

Farming Performance of Farm Women in Rice Based Farming Systems of Andhra Pradesh

P. Vijaya Lakshmi¹ and K.S. Purnima²

Abstract

The study was conducted in three districts, one from each region of undivided Andhra Pradesh. Three mandals from each selected district and two villages from each selected mandal were chosen. Ten farm women were chosen randomly from each village thus making a total sample of 180 farm women equally selected from three categories i.e., Large, Medium and Small based on their farm size, based on stratified random sampling. The farming performance of farm women in rice based farming systems of the three regions was analysed using six selected indicators, viz., cropping intensity, crop yield index, milk yield index, level of adoption, commercialization index, and expansion / diversification index. The findings revealed that there was significant difference in the mean scores among the three categories of farm women in respect of overall performance. In other words, the large category farm women had the highest mean score of 395.0 followed by medium farm women (378.86). The small farm women had the least mean score of 373.62 in respect of overall farming performance.

Keywords: Farming Performance, Farm Women, Rice based farming system.

Introduction

Farming systems approach has been used in an effort to increase land productivity and farmer welfare where crop and animal husbandry complement and supplement each other and provide gainful employment to the farm women throughout the year. The basic socio-economic unit in rural development are not men farmers alone but rural households including all activities. Women in rural areas form the most important productive work force. In India, as high as 76 per cent of the rural population is engaged in agricultural production and rural women comprise 50 per cent of the agricultural work force. Any understanding of the process of production particularly agriculture and related production would remain incomplete if the farming performance of women is not analysed. The present study was therefore

¹ Associate Professor, Extension Education Institute (EEI), Hyderabad.

² Scientist (Extension), Acharya NG Ranga Agricultural University (ANGRAU).

undertaken to analyse the farming performance of farm women in rice based farming systems of the three regions of undivided Andhra Pradesh, comprising agriculture-rice; horticulture-vegetables/flowers; and animal husbandry- dairy/ poultry enterprises.

Methodology

Expost facto research design was used. The state of Andhra Pradesh was selected purposively. The study was conducted in three districts (one from each region of undivided Andhra Pradesh). Three mandals from each selected district and two villages from each selected Mandal were chosen. Ten farm women were chosen randomly from each village thus making a total sample of 180 farm women, equally selected from three categories *i.e.*, Large, Medium and Small based on their farm size based on stratified random sampling.

Computation of Farming Performance Index

Rice based farming system in the study was operationalised as the system where Rice is a base crop and integrated with other land based enterprises by utilizing the available farm resources to earn an increased annual income and sustain their livelihoods. For measuring the farming performance of women in such systems, an index was developed using six identified indicators based on relevancy rating test, *viz.*, cropping intensity, crop yield index, milk yield index, level of adoption, commercialization, expansion / diversification.

Measurement of Farming Performance Indicators

1. **Cropping intensity (CI)** : operationally defined as the proportion of total annual cropped area in acres to the total size of holding in acres expressed in percentage.

$$CI = \frac{\text{Total annual cropped area}}{\text{Size of holding}} \times 100$$

2. **Crop yield index (CYI)** : The yield of all crops on the farm compared with the average crop yields of the region. CYI of the farm was calculated by dividing the yield per acre of each crop by the average yield of the crop in the region multiplied by 100. By using the area devoted to each crop on the farm as a weight to multiply this percentage index, the products are obtained. Finally, adding the products and dividing the sum of the products by the total cropped area (in acres) on the farm, the crop yield index was obtained.

3. **Milk yield index (MYI):** The procedure adopted was similar to crop yield index.

$$\text{MYI} = \frac{\text{No. of animals} \times \text{milk yield in \%}}{\text{Total no of animals}}$$

4. **Level of Adoption :** the individual farmers' level of adoption was calculated by taking into consideration the recommended practices followed for the principle crops grown on her farm and dairy.

$$\text{Adoption quotient} = \frac{\text{No. of practices adopted}}{\text{No of crops grown} \times \text{no. of practices}} \times 100$$

5. **Commercialisation index:** the index of commercialization was arrived at by calculating the percentage of produce sold. The degree of commercialization was calculated as

$$\text{CI} = \frac{\text{Value of farm produce sold}}{\text{Gross value of all production on the farm}} \times 100$$

6. **Expansion / Diversification index :** the degree of expansion / diversification of farm and establishment of farm and other enterprises such as dairy, poultry *etc.*, from the time of one's involvement.

$$\text{EDI} = \frac{\text{Investment made by the respondent}}{\text{Maximum investment in the sample}} \times 100$$

The total farming performance index for each respondent was obtained by adding up the indices obtained on each score and summated to obtain the Farming performance index score for the respondents.

Results and Discussion

Table 1 indicates the distribution of farm women on different components of farming performance.

Table 1. Distribution of Farm Women on different components of Farming Performance

S. No.	Component	Category	Categories of Farm Women							
			Large (n=19)		Medium (n=66)		Small (n=95)		Pooled sample (n=180)	
			F	%	F	%	F	%	F	%
1	Cropping Intensity	Low	4	21.05	22	33.33	28	29.47	54	30.00
		Medium	10	52.63	31	46.97	49	51.58	90	50.00
		High	5	26.32	13	19.70	18	18.95	36	20.00

S. No.	Component	Category	Categories of Farm Women							
			Large (n=19)		Medium (n=66)		Small (n=95)		Pooled sample (n=180)	
			F	%	F	%	F	%	F	%
2	Crop Yield Index	Low	4	21.05	21	31.82	28	29.47	53	29.44
		Medium	9	47.37	30	45.45	39	41.05	78	43.33
		High	6	31.58	15	22.73	28	29.47	49	27.22
3	Milk Yield Index	Low	5	26.32	24	36.36	38	40.00	67	37.22
		Medium	11	57.89	34	51.52	42	44.21	87	48.33
		High	3	15.79	8	12.12	15	15.79	26	14.44
4	Level of Adoption	Low	4	21.05	21	31.82	36	37.89	61	33.89
		Medium	9	47.37	36	54.55	42	44.21	87	48.33
		High	6	31.58	9	13.64	17	17.89	32	17.78
5	Commercialization Index	Low	7	36.84	23	34.85	28	29.47	58	32.22
		Medium	8	42.11	30	45.45	44	46.32	82	45.56
		High	4	21.05	13	19.70	23	24.21	40	22.22
6	Expansion / Diversification Index	Low	8	42.11	24	36.36	27	28.42	59	32.78
		Medium	8	42.11	34	51.52	52	54.74	94	52.22
		High	3	15.79	8	12.12	16	16.84	27	15.00

Cropping intensity

Table 1 reveals that majority of large category farm women belonged to medium (52.63 %) cropping intensity category followed by high (26.32 %) and low (21.05 %) cropping intensity categories. In the case of medium farm women, the cropping intensity fell under medium (46.97 %) category. 33.33 per cent of them belonged to low and high (19.70 %) categories. In case of small farm women, 51.58 per cent belonged to medium cropping intensity category, followed by low (29.47 %) and high (18.95 %) categories. The pooled data also indicated that majority (50 %) of farm women fell under medium cropping intensity.

The large category farm women had relatively high cropping intensity when compared to the medium and small farm women categories. Difference in cropping intensity is due to several reasons primarily because the large category farm women having sufficient resources were in a position to invest to carry out intensive cropping and were ready to experiment with new cropping devices. On the other hand, medium and small farm women, could not raise more number of crops in the unit area because of low and poor resources. As agriculture became

more capital intensive, the medium and small farmers were not in a position to cope up with the changing situation. Besides, unpredictable climatic conditions and uncertain market fluctuations were limiting medium and small farm women from intensive cropping and experimentation if any; thus, there was significant difference was observed between the farm women categories. The results are in conformity with the findings of Neela Veni (2005), Rajini (1989) and Reddy (2003).

Crop yield index

The data presented in Table 1 reveals that majority (47.37 %) of the large farm women had medium crop yield index followed by high (31.58 %) and low (21.05 %) crop yield index. Majority (45.45 %) of medium farm women belonged to medium crop yield index category followed by low (31.82 %) and high (22.73 %) crop yield index categories. With regard to small farm women, majority (41.05 %) were in medium crop yield index category with equal percentage in high and low crop yield index categories. The pooled data shows that majority (43.33 %) belonged to medium category. Hence, it is clearly revealed that most of the farm women in all categories had medium crop yield index.

The sample of farm women selected for the study grow both dry crops in their dry lands and irrigated crops in the lands where water facility is available. Though sustainable crop is possible with irrigated crops, due to erratic rainfall due to unpredictable monsoon, crop yield in dry land is uncertain. The farm women of all categories viewed that in these conditions obtaining maximum yields in all crops may not be possible. Therefore, achievement of high yield index by the farm women of the region may not be possible. Besides, under utilization of resources such as land and water is another possible reason which is associated with non-affordability of expensive modern technological devices in farming by the farm women. Moreover, several studies have indicated that farm women were bestowed with poor resources both in terms of natural resources as well as information and use of modern technologies. As agriculture and other farming systems are the mainstay of 70 per cent of the population in India, it is essential to provide or in some cases improve infrastructural facilities particularly, irrigation and access to credit facilities which are considered as important inputs to maximize the available resources and increase production. The results are in conformity with the findings of Sreedevi (1996), Reddy (2003) and Satyanarayana (2008).

Milk yield index

The study revealed that majority (57.89 %) of the large farm women belonged to medium milk yield index category followed by low (26.32 %) and high (15.79 %) milk yield index categories. Among the medium farm women, majority (51.52 %) belonged to medium milk yield index category, while 36.36 per cent reported as low and 12.12 per cent were in high milk yield index categories. With regard to small farm women, majority (44.21 %) of them belonged to medium milk yield index category followed by low (40.00 %) and high (15.79 %) milk yield index categories. The pooled data revealed that majority (48.33 %) in all categories had medium milk yield index.

The study indicated that farm women of all categories belonged to medium milk yield index category. Though all of them belong to the same category, the variations in the milk yield index showed that large category farm women produced more milk yield followed by medium and small farm women. All categories of farm women considered dairying as an apt enterprise combined with poultry management to get sustainable income and this perfectly fits into rice based farming system in the study areas. The entire life cycle of livestock perfectly goes in combination with rice based farming system. The milk collection centres and purchase of milk by private vendors ensured sale of milk produce with least risk and problems in the study regions. Animal husbandry is playing an equally important role in all categories, but it had direct livelihood component in the case of small and medium farm women categories. Therefore, development schemes related to animal husbandry and dairying need to be strengthened further which will result in bringing all categories of farm women from medium level of milk yielding category to high milk yield index. Such efforts will have positive contribution and capacitate farm women to make better investments in agriculture. The finding was in accordance to that of Satyanarayana (2008).

Level of adoption

The data in Table 1 reveals that 47.37 per cent of large category farm women had medium level of adoption, followed by high (31.58 %) and low (21.05 %) adoption categories. With regard to medium farm women, majority (54.55 %) belonged to medium adoption level with 31.82 per cent in low and 13.64 per cent under high adoption categories. Among small farm women 44.21 per cent fell under medium level of adoption category followed by low (37.89 %) and high

(17.89 %) adoption categories. The pooled data of this category summarized that 48.33 per cent of farm women in all categories had medium level of adoption.

The findings revealed that majority of farm women from all categories had medium level of adoption. The feasibility component of technology plays a significant role in determining the level of adoption. Therefore, the gender dimension is an issue to be dealt more effectively on a priority basis as agriculture and its modernization is still considered a male domain. Special efforts of extension personnel to reach out to farm women in dissemination of modern technology and sensitization of husbands and other male members of the family play crucial role in capacitate farm women for effective technological adoption. The finding was in accordance to that of Reddy (2003), Sreedevi (1996) and Umadevi (1992).

Commercialization index

It is indicated that 42.11 per cent of the large category farm women belonged to medium commercialization index followed by low (36.84 %) and high (21.05 %) commercialization. Regarding medium farm women, majority (45.45 %) of them belonged to medium commercialization index with low (34.85 %) and high (19.70 %) commercialization categories. Among small farm women 46.32 per cent belonged to medium commercialization index followed by low (29.47 %) and high (24.21 %) commercialization index. The pooled data revealed 45.56 per cent medium index. Thus, from the results it could be concluded that majority of farm women in all categories had medium commercialization.

The nature of farming system of the studied categories of farm women exhibit both subsistence and commercial orientations. In the case of subsistence aspect all the farming categories primarily produce principal crops to meet their day to day livelihood needs with a component to sell the surplus if any in the market with some amount of variation among the farming categories. Whereas, in the case of horticulture and other allied economic activities such as dairying and poultry, the focus of all farming categories is primarily to sell besides domestic consumption. While doing so all farming categories under study demonstrated medium level of commercialization index. In other words, all farm women demonstrate some level of entrepreneurial abilities depending on the specificities of the category they belong to. The system adopted in the study was rice + sale of vegetable/flowers + dairy products + poultry products. Rice being the staple food, farm women of all categories sell a little portion, but sell a major portion of vegetables/flowers, dairy

and poultry produce in the market on commercial lines to earn more income. In order to ensure high commercial index among the farm women, focused research has to be initiated to identify the resources which can produce items with high commercial value and market demand. Further there is need to identify the gaps and bottle necks in entrepreneurial skills by evaluating the present situation of farm women based on which new capacity building and skill development programs need to be developed. Development of commercial perspective and entrepreneurial skills among farm women is one of the most important inputs that any external agency including extension agency could impart to the farm women. Though several schemes were initiated and were underway to develop and capacitate farm women on these aspects, there is much remaining to be done. Therefore, empowerment of women farmers is the only and viable strategy to achieve high commercial index. This finding was in agreement with the results of Reddy(2003) and Sreedevi (1996).

Expansion/diversification index

It is evident in Table 1 that among the large category farm women medium and low expansion/diversification index is revealed as 42.11 per cent each, while 15.79 per cent are under high expansion/diversification index categories. Among medium farm women, majority (51.52 %) belonged to medium expansion/diversification index category followed by low (36.36 %) and high (12.12 %) expansion/diversification index category. In case of small farm women, 54.74 per cent of them belonged to medium expansion/diversification index category followed by low (28.42 %) and high (16.84 %) expansion/diversification index categories. It can be summarized that the pooled data showed majority (52.22 %) of the farm women in all categories had medium expansion/diversification index.

It was observed in the study that expansion/diversification was treated by the farm women as a strategy to reduce risk and uncertainty in the farming system. This element is demonstrated by all categories of farm women where different enterprises were judiciously handled and managed to address any eventuality which was beyond control, particularly failure of rains, failure of crops, disease attack and eventual loss of life of livestock and poultry. In such circumstances, expansion/diversification supplement the loss by compensating the loss incurred. The farming system approach and its integrated component, provides viable scope and opportunities not only to manage the crisis situation but enables farm women to take up multiple economic pursuits. Given the growing uncertainty in farming

systems where ecology plays a deterministic role, diversification is considered by majority of farm women as a coping mechanism as well as an alternative supportive system to sustainable income generation besides ensuring employment to farmwomen across the year and covering all seasons. However, efforts have to be initiated to motivate and encourage farm women to diversify further more effectively to achieve higher expansion/diversification index.

Table 2 indicates the difference in the overall farming performance among the three categories of farm women. There was significant difference among the three categories of farm women with respect to overall farming performance. (F-ratio value was 2.301).

Table2: Difference in overall farming performance among three categories of farm Women

Source of variation	DF	Sum of squares	Mean squares	F-Ratio	Probability
Categories	2	7354.66938	3677.33469	2.301	0.10311
Error	177	282830.13062	1597.91034		
Total	179	290184.8	5275.24503		

LSD=15.497

In order to find out which category pairs are differing significantly, the mean scores of three categories were arranged in descending order as shown below.

	Large	Medium	Small
Mean	395.0	378.8636	373.6211
SE	9.171	4.920	4.101

Hence, it was concluded that there was significant difference in the mean scores of Large, small and medium farm women in respect of overall performance. In other words, the large farm women had the highest mean score of 395.0 followed by medium farm women (378.86). The small farm women had the least mean score of 373.62 in respect of overall farming performance.

Conclusion

The results revealed that large category farm women had the highest mean scores with respect to cropping intensity, crop yield index, milk yield index, level of adoption, and Expansion / Diversification index. The medium farm women had the highest mean scores with regard to commercialization index and overall

farming performance. The small farm women scored less in all the spheres except one when compared to large and medium farm women. It was also evident that the farming performance was least for small farm women given the available poor natural resources combined with the access to other sources such as financial, information on modern technologies and attitudes, when compared to medium and large farm women.

As a result, as women perform most of the agricultural work, they are the best judges of new investments and changes necessary to modernize their agriculture and allied activities. Yet invariably it is men rather than women who as head and owner of the family farm are the decision makers in vital matters. Therefore, a conscious effort should be made by the policy makers and the administrators in formulating strategies to involve women to improve their farming performance related to land based activities to enable them to move from subsistence agriculture to major income source for improved standards of living.

References

- Giddareddy, P. (2003). Farming performance of farm women (1st edition) pp68-86.
- Neela Veni, S. (2005). A study on farming performance and entrepreneurial characteristics of oil palm growers in Krishna Godavari zone of Andhra Pradesh. Ph.D. Thesis submitted to Acharya N. G. Ranga Agricultural University Hyderabad
- Rajini, C. (1989). A study on the extent of participation and perception of degree of drudgery of farm women in crop production in Mahabubnagar district of Andhra Pradesh. M.sc. (Ag) thesis submitted to APAU, Hyderabad.
- Satyanarayana, Ch. (2008). Livestock and crop enterprise as a means of livelihood in Rural Andhra Pradesh- a Critical analysis. Ph.D. Thesis Submitted to Acharya N.G.Ranga Agricultural University, Hyderabad.
- Sridevi, R and Gopala Krishna Rao, V. (1996). Correlates of farming performance of women and men farmers. *Indian journal of social sciences research* vol 37 (3) pp245-253.
- Umadevi, B.K. (1992). An analysis of impact of training and extension on farm women in WYTEP in Karnataka. M.Sc. (Ag.) Thesis submitted to APAU, Hyderabad.