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Women Farmer and Their Educational Needs in Small Ruminant Production in the Northern Badia Region of Jordan

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Abstract: The primary purpose of this study was to describe selected demographic characteristics of rural women farmers in the Badia region of Northern Jordan, to assess their perceived agricultural educational needs and perceived barriers to extension participation. Data were collected from 260 rural women farmers. A reliable and valid survey questionnaire was developed and data was collected by using face-to-face interviews. For this study, four objectives were developed: (a) to describe rural women according to selected characteristics (age, marital status, level of education, farming experience and farm size), (b) to determine the perceived educational needs of rural women, (c) to determine perceived barriers to Extension participation by rural women, (d) to determine the relationship between selected demographic characteristics of rural women and their perceived educational needs and barriers to Extension participation.. Perceived educational needs were assessed using the Borich (1980) needs assessment model. Findings revealed that rural women's highest educational needs were in livestock production, nutrition and resource management and marketing and outstanding barriers to Extension participation lack of information about Extension activities, Extension agents do not often organize training programs for rural woman, heavy loads of household task and time constraints, Results of the study can help Extension Departments related to the Ministry of Agriculture and the Badia Development Center in Jordan in placing its priorities on the items that were ranked high to meet the needs of rural women, attract a wider audience and lead to the success of Extension programs.

Key words: Rural women · women farmers' · educational needs · small ruminant · extension service

INTRODUCTION

Women play a major role in small ruminant production. The foremost tasks of women in small ruminant production are milking, cleaning barns, cutting and carrying grasses, grazing and mixing fodder. Women contribute a significant percentage of the labor to small ruminant production; however, it is not always recognized because men hold the structural authority. Despite women's significant role, educational and/or training programs about small ruminant production regarding women in rural areas are far from an acceptable level [1-6]. Rural women, play a significant role in many agricultural activities in many countries. Women activities include plant and animal production activities such as production of food for the household, planting and weeding, harvesting and post harvest activities, livestock care and commercial farming. Specific tasks and activities are regarded in some societies as predominately female work. They are generally tedious and time consuming tasks and considered as household duties rather than work. Women time and mobility are constrained by their multiple domestic, reproductive and agricultural roles. Besides, there are more barriers that prevent women from improving their productivity than men.

Although women are the main actors in feeding the household, they often have little or no access to land, credit, education and technology, little attention has been paid to alleviate women's problems, particularly those in rural areas. Due to gender blindness that still prevails, agricultural policies, on the whole, do not address the needs of women farmers adequately [7]. Rural women have been suffering serious problems all over the world. The situation has been worse in the

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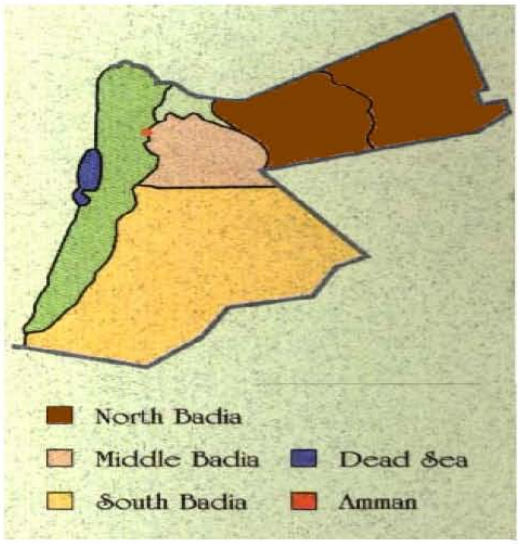
developing countries generally, despite the existence of plans and policies for integrating rural women in to the development process. Rural women are also disadvantaged with regard to education and health: 30.3% of rural women are still illiterate, as compared to 17.8% of women living in urban settlements. Although their rate of participation in the basic education cycle does not differ, significantly, less rural women than urban women acquire secondary school and higher education. This is partly due to the general lack of secondary schools and colleges outside the main cities, but it is greatly exacerbated by the fact that those fewer available facilities cater first and foremost to male students [8].

Rural women have a much reduced access to agricultural extension services worldwide compared to men and technology is rarely designed specifically to address their gender-based needs. In Africa only 7 percent of all agricultural extension resources were allocated to women farmers and home economic extension received only 1 percent of the resources. In the Sudan, for example in the Gezira irrigation scheme out of 120,000 farmers targeted by the agricultural extension services only 11 percent were women. The main constraints limiting women's access to extension services were related to cultural restriction, domestic responsibilities, mobility limitations and even language barriers [7]. Furthermore gender disparity in extension programs has long been acknowledged. Women were excluded from the benefits of extension. Even though women have an enormous role in animal husbandry, most of the extension programs are designed to target men. The identification of gender roles in small ruminant production and management can help extension, veterinary and research institutions to develop appropriate educational programs and research. Women farmers' access to extension services will enhance small ruminant production and household food security. Extension educators are responsible for helping farmers to accurately identify their educational needs. This is an important step in planning, developing and implementing extension programs [9]. Programs are most often successful when they focus on clearly defined needs of the target group [10]. Therefore, the accuracy with which needs are identified for educational input is a crucial step toward meeting Extension's objectives.

Purpose and objectives: The arid lands or Badia is one of the concerns that have been studied during the twentieth century in Jordan. It covers a wide and significant part of Jordan (18%) of the total area which is approximately 72,600 km^2. This region is subdivided into three geographical areas:



The Hashemite Kingdom of Jordan
The Location of Jordan Badia

Fig. 1: Location of Jordan (Map)

- Northern Badia which comprises 35% of the Badia total area
- Middle Badia which comprises 13% of the Badia total area.
- Southern Badia which comprises 51% of the Badia total area.

Although the vegetation cover is not dense and surface water mostly absent, the potential pastureland covers large part of the Badia. About 61% of farm animals in the country are located in Badia and around 70% of Jordan's animal products are produced in it [11]. However; this study focused on the Northern Badia region where most of the farms in this area are classified as family farms and the main economic activity is small ruminant production. The questionnaire was implemented face-to-face interview by the author and a female trained team of data collectors. The survey was conducted between the middle of 2005 and the end of 2006.

The primary purpose of this study was to describe selected demographic characteristics of rural women in the Badia region of Northern Jordan, to assess their perceived agricultural educational needs and perceived barriers to extension participation. For this study, four objectives were developed:

- To describe rural women in the Northern Badia, according to selected characteristics (age, marital status, level of education, farming experience and farm size).
- To determine the perceived educational needs of rural women in the Badia region of Northern Jordan.
- To determine perceived barriers to Extension participation by rural women in the Northern Badia region.
- To determine the relationship between selected demographic characteristics of rural women and their perceived educational needs and barriers to Extension participation.

Methodology and procedures: The research design in this study was descriptive correlational survey. The target population for this study was rural women in the Badia region of Northern Jordan. A sample of 260 rural women was selected from ten randomly selected villages in the Badia region. The survey instrument was developed and tested for validity and reliability prior to implementation. Data were collected using face-to-face interviews. The survey instrument elicited three categories of information from the participants: (a) demographic data, (b) perceived barriers to Extension participation, (c) assessments of self perceived amount of "knowledge" for agricultural production and assessment of self perceived level of "importance" in agricultural production. The descriptors for "knowledge" and "Importance" scales were: "4" = "High knowledge"/"High Importance" … "0" = "No knowledge"/"No Importance." Perceived educational needs, the dependent variable, were assessed using Borich needs assessment model [12]:

Equation 1: $Cal\ Aen = (In - Kn)(Ig)$

Where:

Cal Aen = calculated educational need.
In = importance of the item reported by the respondent.
Kn = perceived knowledge of the item reported by the respondent.
Ig = average importance of the item as rated by all the respondents.

Participants rated each educational need twice according to the four-point Likert type scale provided, first they rated it as to the amount of knowledge they currently possessed and secondly they rated it in terms of its importance in increasing agricultural production. Data were analyzed using the Statistical Package for Social Sciences (SPSS). Statistical analysis included descriptive, correlations and multiple regressions. Missing item values were handled by using mean substitution [13].

Table 1: Demographic characteristics of the respondents (N= 260)

Characteristics	M	SD
Age	39.17	9.83
Years of schooling	6.90	3.50
Household size	6.95	2.70

Table 2: Background Characteristics of the respondents (N=260)

Characteristics	f	%
Marital status		
Married	205	78.85
single	29	11.15
Widow	23	8.85
Divorced	3	1.15
Land ownership		
Wife	19	7.31
Husband	204	78.46
Jointly	11	4.23
Other	26	10.00
Ability to read and write		
Yes	206	79.23
No	54	20.77

Findings:

Demographic characteristics: Characteristics of participants in this study are summarized in Tables 1 and 2. Table 1 presents the means and standard deviations for the demographic characteristics that were measured using ratio scales. The mean age of rural women in this study was 39 years. The youngest respondent was 18 years of age and the oldest was 72. A majority of the participants had completed 1 to 8 years of schooling and almost one- quarter never attended school. The average period of time spent in school was 6.90 years with the minimum being 0 and maximum being 16 years. A majority of households (61%) in this study had 6-10 members and 8% had more than 11 members.

Table 2 presents the frequency and percentages of the background characteristics of the participants that were measured using nominal scales. Data revealed that majority of rural women (79%) in this study were married, eleven percent was single and nine percent were widowed. In respect of land ownership, seventy eight percent owned by the husband, ten percent did not own land, seven percent was owned by the wife separately and four percent of the rural women jointly owned land with their husband. Most of the participants

Table 3: Rank order of the calculated educational needs

Statement	Rank	M	SD
Milk processing techniques	1	6.14	5.97
How to control livestock diseases	2	5.83	5.72
Marketing of their product	3	5.41	5.34
Plan and prepare balanced meals	4	5.12	5.23
How to determine when to sell	5	4.87	4.68
Animal feed blocks formulation and use	6	4.74	4.81
Profitable animals selection to keep	7	4.52	4.65
Use of crop residue as a fodder	8	4.41	4.47
How to access loans	9	4.39	4.72
Food preservation	10	4.36	4.88
Use of uterus synchronization sponges	11	4.35	4.96
Book keeping records	12	4.29	4.57

Table 4: Rank order of bottom 12 educational needs

Statements	Rank	M	SD
Water harvesting techniques	41	2.81	3.72
Adding or and injecting vitamin (AD3E)	42	2.75	3.62
Range land management	43	2.63	3.82
Select suitable harvesting methods	44	2.59	5.43
Correct fertilizer for crops	45	2.48	5.14
How to control weeds	46	2.39	5.01
Information on profitable crops to grow	47	2.27	4.10
Choosing high quality seeds	48	2.13	4.33
Identify weeds that affect crops	49	2.04	3.25
Selection of suitable crop varieties	50	2.01	3.11
Preparation of land for planting	51	1.97	3.49
How to plant crops	52	1.82	3.58

(79%) in this study could read and write and twenty one percent could not.

Agricultural educational needs: Using the Borich's model [12], a higher mean indicates a greater educational need. The ranks, means and standard deviations of 12 highest educational needs of rural women are provided in Tables 3. As shown in Table 3, the highest educational need was milk processing techniques, followed by controlling of livestock diseases. Four among the top 12 highest educational needs were related to nutrition and five are related to resource management and marketing of flocks (marketing, when to sell, profitable animals to keep, how to access loans, book keeping records).

Table 4 provides ranks, means and standard deviations of 12 lowest educational needs of rural women. As illustrated in Table 4, nine of twelve least important educational needs were related to crop production.

Perceived barriers to extension participation by participants: The third objective of the study was to determine the perceived barriers to Extension participation by rural women. Table 5 provides ranks, means and standard deviations of the perceived barriers to Extension participation by rural women. Barriers to Extension participation scores ranged from a mean of 1.68 to a mean of 2.92. As illustrated in Table 5, the highest barriers were: 1) Lack of information about extension activities, 2) Extension agents do not often organize training programs for rural woman, 3) Heavy loads of household tasks\time constraint, 4) permission by husband and 5) Extension training programs do not include woman's training needs.

Table 5: Rank order of perceived barriers to extension participation

Statements	Rank	Ma	SD
Lack of information about extension activities	1	2.92	1.45
Extension agents do not often organize training programs for rural woman	2	2.73	1.84
Heavy loads of household tasks\time constraint	3	2.58	1.32
Permission by husband	4	2.47	1.26
Extension training programs do not include woman's training needs	5	2.29	1.18
No access to credit	6	2.23	1.04
Lack of female extension agents	7	2.01	1.13
Social and cultural customs prevents rural woman from attending extension activities	8	1.95	1.19
Extension training sites are far from where most woman live	9	1.86	1.17
Woman's inability to read and write	10	1.83	1.12
Lack of child-care facilities	11	1.79	1.14
No land or access to land	12	1.68	1.08

Note *Scale ranges from 1-4; 1 = Strongly Disagree; 2 = Disagree; 3 = Agree; 4 = Strongly Agree

Demographic characteristics and agricultural educational needs: The fourth objective of the study was to determine the relationship between selected demographic characteristics of rural women and 1) their perceived educational needs in the four areas and 2) their perceived barriers to Extension participation. Using Borich's model, an overall educational need score was computed for each of the four areas of domain. An overall mean score of each of 12 barriers was computed. These mean scores were treated as interval data. Correlations coefficients were calculated among the mean scores of the calculated needs, the barriers and the selected demographic characteristics.

Table 6 reports correlation coefficients among selected demographic characteristics and the four areas of perceived educational needs. A low association (0.11) existed among crop production and years in school. Negligible associations existed among livestock

Table 6: Correlation coefficients among selected demographic Characteristics of rural woman and the four areas of educational needs

	Correlation coefficients (r)	
Area of agricultural educational needs	Age	years of schooling
Livestock production	0.04	-0.02
Crop production	-0.08	0.11
Resource management and marketing	-0.06	0.04
Nutrition knowledge	0.05	-0.06

production and age, years in school and resource management and marketing. The correlation among nutrition knowledge and age was negligible. Resource management and marketing and crop production had negative association with age. Negative associations existed among years in school and livestock production and nutritional knowledge.

All the barriers were negatively associated with age except for one barrier (women's inability to read and write) with a negligible association of.05. The following barriers had low associations with number of years in school: 1) no access to credit (0.12) and 2) Extension agents do not often organize training programs for rural women (0.14). Two of the barriers (lack of female extension agents and women's inability to write and read) had negative association with years of schooling and the rest had negligible associations ranging from.01 to.09. The three selected independent variables (marital status: married, land ownership: other and barriers) significantly explained approximately 11% of the variance in educational needs of women farmers in the Northern Badia region of Jordan.

CONCLUSIONS AND IMPLICATIONS

From the analysis of the findings three majors conclusions were drawn: 1) rural women's highest educational needs are in livestock production, nutrition and resource management and marketing, 2) the perceived educational needs scores and the selected demographic characteristic of the rural women are independent of one another and 3) rural women's outstanding barriers to Extension participation were 1) lack of information about Extension activities, 2) Extension agents do not often organize training programs for rural woman, 3) heavy loads of household task and time constraints, 4) permission by husband and 5) Extension training programs do not include woman's training needs.

Four items in the area of nutrition were among the top 12 ranked very high educational needs. Five are related to resource management and marketing of flocks were the top 12 rank high educational needs. Educational courses should be planned that meet the identified needs of the rural women. Despite rural women's valuable contribution in small ruminant production, they still have limited access to credit and land.

Rural women indicated a lack of knowledge in the area of milk processing techniques and controlling livestock diseases. From the above findings, Extension agents involved in planning programs must realize that rural women in Northern Badia of Jordan. District need education in the area of nutrition, resource management and marketing and livestock production. Extension program will be more effective as they focus on the educational needs of the rural women. One-quarter of respondents in this study had never attended school and the majority (49%) had only 1 to 8 years of schooling, indicating that rural women in Northern Badia of Jordan were a disadvantaged group of individuals, who have limited educational opportunities.

Women's access to agricultural extension and their ability to comprehend and use technical information are lower when they lack education. More men than women are enrolled in training programs and gain more from developmental programs [14, 15]. Low investment in female education reduces productivity, efficiency and economic progress, inside and outside the household [16].

This research ranked educational needs for each item under the four-domain areas. This information can help Extension Departments related to the Ministry of Agriculture and the Badia Development Center in Jordan in placing their priorities on the items that were ranked high. Targeting planning will help meet the needs of rural women, attract a wider audience and lead to the success of Extension programs. Educational courses should be planned that meet the identified needs of the rural women, with emphasis given to those needs ranked highest.

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