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Reading the Farm-Training Agricultural Professionals in Whole Farm Analysis for Sustainable Agriculture

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Abstract: Reading the Farm is a 2- to 3-day professional development program that brings together agricultural service providers from a range of agencies, with various expertise and levels of experience, to explore whole-farm systems and sustainability through in-depth study of two case-study farms. Over 90% of past participants reported that the program has helped them be more effective service providers. In this article, we describe the program and draw on our experiences in three states to provide recommendations for future implementation of the program.

Introduction

Helping farmers improve the sustainability of their farms requires a whole-systems approach that recognizes the complex interactions among the physical, biological, economic, and social components of a farm (Cecil,

2004; Ikerd, 1994). Reading the Farm is a 2-day professional development program that brings together agricultural service providers to explore whole-farm interactions and sustainability through hands-on, case-study learning. Originally developed at the University of Connecticut in 2006 for the Northeast Sustainable Agriculture, Research and Education (NE-SARE) program, it has since been adapted and used in Maine in 2008, 2009, and 2010, and in Pennsylvania in 2010. These states are working together to develop a curriculum-planning tool that will be available by January 2012.

Program Description

Program Goals

The goal of the Reading the Farm program is to enhance the ability of agriculture service providers to contribute to the sustainability of individual farms. Targeted outcomes for each participant include an improved ability to:

- Understand the farm as a whole system rather than discrete biological, physical, and human components.
- Identify farmers' goals for the whole farm system.
- Identify the factors that influence farmer decision-making including production constraints, economic and social factors, family dynamics, etc.
- Understand how specific changes in farm management might affect the whole farm.
- Utilize a "team approach" to problem solving, including asking informed questions and knowing when to seek information outside their area of expertise.
- Provide practical recommendations that account for the whole farm system.

A secondary goal of the program is to build and strengthen networks among the participants.

Program Components

The Reading the Farm program is based on a team approach and co-learning. For this reason, participants are recruited from a range of agencies and who have various areas of expertise (e.g., agronomy, livestock, forestry, farm business, marketing) and levels of experience. For each training, two case-study farms are chosen to provide a contrast in approaches and issues, and sometimes in scale or type of farm.

Prior to the training, the coordinators interview the case-study farm families and prepare a detailed written profile of each farm, which they provide to the training participants. This document includes farm history, key enterprises, farmers' goals for the farm, soil and water resources, crop and animal production practices, labor, marketing, primary expenses and revenues, and key challenges and issues.

During the training, the participant group conducts a half-day visit and farm tour with each of the farm families. Participants are asked to identify factors influencing farmer decision-making and how a change in farm management might affect other parts of the farm. Participants learn how service providers with different areas of expertise than their own "read" a farm and are encouraged to ask questions outside their own area of expertise. After the visits, the group works together to identify the major problems facing the farms, evaluate these problems from a whole-farm perspective, and develop options and recommendations for each farm. The program ends with a meeting between the program team and the farm families to discuss the team's reports.

Program Evaluations

Post-event surveys of participants assessed whether the targeted learning outcomes listed above were met and participants' intentions to use the new skills and knowledge. Pennsylvania asked participants also to develop a detailed action plan for how they will include information on whole-farm system interactions in their educational programming. Maine has administered 1-year follow-up surveys of 2008 and 2009 participants to assess behavior change resulting from the program.

Results to Date

Learning outcomes reported by program participants have been positive. In all three states, participants reported moderate to substantial improvement in skills used in whole-farm system assessments (Table 1). In Pennsylvania, 94% of participants said the RTF program increased their knowledge of how one or more components of a farm system could interact with other farm system components, and 78% said they would change how they make recommendations to farmers. In Connecticut, 94% of participants reported moderate to significant improvement in their ability to communicate with farmers. In Maine, 95% of participants said that the RTF training has helped them provide more effective service to farmers.

Table 1.
End-of-Workshop Evaluation Survey Results

	Improvement in Ability Scale 1-5[a]		**Confidence in Ability Scale 1-4[b]**	
Skill	**Connecticut (N=16)**	**Maine[c] (N=23)**	**Pennsylvania (N=21)**	
			Before	After
Understand a farm as a whole system	4.1	3.6	n.a.[d]	n.a.
Identify farmers' goals for the whole farm system	n.a.	3.6	2.7	3.5
Listen to and ask appropriate questions of farmers [e]	3.6	3.7	2.8	3.6
Understand the factors influencing farmer decision making [f]	4.3	4.0	2.7	3.5
	3.9	3.8	2.7	3.8

Understand how any given change in farm management might affect other parts of a farm system				
Know when to seek needed information outside your area of expertise	3.8	3.3	3.4	3.8
Ask informed questions outside your area of expertise	3.9	3.5	2.9	3.7
Provide recommendations that take into account the whole farm system	n.a.	3.5	2.6	3.4
Help farmers make changes in management that lead to greater sustainability	3.8	3.4	n.a.	n.a.

[a] Evaluation surveys in Connecticut and Maine asked participants to rank the level of improvement in their ability on a scale of 1 to 5, where 1= not at all, 3= moderately, and 5= substantially. Data presented are the mean rankings for the group.
[b] Evaluation surveys in Pennsylvania used a post-then-pre question design. At the end of the workshop participants ranked their confidence level for each skill before the workshop and after the workshop using the categories not at all, minimally, moderately, and considerably. Data presented are the mean before and after confidence rankings where not at all = 1, minimally = 2, moderately = 3, and considerably = 4.
[c] Responses for Maine are pooled for the 3 years the workshop was held.
[d] n.a. = skill was not evaluated.
[e] In Pennsylvania, the skill evaluated was "Ask questions with a whole farm systems perspective."
[f] In Pennsylvania, the skill evaluated was "Discover how farmer decisions relate to the whole farm system."

The 1-year follow-up surveys in Maine also captured positive action outcomes. Two thirds of 2008 and 2009 participants reported adopting a team approach in their work, and all 2009 participants reported incorporating concepts of whole-farm systems into their farm consultations and educational materials. (2008 participants were not asked). Few, however, provided specific examples of how these actions resulted in changes made by their farmer clients, which underscores the difficulty of quantifying the second-level impacts of this type of professional development program. The Pennsylvania coordinators addressed this problem by asking participants to complete a detailed action plan that they refer to in follow-up contacts with participants.

It is notable, however, that each of the case-study farms that hosted trainings in Maine has made significant changes based on the recommendations of training group (examples include starting a website for direct marketing, developing a farm transfer plan, installing a hoop house, and converting to zone tillage). Having the host farmers adopt the groups' recommendations is not an explicit objective of the program, but it reinforces the value of whole-systems and team approaches among participants.

Conclusions/Recommendations

The Reading the Farm program has proven to be an effective approach for training agricultural service providers in taking whole-system and team-based approaches in their work with farmers. Specific quotes from participants include:

"I will make recommendations that are not only farm specific, but farmer specific." (Pennsylvania)

"(I developed a) broader network of providers, better sense of questions to ask, and who to turn to if I need someone more skilled than I to answer those questions!" (Maine)

"I now believe more in team working and found out that focusing on only one issue and solving only one problem may have an impact on other components of the farm operation."(Connecticut)

Key components of the Reading the Farm program include: a diverse participant group, farmer hosts who are open and communicative, and an emphasis on co-learning. While learning and action impacts have been easily captured in past trainings, those interested in implementing the program in their area are encouraged to develop evaluation methods that can capture the second level impacts with participants' farmer clients.

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