

SECTION I

1. Project Number: LNE92-30
Grant Number:
Funding Period: January 1993-December 1993
2. Project Title: Decision Making in Sustainable Agricultural Systems
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4. Type of Report: Annual and Final
5. Date of Report: November 18, 1993
6. Reporting Period: From January 1993 to December 1993
7. Major Participants: Same
8. Cooperators: Same
9. Project Status: The project is **New**: received SARE/ACE funding for the first time
10. Statement of Expenditures: Enclosed

SECTION II

Objectives:

This planning grant was proposed to support development of project methodology for possible future case studies on decision-making using a "whole farm" approach. Specifically, this project was a preliminary look at the factors which distinguish two groups of farmers: those who are leaders in adopting sustainable agriculture and those who are continuing with more conventional methods.

Abstract:

Today's successful and progressive agriculturalist is called upon to engage in a highly complex and demanding task. While most agriculturalists are well trained in technologies pertinent to the industry, training in how to successfully manage a complex system, such as a farm, is not widespread.

When introduced to farmers as merely a new technology, adoption rates of sustainable practices appear likely to be limited to farmers who share particular characteristics. Specifically, "adopters":

1. Tend to see their enterprise in a business framework and acknowledge the place of their operation as a system with limited resources in a competitive environment.
2. Are interested in learning management skills that extend beyond technical issues. In particular, they recognize the importance of staffing, directing, controlling, planning and decision making in their operations.
3. Make decisions based on a plan, as opposed to a crisis driven strategy.
4. See a cost benefit of a sustainable practice.
5. Have a belief system that values stewardship and supports the use of sustainable practices.

Nonadopters are more likely to see their enterprise as a "farm" only, and not a business. In addition, they may have little interest in management issues beyond technical issues. Perhaps as a result, these individuals may spend little time planning a coherent long term strategy and spend more time "managing by crisis".

In part, it appears the discrepancy between adopters and nonadopters is reflected in the perspectives, training and education of extension workers and agricultural educators. Few individuals charged with the task of teaching and introducing new technologies to agriculturalists have training in management of complex systems, beyond particular technical systems. This becomes particularly significant when trying to introduce sustainable systems, which by their nature are complex and dynamic.

Specific Project Results:

Findings and accomplishments. Even small agricultural enterprises face increasing challenges and demands from today's competitive and complex business climate. Successful and progressive agriculturalists must engage in complicated decisions that have implications for a variety of systems. At best, this is a demanding task. While most successful agriculturalists are well trained in technologies pertinent to their particular industry, relatively few of these individuals have been trained to successfully manage complex system, as in a "whole farm" system.

This project identified 5 major factors that seem to distinguish between agriculturalists who are likely to be sustainable practice adopters vs. nonadopters. Adopters:

1. **Tend to see their enterprise in a business framework.** These individuals are especially conscious of their operations as existing within larger systems (e.g., economic, environmental, community, political, etc.). They recognize their operation as a system itself which exists in the context of a complex and competitive environment.
2. **Are interested in learning management skills.** In particular, individuals likely to be adopters recognize the importance of management skills that apply to non-technical areas, such as managing human resources. Such issues extend well beyond technical aspects of the business and tend to be either ignored or left to chance in "traditional operations". In more progressive, management centered operations the importance of staffing, directing, controlling, planning and decision making is acknowledged.
3. **Make decisions based on a plan.** While nonadopters may spend a fair portion of their time "stamping out fires" in a crisis driven strategy, agriculturalists likely to be adopters are liable to have a comprehensive plan that is used to guide both long-term decision making and daily operational functioning.
4. **See a cost benefit of a sustainable practice.** Probably due, at least in part, to the business frame used in adopter's operations, the benefit of a sustainable practice is explicit. While the benefit must be economically sustainable, it may also provide a benefit to other systems that affecting the operation, including social, community, environmental, human resource systems.
5. **Have a belief system that values stewardship and supports the use of sustainable practices.** Clearly, individuals who identify sustainability as a valued objective are more likely to be willing to adopt new sustainable practices. While this type of belief system is common among individuals identifying themselves as environmentalists, it is also very much a part of the traditional agriculturalist's value of good stewardship. Particularly in family owned enterprises, the concern for sustainability over generations may also

provide an impetus for adoption of sustainable practices.

Interestingly, one of the most significant findings in this project was identifying, within extension workers and agricultural educators, attitudes and characteristics that were parallel to those identified above. It appears the discrepancy between adopters and nonadopters is reflected in the perspectives, training and education of extension workers and agricultural educators. Most agricultural extension personnel are trained within a specific technical field. Few individuals charged with the task of teaching and introducing new technologies, including sustainable practices, to agriculturalists have training in management of complex systems, beyond specific technical systems (i.e., manure management, pest management, feed bunk management, etc.). Such a focus becomes particularly significant when trying to introduce sustainable systems, which by their nature are complex and dynamic, and therefore demand more advanced management techniques that consider such complexity.

Dissemination of findings. Not applicable to planning grant.

Site information. Not applicable to planning grant.

Economic analysis. Not applicable to planning grant.

Potential Contributions and Practical Applications:

Potential impacts and practical implications. Future research is likely to yield significant improvement in adoption of sustainable practices if the factors identified above are taken into account in planning and developing training and educational materials and programs. Specifically, it appears necessary to target educators with management information and training. Such a focus may be necessary before effective intervention at the agriculturalist's level can be implemented.

New hypotheses. Based on this project, it appears that targeting agricultural education and extension programs with management training, in addition to technical information about sustainable practices, will increase the rate of adoption of sustainable practices.

Farmer Adoption and Direct Impact: Not applicable to planning grant.

Areas Needing Additional Study:

New applied research would probably do well to focus specifically on the development of curriculum that targets management training and the integration of sustainable practices in a complex, whole farm system.

Producer Involvement: Not applicable to planning grant.

Attachment 1: Farmer Survey

The following survey may be adapted and used with farmers or agricultural educators before implementing training in sustainable practices. In addition, gathering this information along with other studies of adoption and program implementation is likely to prove valuable.

For each item below, circle one number that is most like your perspective. Then, in the space provided, please add any information that explains your answer. There are no correct answers to any question, just choose the one that is most true for you.

1. When viewing my enterprise, I think of it as:

Basically a farm not a business	1	2	3	4	5	6	7	Basically an agricultural business
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Explain:

2. In general, I view agricultural enterprises as:

Very different from other businesses	1	2	3	4	5	6	7	Very similar to other businesses
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Explain:

3. Learning more about management skills in general (such as planning, staffing, and managing people) is:

Very important for my operation	1	2	3	4	5	6	7	Not very important for my operation
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Explain:

4. My operation has:

A long-term, written plan	1	2	3	4	5	6	7	No long-term plan
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Explain:

5. How important is it to you that the agricultural practices you use in your operation today are economically sustainable?

Absolutely essential 1 2 3 4 5 6 7 Not really critical

Explain:

6. How important is it to you that the agricultural practices you use in your operation today are environmentally sustainable?

Absolutely essential 1 2 3 4 5 6 7 Not really critical

Explain:

7. How interested are you in adopting new practices in your operation that are environmentally sustainable?

Extremely interested 1 2 3 4 5 6 7 Not really interested

Explain:

8. For your operation, please: (1) list the practices you would identify as falling into the category of "sustainable agriculture"; (2) the major reason you began the practice; and (3) the approximate year each practice was implemented.