to diversify their rotations. Others are conventional farmers who want to explore organic crop production. All of them want to grow productive, high-value crops. I was privileged to lead this project in 2015, with support from the rest of Martin Entz's Natural Systems Agriculture Lab.

MAKE A PLAN. IMPLEMENT IT. OBSERVE. REPEAT.

The farm planning process began with a farm scan (see Figure 1). In this step, farmers told me about their current farm operation and their future goals. All farmers aimed to grow organic soybeans (or edible beans) but the specific goals for each farm were very different. Some farmers wanted to focus on growing high-value crops to improve the economics of farming a small number of acres. Others wanted to produce more of their own feed grains. Still others wanted to diversify their rotation and gain experience growing different crops. For organic farmers, the general goal was to develop

a crop rotation that would suppress weeds and create good conditions for organic soybeans and other crops. For conventional farmers, the plan began with a crop rotation designed to transition a portion of their acres into organic production; soybean was a target crop for one of the first certified organic years.

The next step in the process was to develop farm plan scenarios. Using each farmer's information, along with research results from U of M and elsewhere, I devised several options for each farmer to consider. The farm plan options included general crop rotation guidelines, such as how often to plant a green manure crop for N fertility and where to place soybean in rotation. The options also included several specific crop rotations the farmer could try, depending on the crops the farmer wants to grow and weeds and fertility levels in each field.

I then sat down individually with each farmer to discuss and revise the plan. During these conversations, it often became fairly clear which scenarios might work and which might not. Farmers were free to pick and choose ideas in the farm plans and modify them to fit their operations.

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Many new ideas were generated during these meetings!

A group meeting held in March, with all the participating farmers and a few researchers and other resource people, helped to solidify plans and spark new ideas. All farmers left that meeting indicating that they would use their farm plans either as they were or with further modifications.

In spring, farmers started putting their plans into action. Their task was simply to implement at least part of the plan and observe what happened. This winter, we are revising the plans together, learning from what we saw, so that in spring of 2016 the farmers can apply what they have learned and continue improving their farm systems.

LEARNING IN COMMUNITY

A unique aspect of this project is the relationships that are formed while learning together. At the end of the group meeting, farmers indicated that the personal connections with other participants were the most valuable part of the project. Most other aspects of the project weren't far behind. We are excited that this community will grow a little larger this year. About eight more farmers will join the project in 2016.

Farmers also valued having someone to call or email with questions and more ideas. I was able to visit many of the farms in the project this summer, walking the fields and talking about what we saw. One farmer commented that it felt like having their own personal researcher.

This project does not include test plots and data or even crop or soil samples taken on farms. Instead, the results of this project are found in a group of farmers with the resources and the confidence to try something new. Thanks to the Manitoba Pulse & Soybean Growers and Western Grains Research Foundation for facilitating this exciting work. ■