

Role of High-value, Small-scale Agricultural Production in Generating Higher Livelihoods for Farm Women in Arid Region of Rajasthan

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INTRODUCTION

India has been a predominantly an agrarian economy since time immemorial. Majority of the population is depending on agriculture & agriculture is the mainstay of national economy even today. Even though, agricultural production is increasing and, second in the world's fruit and vegetable production still facing problems in the world food market because of poor quality and lack of processing. India has developed modern technologies to increase the production and quality of different agrarian crops but lagging behind in adoption of these new technologies. Effective and efficient adoption and use of new technologies is most important to compete with the world food markets.

In the modern day's women play very important role in industry, agricultural and allied activities for the development of rural house hold economy. Especially in the agriculture and related allied sectors as well as house hold activity, women were responsible for almost all the activities. Women are deeply involved in agricultural production, yet their knowledge about the newer technologies is limited because of different sociological factors which affect their ability to generate higher livelihoods for themselves and their families. Thus, it is important to think systematically about women empowerment not only for equity reasons, but also for the sake of efficiency to increase agricultural production and rural livelihood.

Women's empowerment can be viewed as a continuum of several interrelated and mutually reinforcing components. Empowerment is an active, multidimensional process, which enables women to realize their full identity and potential in all spheres of life that not only empowers women, but rather their capacities to face bravely the individual and social facts of their actual situations. Mostly Indian rural women have never been allowed to think for themselves or to make their own choices except in unusual circumstances when a male decision maker has been absent or has abdicated his role. An empowerment process is one which tackles the condition and position of women, power structures and gender subordination which are continuously revised and explored. This empowerment process however may most effectively be instigated by means of implementing appropriate training programmes for the selected section of women.

There is need to actively target farm women in different sorts of extension activities in novel ways to popularize the new agricultural technologies for enhancing their knowledge and productivity. Hence, the research program has been planned with a target to focus on the study of situation of women in the selected area, role and responsibilities in different agricultural activities, empowerment status, knowledge and exposure status, which is further followed by conducting field activities and demonstrations for improving the

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knowledge of agricultural production in farm families and actively involve women members, especially to increase the production, through the use of improve agriculture technologies.

METHODOLOGY

Simple random sampling technique was used to select 52 farm families from Utamber village. Based on the review of literature and experts guidance suitable variables were selected for the study of family and respondent's profile. From the start, information on socio-economic aspects and available biophysical resources of the village *Utamber* were collected through PRA and pre-structured interview schedules. Information was also collected by structured interview schedule from 50 women respondents about the situation of women in the selected area, role and responsibilities in different in agricultural activities, empowerment status, knowledge and exposure status etc. To impart knowledge and skills for capacity building training on selected agro-based technologies of food crops namely pearl millet, improved varieties of vegetables with complete package of practice from nursery development to vegetable cultivation and processing was provided. For capacity building of rural youth and specially women two 3-day off campus training programme were also conducted at village itself which included practical demonstrations and on hands training also.

RESULTS AND DISCUSSION

General information of the village

The selected village namely Utamber was located about 65 km from Jodhpur head quarter in Balesar tehsil of Jodhpur district. The total number of households in the village was about 600, which belongs to Meghwal, Jat, Rajpurohit, Rajput and Muslim community. Caste system was found dominant in the village with scattered settlement pattern. The village was comprised of six major areas namely RajpurohitonKaDhora, Ram Nagar, Tali Ki Dhani, ChipponKaMohalla, Siyago Ki Dhani and Raj purohitonKavass. Village is having one high school and 4 middle school, PatwarGhar, Public Distribution shop, drinking water facility, electricity

facility, P.H.C, Village Level worker and veterinary services. The village was dominated by the sandy terrain, sandy plains with sandy soils. Survey of the village was conducted through PRA and structured interview schedule revealed that the total geographical area was 5800 ha, out of which about 18% area was irrigated through tube wells, and remaining was rainfed. Tube well was the only source of irrigation with depth varies from 150 to 400 feet. Water quality of most of the wells was normal excluding some areas of brackish water. Pearl millet, mungbean, moth bean, cluster bean and sesame were the important crops grown under rainfed condition, whereas groundnut, castor and cotton were being taken under irrigated condition during kharif season. Wheat, cumin and mustard were the major crops grown during rabi season in the village. A change in the land use was observed where fellow and pastoral Sandy terrains were being converted to cultivated lands. Agriculture (38%), animal husbandry (18%), labor wages (23%) and others like business/service etc (35%) were the major sources of income. Average productivity of all the crops and Livestock was poor because of use of only traditional methods and lack of technological inputs of cultivation and livestock production.

Profile of Farm women of selected families

With respect to profile of selected farm women, 23.38 per cent were between 18-30 years of age, 63.02 per cent were between the 30-60 years and 13.60 were more than 60 years. Majority of women were belonging to OBC and SC categories. Around 57.80 per cent of women were belonging from families having small land holdings (< 22 Ha.) followed by 35.20 per cent with medium land holding categories (22-44 ha), while 7.00 per cent with large land holding category.

As far as the education and knowledge level of selected farm women is concerned it was found that among the respondents, 15 per cent were illiterate, 41.00 per cent are educated up to primary level, and 25.12 per cent up to secondary level, 20.00 per cent up to higher secondary level. The highest educational level of women was up to higher secondary level. However 41.00 per cent of the respondents can only read and write their names.

Table 1
Profile of Farm women of selected families

Socio-economic Characteristics	Category	Percentages (%)
Age	18-30 yrs.	23.38
	30-60 yrs.	63.02
	60 <	13.60
Caste	General	3.68
	OBC	64.98
	SC	31.34
Land holding size	< 22 bigha (up to 3.5 Ha)	57.80
	22-44 bigha (3.51-7.00 Ha)	35.20
	> 45 bigha (> 7 Ha)	7.00
Family type	Nuclear	17.98
	Joint	82.02
Family size	Less than 5 members	11.4
	5-10 members	51.7
	More than 10 members	36.9
Education	Illiterate	15.00
	Primary	41.00
	Secondary	25.12
	Higher secondary	20.00
Experience in farming	Low (3-5) years	27.50
	Medium (6-10) years	65.63
	High (>10) years	6.87
Extension contact	Neighbour	42.87
	Community members	34.38
	Local Panchayat	14.32
	Government agencies	6.33
	Non-government agencies	2.10
Mass media exposure	Radio	16.75
	Television	65.12
	News paper	12.45
	Mobile phone internet	3.52
	Computer / laptop	2.17
	Other	—

This further indicates that educational level of the female respondents covered was not adequate as reading and writing ability of most of them was very limited. The study indicates that 17.98 per cent respondents hail from nuclear families and 82.02 per cent respondents live in joint families. Among the respondents, it was seen that 9.1 per cent are married and the remaining 4.9 per cent are widowed while 2.00 % were unmarried girls.

Table 2
Perception on gender awareness

Aspects	Aware	Not aware
1. Education of girl child	71.15	28.85
2. Economic opportunity	61.54	38.46
3. Inheritance property rights	17.31	82.69
4. Early marriage	84.62	15.38
5. Dowry law	94.23	5.77
6. Divorce rights	7.69	92.30
7. female foeticide prevention act	71.15	28.85
8. Birth registration	3.85	96.15
9. Feeding priority	19.23	80.77
10. Wage differentiation	86.54	13.46
11. Political awareness	9.61	90.38
12. Violence against women	40.38	59.62

Table 3
Decision making and self-Image profile of selected farm women

Social responsibility profile	Lower (%)	About equal (%)	Higher (%)
1. Women's participation in decision making			
Household level	32.69	50.00	17.31
Community level	61.54	28.85	9.61
Society at large	75.00	21.15	3.85
2. Self-awareness profile			
Self-image of women	61.54	26.92	11.54
Image of women in society progression	82.69	11.54	5.77

The researcher made an attempt to study the level of knowledge of women regarding different Acts relating to women's rights and various welfare measures for women and children. For instance, the knowledge level of respondents on Hindu Succession Act, dowry system, female foeticide prevention act, birth registration, violence against women, disparity in wages, inequality in the distribution of land, inheritance of property, existence of child marriage etc. Due to lack of adequate knowledge on women's rights and knowledge of Acts, source of Acts, government welfare programmes and problem solving majority of women showed unawareness regarding these things. The awareness was mostly found about the

education of girl child, early marriage, dowry, employment opportunity and wage differentiation. With regard to decision making their participation at household level was more but at community and social level it was negligible while self-image of most of the women was very low and their attitude towards image about role of women in societal progress was also negligible.

Involvement of selected farm women in different agricultural activities

In agricultural activities, a general survey of farm operations was performed. It was observed that there is a clear-cut differentiation among some

works performed by male and female members individually whereas, some overlapping in few activities which they perform jointly. Regarding agricultural activities like clearing weeds (58.84), sowing (12.92 %), harvesting (57.69 %) threshing (51.92%) and winnowing (76.92 %), watch and ward of field (26.92 %), storage (80.54 %) females were always involved in these operations and involvement of male members was less (16-33 %). The data further inferred that operations such as ploughing, fertilizer application, pesticide application and are done primarily by the male members and the contribution of female members was very less.

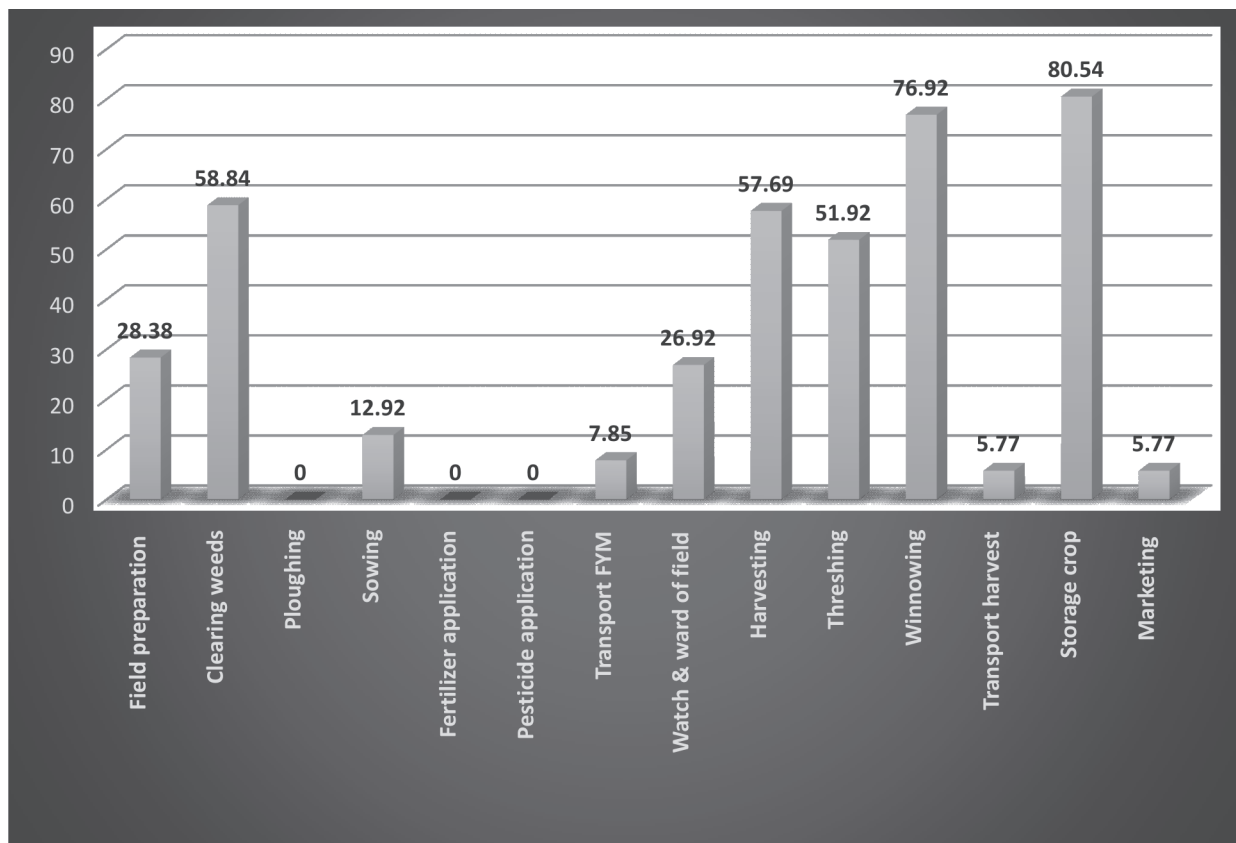


Figure 1: Involvement of selected farm women in different agricultural activities

Capacity building on high-value, small-scale agricultural production in generating higher livelihoods for farm women

Training of women functionaries in rural development has become an important issue with special concern for women in development. Training for empowerment places great stress in the creation of an atmosphere of learning. The general

overall objective of the training for rural farm women is to equip them with the basic knowledge, attitude and skills to play effective roles in promoting the process of development. The main aim of the training to farm women was to take on new roles, and to enhance their decision making skills regarding agriculture and related activities. It helps them to plan out their objectives and action

programmes and also to identify the areas in which they need to bring a change.

Capacity building of farm women for profitable and sustainable production was an integral part of this program. In this program capacity building of farm women is done by regular off campus training and field demonstrations, group discussions, on hands practical programs etc. In training the focus was on learning by an individual of the new ways of doing things. The basic rationale for training women leaders is to promote leadership among the members of village community (women's groups) and the womenfolk in the village. It also helps to empower women's organisations to act as catalysts at the local level and as pressure groups with other agencies securing social and economic assurance for women in community.

For this capacity building training was given and field demonstration in different phases (*rabi* and *kharif* seasons) over a period of two years were conducted. The methodology for the off-campus training programmes was lectures, group discussions, audio-visual presentations and practical method display. Two 3-day off campus trainings were organised during a year in the village and knowledge was provided by the trainers on the topics like technologies for integrated rabi and kharif vegetables production along with crop diversification, improved water use and saving, improved irrigation practices, integrated nutrient management, pest/ disease management, post-harvest management and value addition, agri-based techniques for entrepreneurial development in arid region etc.

In this program crop diversification was promoted through introduction of vegetable crops to diversify the farming system and increase the income of the women farmers. Training programs targeting women were also organised to incorporate knowledge about various kinds of newer technologies in vegetable production such as nursery raising, pro-tray technique, fertilizer and pest management, disease control were and post-harvest processing of vegetables. Pearl millet and cluster bean yield increased by 23 and 16% over traditional farmers' practices with the use of

improved agriculture practices, such as tested hybrid varieties, fertilizer scheduling and timely pest and disease management.

Table 4
Demonstrations of kharif and rabivegetables at farmers field

Field demonstration	Variety	No. of demonstrations
Ridge gourd	KALASH HYBRID -836	Four
Tinda	CHITRA	Four
Brinjal	ANNAYA HYBRID	Four
Ladyfinger	OH-102	Four
Tomato	ABHILASH	Four

Under the crop diversification activity vegetable cultivation was introduced and two to three vegetables were taken by each farm family for planting in 100-200 square meter area. Vegetable cultivation resulted in net saving of Rs. 1,000-1,200 per family through domestic use in addition to economic returns by selling the surplus. B: C ratio of vegetables eggplant, ladyfinger, tinda, bottle gourd and tomatoes was 1.72, 3.10, 2.73, 2.95 and 1.94, respectively. These vegetables, with improved cultivation practices, recorded high net returns ranging between Rs. 65,130 and 97,200 ha⁻¹.

Knowledge level of farmers/farmwomen before and after training programmes

As described earlier two 3-day off campus trainings were organised during a year in the village and knowledge was provided by the trainers on the topics. A performa was provided to the beneficiaries of the training programme to understand the reasons for adoption/non-adoption of vegetable cultivation by the farmers in the village and their doubts about the topic can be cleared during the training programme. A structured questionnaire was also given to the farmers for pre and post evaluation of the training programme. Based on responses of the farmers and farm women the knowledge level before and after the training programme was evaluated.

Table 5
Reasons for non-adopting vegetable cultivation technology

<i>Reason</i>	<i>Agree</i>	<i>Disagree</i>
Lack of enough information	75.5	24.5
Lack of training	87.54	12.46
Newness of variety	43.67	56.33
Unavailability of planting material/ seedlings	63.50	36.5
Lack of knowledge of alternative methods of nursery development for early crop	97.67	2.33
Labour intensive	58.87	41.13
Cost of cultivation	72.34	27.66
Water requirement	95.56	4.44
Tedious intercultural operations	56.34	43.66
Lack of suitable land	87.25	12.75
Perishable nature	93.12	6.88
Lack of marketing facility	81.24	18.76
High transportation cost	78.87	21.13

Table 6
Knowledge level of farmers/farmwomen

<i>Knowledge level</i>	<i>Before training</i>	<i>After training</i>
Low (up to 33 %)	48.08	21.75
Medium (33-66%)	42.30	59.62
High (> 66 %)	9.62	19.23

CONCLUSION

From the above findings it's concluded that 95 percent of the farmers were belongs to young and middle age but they are having medium to small size of land. Average productivity of all the crops was poor because of use of only traditional methods and lack of technological inputs of cultivation and

the reason for medium level of income. Due to lack of education, and low level of mass media exposure and extension contact there was interruption in adoption of scientific cultivation technologies. The problem can be solved by providing better extension contact with the mass media exposure to the farmers and farm women regarding various innovative technologies. The proposed program was found to be effective and well satisfying in the tough conditions Jodhpur district in the arid western part of India. Proper implementation of result demonstration with enough information materials supply is highly recommended and can uplift the scope for adoption of advance small scale agricultural techniques/ farming systems for the indigenous farmers of this region in India. Farmers' feedback have revealed that the propose technology is found to be very useful and can be utilized for cultivation during both the seasons. Relevant effective trainings and prior supply of enough informative materials can improve the adoption of innovative technologies and help to enhance their livelihoods.

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