Sub theme: Research and extension services

EXTENDING KNOWLEDGE AND EMPOWERING WOMEN IN AGRICULTURE: A LOGIC MODEL PERSPECTIVE FROM IOWA

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Acknowledgements:

The authors wish to express gratitude for the support received from the Iowa State University Department of Economics and the Extension and Outreach Farm Management Team.

There are 3,493 words in this paper.

Applied

This is a non-refereed paper.

March 2019 - ISBN 978-92-990062-8-3
www.ifmaonline.org - Congress Proceedings

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Abstract

Women have significant employment, management and ownership on Iowa farms. Farmwomen are willing to take on influential roles with education, research-based information and support. There is a critical need for education directed specifically to this group. The Iowa State University Extension and Outreach farm management team invested in 20 multi-session courses reaching 310 farm women in 2018. A logic model links investment in educational programs to resulting outcomes. Program evaluation demonstrates the ISU Extension farm management team has important roles in extending knowledge and empowering women. Transformational learning leads to improved farm profitability, new conservation practices adopted, and stronger networks among the community of women in agriculture. By improving agricultural sustainability, women in the industry are key stakeholders in the production of safe, accessible, and plentiful food.

Keywords: Annie's Project, Extension, logic model, management, risk, women

Introduction

At the heart of family farms, women are business partners, family communicators, and visionaries of tomorrow's rural landscapes. There is a growing awareness that women are an integral part of farm businesses. As more women in agriculture take on managerial and decision-making roles, there is a critical need for education directed specifically to this audience. The Iowa State University Extension and Outreach (ISU Extension) farm management team designed agricultural business education specifically for farmwomen, women landowners, and women working in agribusiness. A logic model helps clearly define and represent the educational programs. The outcomes measured demonstrate Extension has important roles in extending knowledge and empowering women. *Please refer to the logic model in Table 1.*

Table 1. Part A. LOGIC MODEL – EXTENDING KNOWLEDGE AND EMPOWERING WOMEN IN AGRICULTURE

Situation: Women have significant ownership, management and employment on Iowa farms. There is a critical need for education directed specifically to this group to help them improve farm profitability, adopt conservation practices, and support each other as a community of women in agriculture.

Inputs →	**Outputs →**	
Investments	***Activities***	***Participation***
1. ISU Extension personnel: farm management team, county and campus professionals. 2. Research-based information: ISU Ag Decision Maker. 3. Curricula: Annie's Project, Managing for Today and Tomorrow, Women Marketing Grain, Women Managing Farm Finances. 4. Facilities and supplies: meeting rooms, computers, workbooks. 5. Funding: USDA grants, ISU Extension, participant fees, industry partners. 6. Community support: USDA FSA and NRCS, FCSAmerica, ag professionals. 7. Past Experiences: data and outreach to women in agriculture.	1. Needs assessment: listening sessions, surveys, local partnerships. 2. Educational design: women-centered best education practices, learning objectives, agendas, research-based information. 3. Scheduling and marketing: ISU brand value, templates, online registration, recruitment, promotion. 4. Delivery of courses: local, small-group, multi-session, local expert speakers, networking, discussion, small group activities. 5. Evaluation: pre- and post-course surveys, participant stories.	1. Provide 20 multi-session courses. 2. Reach 300 farmwomen, women landowners and women in agribusiness. 3. Promote risk management education. 4. Inform women and men about research-based information and ISU Extension programs.

Assumptions: Women in agriculture of all ages and experience levels can learn to manage business risks with analytical thinking and long-term planning. Women are willing to make good decisions and take on influential roles with education, research-based information, and support.

March 2019 - ISBN 978-92-990062-8-3
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Table 1. Part B. LOGIC MODEL – EXTENDING KNOWLEDGE AND EMPOWERING WOMEN IN AGRICULTURE

Outcomes →		**Impacts**
Short	***Medium***	***Long***
1. Knowledge gained: awareness of whole farm risk management and research-based information to aid decision-making. 2. Problems identified: a. Financial – balance sheet ratios and trends, land leasing, production budgets. b. Human Resource – labor, health insurance, succession, communication. c. Legal – ownership, liability, estate planning. d. Marketing – price discovery, sales strategy, breakeven price points. e. Production – livestock/crop insurance, conservation practices. 3. Attitudes changed: confidence to make decisions and reach goals. 4. Incentives created: network of peers and professionals.	1. Behavior changed: new risk management roles and improved decision-making. 2. Practices implemented: a. Analyze ratios, update leases, prepare crop and family-living budgets. b. Get health care power of attorney, share goals. c. Start or update estate plan, adjust business structure to lower liability. d. Use marketing contracts, forward pricing, written plans. e. Access USDA programs to increase productivity and conservation, reduce risk. 3. Recommendations adopted: management effort directed to farm business. 4. Education sought: become life-long learners.	1. Enhanced societal conditions: a. Improved agricultural sustainability, food security. b. Improved quality of life, mental/physical health. 2. Benchmarks measured: a. Economics: FSA financial program sign-up, family farm transition planning, re-negotiated land leases, business profitability. b. Environment: NRCS conservation program sign-up, soil management practices. c. Community: women empowered as business owners and partners, supportive networks, leadership/management skills, life-long learning, rural lifestyle satisfaction.
External Factors: Cultural norms and traditional patriarchal influences in Iowa's social structure, and broad economic factors, may sometimes constrain successful outcomes.		

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Methods

Logic models are useful tools to help conceptualize and share change efforts. Our model describes the underlying rationale for educating farmwomen. It shows the logical relationships between the resources we invest, the activities that take place, and the benefits that result (Taylor-Powell, 2003). The ISU Extension farm management team uses the logic model for program planning, implementation, and evaluation. This enhances program performance through outcomes accountability.

In this paper, we describe the situation, assumptions, and external factors driving our research-based educational experiences for farmwomen. We discuss the program input investments, output activities and participation, and the resulting outcomes occurring in the short-term and medium-term. The logic model helps us understand long-term societal impacts and the public value generated through the research-based educational experiences ISU Extension offers for women in agriculture.

Situation:

Industry data supports anecdotal evidence of women's significant and changing roles in agriculture. There is a critical need for education directed specifically to this group to help them improve farm profitability, adopt conservation practices, and support each other.

The 'principle' farm-operator is the person responsible for the day-to-day decisions of the business. For 2012, the most recent Census of Agriculture data available, there were 7,108 women 'principle' farm-operators (8.2 percent of all farm-operators), up from 3,048 women in 1978 (the first year measured.) These women 'principle' farm-operators reported a total of $511 Million in agricultural products sold and government payments received. Data for more than one operator per farm (up to three) shows the number of women farm-operators in Iowa rose to 32,907 (25.0 percent of all farm-operators), up from 27,147 women in 2002 (the first year measured.) Women and men in Iowa spend considerable time working off the farm. Nearly one-third (31.7 percent) of women farm-operators, while more than half (55.9 percent) of men said farming was their primary occupation. Women and men had similar profiles in off-farm work; 42.3 percent of women farm-operators and 38.0 percent of men reported at least 200 days of work off the farm (USDA, 2014).

The 2017 Iowa Farm and Rural Life Poll asked about men and women's roles in decision-making (Arbuckle, 2017). Respondents reported an average of 2.1 decision-makers per farm business. The average number of men was 1.5 and the average number of women was 0.6. Clear gender-related patterns emerged. Men tended to be more involved in crop management and conservation decisions, while women participated in financial management and estate planning at higher rates. Men and women participated in livestock management, marketing decisions, and day-to-day decisions at similar rates.

The most recent farmland ownership and tenure survey reported the division of Iowa farmland ownership by gender remained relatively constant over the past 35 years (Zhang, Plastina and Sawadgo, 2018). In 2017, women owned 47.0 percent of Iowa's 30.6 Million acres of farmland. Women over the age of 65 owned 30.1 percent of Iowa's farmland, while women under the age of 35 owned less than one percent.

Iowa State University enrollment data sheds additional light on women's changing roles in agriculture. Three decades ago, in 1985, women were 20.3 percent of the undergraduate students enrolled in the College of Agriculture and Life Sciences. The 2018 enrollment data shows women were 53.1 percent of undergraduates in the college (ISU, 2018). Many of these women are contributing to the agricultural industry as farmers, veterinarians, agronomists, bankers, and other agricultural professionals.

Assumptions:

Women of all ages and experience levels are willing to take on influential roles with education, research-based information, and support. Women seek to manage business risks with analytical thinking and long range planning.

Women value education that helps them:

1. Operate profitable businesses.
2. Make good risk management decisions in the areas of :
    a. Financial, human resources, legal, marketing and production.
3. Begin new businesses or exit/transition existing businesses.
4. Become better business partners with family or others.
5. Take on leadership and managerial roles.
6. Juggle farming and non-farming careers.

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External Factors:

Cultural norms and traditional patriarchal influences in Iowa's social structure, and broad economic factors, may sometimes constrain successful outcomes.

Farmwomen sometimes struggle with shifting cultural norms. Co-author and course participant, Lorilee Schultz, shares a generational legacy story of her grandmother. She milked the cows, drove the tractor, and managed the farm finances to help keep the farm going while Lorilee's grandfather spent time on other entrepreneurial businesses. Yet, Lorilee's grandmother did not consider herself to be a farmer, a business owner, or a decision-maker. As Lorilee completed her bachelor of science degree in agricultural business at Iowa State University and began to manage the family dairy farm, shifting cultural norms allowed her to be confident in these roles. Still, being a woman farmer today has challenges we can begin to glimpse with the following quote from Lorilee.

> *"When yet another salesperson stops into my barn where I am working, and asks to speak to my father or husband, I know that women in agriculture are not yet fully valued for all of their contributions to the industry."*

Iowa has generally seen high production costs and low market prices for agricultural products from 2014 to 2018. Reduced profitability makes it difficult for women to adopt new management practices.

Inputs - Investments:

The farm management team builds the professional capacity of Extension collaborators, prepares and distributes research-based information through the ISU Extension Ag Decision Maker website (www.extension.iastate.edu/agdm), develops curricula, creates standard processes to increase efficiency, seeks grant and gift funding to leverage Extension funding, develops community partnerships, and draws on past experiences to offer high-quality, local, small-group, multi-session farm management courses for women. These courses provide a whole-farm managerial strategy through education on the five agricultural risk management areas of finance, human resources, legal, marketing and production.

The ISU Extension farm management team has a long-term commitment to educate women in agriculture. From 2004 to 2018, the team invested in teaching 175 farm business management courses reaching 2,838 women. This work is critical to ISU Extension's

signature goal of improving food security. The specific issue of concern the team is addressing is the economics of agriculture production and farm management.

The mission of the farm management team's women in ag program is to improve the quality of life in Iowa by providing research-based education that:

1. Expands agricultural business,
2. Improves natural resource conservation, and
3. Supports the community of women in agriculture.

Outputs - Activities:

The team's activities center on the ISU Extension program development process. The process includes needs assessment, educational design, scheduling, program implementation, and evaluation.

Local listening sessions are important components of needs assessment. Attendees consist of farmwomen and other agricultural professionals in the community. Women help guide the development of programs by suggesting topics, guest speakers, dates, and locations (Ehmke, 2016.)

The educational design for all ISU Extension multi-session farm management courses for women was inspired by Annie's Project (www.anniesproject.org.) Annie's Project features a series of six weekly classes on a variety of agricultural business and risk management topics. The goal of the educational program is to empower farm women who want to be more knowledgeable about their agricultural businesses. Annie's Project creates a comfortable and supportive learning environment focused on the best farm business management practices. This enables women to become stronger business partners in their farming operations.

The ISU Extension farm management team implements the Annie's Project key principles, core values, and other best education practices for all courses for women. In a national study, Annie's Project survey respondents who agreed or strongly agreed the best education practices were implemented were more likely to make gains in knowledge than respondents who disagreed or strongly disagreed the best education practices were implemented (Schultz, et al., 2017.)

Key Principles:

1. Teach all five areas of agricultural risk management: financial, human resources, legal, marketing, and production.
2. Invite local women professionals to serve as guest instructors where possible.
3. Allocate half of class time to discussion and hands-on activities.
4. Provide un-biased, researched-based information.
5. Design a learning environment where mentoring is spontaneous.

Core Values:

1. Create safe spaces where all questions are welcome.
2. Encourage connections and networking with new people.
3. Guide self-discovery where each woman learns what matters most to her.
4. Facilitate shared expertise where each woman can tell what she knows.

Participants in Annie's Project courses requested more in-depth education on specific farm management topics. In response, the team developed several specialized statewide course curriculum that can be adapted to meet local needs.

Scheduling and marketing are initiated well in advance because participants need to plan ahead for major time commitments. University branding, local and statewide promotional activities, and access to on-line registration helps encourage sign-up.

Evaluation activities include collecting and analyzing pre-class and post-class surveys as well as gathering participant experiences with videos and written stories. Program reports and stories can be found on the ISU Extension Women in Ag website (www.extension.iastate.edu/womeninag.)

Outputs – Participation:

Women and men across Iowa were informed about ISU Extension farm management programs and resources through radio, online and print media, exhibits, and other Extension activities.

In 2018, the team taught 20 courses educating 310 women as follows:

- 12 Annie's Project farm business management courses,
- 5 Women Marketing Grain courses,

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- 2 Managing for Today and Tomorrow farm transition planning courses, and
- 1 Women Managing Farm Finances course.

Results

The multi-session farm management courses for women in agriculture are complex programs. The logic model helps the team focus on evaluation that allows us to better understand our audience, document outcomes and impacts, and improve future programs. The logic model links investment in educational programs to resulting outcomes. The short-term and medium-term outcome measures are based on specific knowledge gains and actions taken during the multi-session farm management courses for women. Long-term impacts are gathered with written or video stories after the courses. In this section, we share examples of pre- and post-course evaluation results as well as participant stories.

Short- and Medium-Term Outcomes:

There were 136 participants completing surveys during nine Annie's Project farm management courses held in the first half of 2018. One-third (32.6 percent) of the participants were under the age of 35, slightly more than half (56.8 percent) were between 35 and 64 years old, and a smaller portion (10.6 percent) were 65 or older. Nearly half (46.0 percent) of the survey respondents were beginning farmwomen who had operated a farm business ten or fewer years. The women-centered learning environment was important to the majority (94.3 percent) of survey respondents. Among the thirteen standard topics taught, respondents rated basic financial documents, grain marketing, and estate/transition planning as significantly more valuable than other topics.

To assess overall knowledge gains between the pre- and post-course surveys, total scores were computed by summing together participant scores for specific questions to create constructs or groupings for each risk area: financial, human resource, legal, marketing, and production. The results show a statistically significant difference in the overall mean knowledge gains from pre-course surveys to post-course surveys in all five risk management areas. Additionally, results indicated participants took important actions towards managing agricultural risks in all five risk management areas during the six weeks of the course.

In an open-ended question, a post-course survey respondent answered 'what was the most important thing learned during this Annie's Project course?':

> *"Most of the topics were very valuable to me. I like how things were basic for beginners. Many people assume we know or understand because we are around the farm, however, sometimes men/husbands are not good teachers. LOL [lots of laughs]."*

When asked 'what was the most important action you have taken' one post-course respondent indicated:

> *"Finding our breakeven points. In general, just getting more involved with the day-to-day activities and having an idea of what my husband deals with and/or talks about."*

There were 41 participants completing surveys during three Women Marketing Grain courses held in the first half of 2018. The responses indicated 35 women (and their families) owned, leased or rented a combined total of 30,129 acres located in 26 counties. More than half (19 women) previously enrolled in other farm management courses for women. All eight of the standard marketing topics were rated as equally valuable.

Individual questions were compared as shown below:

- On the pre-course survey; there were 9 women who indicated they 'knew quite a bit or are completely familiar with' the management knowledge of 'where to find cash prices for my/our corn or soybeans'; this increased to 33 women on the post-course survey.
- On the pre-course survey; there were 5 women who indicated they 'have completed or currently do this' for the management action of 'calculate my/our grain storage costs'; this increased to 14 women on the post-course survey.

In an open-ended question, a pre-course survey respondent shared 'what three things I most want to learn':

> *"1) What all the marketing terms that I hear a lot mean. 2) How to track historical prices and figure out when to sell [grain]. 3) How to figure out the cost of production and include everything."*

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There were 18 participants completing surveys during two Managing for Today and Tomorrow farm transition planning courses taught in the first half of 2018. More than half (52.2 percent) of the respondents heard about the course from ISU Extension staff or were referred by a professional in the community; nearly a quarter (21.7 percent) heard about the course from a newspaper. Responses indicated 11.1 percent of the group were not currently farming, but planned to start; while another 11.1 percent were farming, but planned to stop.

In an open-ended question, a post-course respondent wrote my 'goals for applying what I learned from this course are to':

> "1) *Gather my documents and put them in an accessible place. 2) Go to the next estate planning workshop. 3) Review my will."*

In response to 'what is the most important action step you've taken to prepare for the future of your farm/ranch business,' one post-course survey participant shared:

> *"I created a plan for disbursement of our swine business if both of us decease simultaneously."*

Long-term Impacts:

After the state's 100th Annie's Project course held in Fort Dodge, Iowa in 2018, co-author, Lisa Scarbrough, produced a video of participant stories as well as comments shared by ISU Extension and industry supporters (https://www.extension.iastate.edu/womeninag/100th-annies-project-class-held-fort-dodge.) The interviews help tell the story of how programming for women in agriculture is enhancing societal conditions.

Jeanne Hill, a lender with Farm Credit Services of America commented, "We feel it is very important to support classes like Annie's Project that help make our customers better operators and be more successful." Kelvin Leibold, ISU Extension Farm Management Specialist and course teacher, noted, "Several women here have been involved in farming a long time… at the same time we have young women who are starting and growing their farm operations… it is neat to see the sharing that goes on and see the women building networks."

Diane Chalstrom shared why she signed up to participate in the course, "I thought I could be a better partner in the farm business if I learned more." LeAnn Lawler, another participant, was excited about the 100th Annie's Project class, "Being a part of this is really special. I feel good about taking it. I'm glad I did. If you are involved in ag whatsoever, you need to know what's going on." Diane Chalstrom added, "Women do have a crucial part…we all have something to bring to the business and its good to work together to make that business, the family farm, as productive as we can."

Kelvin Leibold commented, "We've been able to build a program that has stood the test of time. The team players have taken a look and agree this takes a lot of work but it has a lot of outcomes."

Discussion

Teaching Annie's Project and other multi-session farm management courses for women is a rewarding experience for the ISU Extension farm management team. Lasting relationships are formed within the small-group sessions and educators are often able to help participants solve specific farm management problems. The high-interaction and high-content design of the program leads to transformational learning resulting in actions taken and new practices implemented. Farmwomen identify key risk management issues and learn how to access research-based information to help them make good decisions.

Conclusion

The program logic model is useful for planning and developing courses for farm women and communicating with partners. It gives us benchmarks we can use to measure outcomes and report how well program development processes are working.

Evaluation results demonstrate women and their farm families receive a private benefit from educational programs. The investment ISU Extension makes in educating farm women goes beyond this private value to also generate a public value, benefiting people in Iowa and across the globe.

When ISU Extension extends knowledge and empowers women in agriculture, women are able to:

1. Improve farm business profitability leading to economic resiliency in rural areas,
2. Adopt conservation practices leading to reduced soil loss and improved water quality, and
3. Build their networks with other women in the community leading to greater rural lifestyle satisfaction.

By improving agricultural sustainability, women in the industry are key stakeholders in the production of safe, accessible, and plentiful food.

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