

ROLE PERFORMANCE OF RURAL WOMEN IN VERMICULTURE ENTERPRISE

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ABSTRACT

The present study was undertaken in a village of Murtizapur Panchayat Samiti of Akola district in Maharashtra State. Majority of respondents were having high level role performance in vermiculture enterprise. Regarding the relational analysis, independent variables namely education, landholding, annual income, socio-economic status, experience in vermiculture enterprise, economic motivation and scientific orientation were found to be significant with role performance whereas age did not show significant correlation. The multiple regression of all nine variables showed 87.83 per cent variation in role performance.

Introduction

Vermiculture enterprise is a relatively new enterprise that is spreading rapidly among women in rural areas. As the vermiculture enterprise is less expensive in terms of costs and relatively more intensive in terms of labour, it provides them relatively fair employment with less investment. Vermicompost is the production of blackish, light weighed and granular material after the metabolic produce of earthworm which is a rich source of plant nutrients like N, P, K, Ca, Mg, Co, etc. Vermicomposting is an excellent technique for recycling food waste. It is a complete plant nutrient and contains not only worm casting but also bedding material and organic waste at various stages of decomposting (Urmila Gupta *et al.* 2006).

The resulting fine-grained compost can be applied before sowing, or as top-dressing after germination. Vermicompost is used primarily for high-value crops, such as spices, sugarcane,

vegetables, and fruit orchards (Butterworth, *et.al.* 2002). In international market those products which are cultivated by the use of organic resources only have more value. So the use of natural organic manures increases our hope to compete in international markets and earn more foreign reserves and currency. Rural women can play a vital role in vermiculture management too as they make major efforts for development and production of vermiculture. They are getting more employment through vermiculture enterprise. This context draws attention to study the role performance of rural women in vermiculture enterprise and constraints faced by them while playing an important role.

Besides household activities, there has been increased participation of women in agriculture and allied activities. They also play a key role in vermiculture enterprise and had become income generator for their livelihood. Therefore, it is also necessary to study and find

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out key areas of their role performance in vermiculture enterprise; so as to impart them appropriate training and capacity building. Besides, it is also needed to study relationship between the socio-personal, socio-economic, communication, psychological characteristics of the rural women engaged in vermiculture enterprise and their role performance.

In this context, an attempt was made to study the contribution made by rural women in the form of role performance in vermiculture enterprise. Besides, effort has been made to study role performance in relation with their socio-economic status and psychological characteristics.

Methodology

The present study was carried out in a purposively selected village Chickhli (Kasvi) in Murtizapur Panchayat Samiti of Akola district of Vidarbha region in Maharashtra. It is because more number of women population in this panchayat samiti happen to be engaged in vermiculture enterprise. For the present study exploratory design of social research was used. The study was conducted on rural women. Rural women refer, in the study to those women who are employed in farming and carrying out various vermiculture practices in rural area. The sample for study comprised 25 rural women. For the measurement of the variables, different scales were used like socio-economic status of the respondents was measured with the help of scale developed by Thakare (2004), for economic motivation and scientific orientation value of the farmers a scale developed by Supe (1969) was used. On the basis of the maximum and minimum score obtained, the respondents were categorised as follows.

Role performance was operationally defined as the physical performance of various vermiculture practices by the respondents in vermiculture enterprise. The role performance of each operation was measured on three point continuum viz., always, sometimes and never. The score assigned to these categories were 2, 1 and 0, respectively. The role performance score on all the items for individual rural women was ascertained and the index was worked out with the help of following formula :

$$\text{Role performance index} = \frac{\text{Sum of obtained score}}{\text{Total obtainable score}} \times 100$$

On the basis of index range they were categorised as below :

S.No.	Category	Index range
1	Low	Up to 33.33
2	Medium	33.34 to 66.66
3	High	66.67 and above

Results and Discussion

Characteristics of the Respondents : The results of the selected personal, socio-economic, communication and psychological characteristics of respondents are presented in Table 1. The data in Table 1 revealed that majority of respondents included were young i.e. up to 35 years age group having education up to middle and high school, annual income ranging between ₹ 50,001 to ₹ 75,000 and above ₹ 1,00,001, semi-medium landholding, very high socio-economic status, 1.1 to 2 year of experience, medium source of information, high economic motivation and scientific orientation.

Table 1 : Distribution of Respondents According to Their Selected Characteristics

S. No.	Category	Respondents	
		Number	Percentage
Age			
1	Young (up to 35 years)	15	60.00
2	Middle (36 to 45 years)	7	28.00
3	Old (above 45 years)	3	12.00
	Total	25	100.00
Education			
1	Illiterate	1	4.00
2	Primary school	4	16.00
3	Middle school	8	32.00
4	High school	8	32.00
5	College	4	16.00
Landholding			
1	Marginal (up to 1.00 ha)	0	0.00
2	Small (1.01 to 2.00 ha)	5	20.00
3	Semi-medium (2.01 to 4.00 ha)	10	40.00
4	Medium (4.01 to 10.00 ha)	9	36.00
5	Large (above 10.00 ha)	1	4.00
Annual income			
1	Up to ₹ 50,000	2	8.00
2	₹ 50,001 to ₹ 75,000	9	36.00
3	₹ 75,001 to ₹ 1,00,000	5	20.00
4	₹1,00,001 and above	9	36.00
Socio-economic status			
1	Very low (Up to 6.42)	2	8.00
2	Low (6.43 to 7.47)	3	12.00
3	Moderate(7.48 to 8.52)	8	32.00
4	Moderately high (8.53 to 9.57)	3	12.00
5	Very high (9.58 to above)	9	36.00
Experience in years			
1	Up to 1 year	9	36.00
2	1.1 to 2 years	10	40.00
3	More than 2 years	6	24.00
Source of information			
1	Low	4	16.00
2	Medium	17	68.00
3	High	4	16.00
Economic motivation			
1	Low	3	12.00
2	Medium	10	40.00
3	High	12	48.00
Scientific orientation			
1	Low	2	8.00
2	Medium	4	16.00
3	High	19	76.00

Role Performance of Respondents in Vermiculture Enterprise : According to the study objective, attempts have been made to study the role performance in vermiculture enterprise by the respondents. The activities for role performance in vermiculture enterprise from selection of site to selling of vermicompost as well as its allied by-products were considered for the present study. The activity-wise role performance of rural women in vermiculture enterprise was studied on three-point continuum i.e. always, sometimes and never and the results are presented in Table 2.

The data presented in Table 2 revealed that, 'always performed' activities were : making arrangement in vermiculture enterprise so as to provide shade to earthworm (72 per cent), selection of composting material to prepare vermiculture (68 per cent), selection of site for a vermiculture enterprise (68 per cent), timely watering on bed/pits (64 per cent), collection and sorting of vermicompost and its by-products (64 per cent), , storing of vermicompost (60 per cent), covering the bed/pit with suitable material in order to protect the earthworms (56 per cent), selection of appropriate method of vermiculture (48 per cent), arrangement of composting material in sequence and properly for preparation of vermicompost (44 per cent).

The 'sometimes' role performance included activities namely, protection of earthworms from its natural enemies (64 per cent), selection of inoculant earthworm species for vermiculture enterprise (60 per cent), selling of vermicompost as well as its allied by-products (56 per cent), preparation of beds/ digging of pits for vermiculture enterprise (52 per cent), putting/ filling of vermicompost in gunny / plastic bags for marketing (52 per cent), mixing of composting material so as to prepare feed mixture for earthworm (48 per cent).

Further, it was found that arranging composting material in sequence and properly for preparation of vermicompost (20 per cent), mixing of composting material so as to prepare food mixture for earthworm (20 per cent) and selection of appropriate method of vermicompost (16 per cent) and covering the bed/pit with suitable material in order to protect the earthworms (8 per cent) were the activities never performed by respondent rural women.

From the above findings it may be said that rural women perform most of the vermiculture operations always. The findings of Jyosila (1985) supported the present study which reported that rural women take care of most of the farm operations like compost making operation, application of manures and fertilisers, sowing, transplanting, storage of fertilisers etc.

It could thus be inferred that rural women in vermiculture enterprise always perform most of the activities. However, some of the activities like arranging composting material in sequence and properly for preparation of vermicompost and mixing of composting material so as to prepare feed mixture for earthworm were never performed by 20 per cent of the rural women. It might be due to reason that these activities are labour oriented and hence these would have been got done by the labourers. Few activities were performed sometimes by relatively higher proportion of the respondent rural women. These activities were performed many times by the farmers or labour and the farm women were forced to perform them in absence of the farmers or the labour intended to perform the particular activity.

Extent of Role Performance by Respondents in Vermiculture Enterprise : The categorisation of rural women according to their extent of role performance is presented in Table 3.

Table 2 : Distribution of Respondents According to Their Activity-wise Role Performance in Vermiculture Enterprise

S. No.	Activities in vermiculture enterprise	Role performance (N=25)		
		Always	Some-times	Never
1	Selection of site for vermiculture enterprise	17 (68.00)	8 (32.00)	0 (0.00)
2	Making arrangement in vermiculture enterprise so as to provide shade to earthworm	18 (72.00)	7 (28.00)	0 (0.00)
3	Selection of inoculated earthworm culture species for vermiculture enterprise	10 (40.00)	15 (60.00)	0 (0.00)
4	Selection of appropriate method of vermiculture	12 (48.00)	9 (36.00)	4 16.00
5	Selection of compositing material to prepare vermiculture	17 (68.00)	8 (32.00)	0 (0.00)
6	Preparation of beds/ digging of pits for vermiculture enterprise	12 (48.00)	13 (52.00)	0 (0.00)
7	Arranging composting material in sequence and properly for preparation of vermicompost	11 (44.00)	9 (36.00)	5 (20.00)
8	Mixing of composting material so as to prepare feed mixture for earthworm	8 (32.00)	12 (48.00)	5 (20.00)
9	Covering the bed/pit with suitable material in order to protect the earthworms	14 (56.00)	9 (36.00)	2 (08.00)
10	Protection of earthworms from its natural enemies	9 (36.00)	16 (64.00)	0 (0.00)
11	Timely watering on bed/pits	16 (64.00)	9 (36.00)	0 (0.00)
12	Collection and sorting of vermicompost and its by-products	16 (64.00)	9 (36.00)	0 (0.00)
13	Storing of vermicompost	15 (60.00)	10 (40.00)	0 (0.00)
14	Putting/ filling of vermicompost in gunny/ plastic bags for marketing	12 (48.00)	13 (52.00)	0 (0.00)
15	Selling of vermicompost as well as its allied by-products	11(44.00)	14(56.00)	0(0.00)

Table 3 : Distribution of Respondents According to Their Role Performance

S. No.	Extent of role performance	Respondents (n=25)	
		Number	Per cent
1	Low	0	0.00
2	Medium	6	24.00
3	High	19	76.00
Total		25	100.00

The extent of role performance of rural women revealed that majority of them (76 per cent) have high level of role performance followed by 24 per cent of them who were found in medium level of role performance category. None of the respondents appeared in low category of role performance. Thus, it could be inferred that majority of the respondents were found in high level of role performance. The present finding is supported by Varsha Rathod (2006), Nita Divekar (2010) and Mankar *et al.* (2013).

Relational Analysis: Efforts have been made to find out the relationship of selected personal,

socio-economic, communication and psychological characteristics of rural women with their role performance in vermiculture enterprise. Attempts were also made to work out the contribution of selected variables in influencing the role performance of rural women.

Relationship of Selected Characteristics of Respondents with Role Performance : It is observed from Table 4 that the variables annual income, socio-economic status, source of information, economic motivation and scientific orientation were highly significantly related with the role performance at 0.01 per cent level of probability.

Table 4 : Coefficient of Correlation of Selected Characteristics of Respondents with Their Role Performance

S. No.	Variables	'r' value
1	Age	0.0493
2	Education	0.467*
3	Landholding	0.475*
4	Annual income	0.542**
5	Socio-economic status	0.551**
6	Experience in vermiculture enterprise	0.491*
7	Source of information	0.544**
8	Economic motivation	0.665**
9	Scientific orientation	0.552**

* Significant at 0.05 level of probability.

** Significant at 0.01 level of probability.

Education, landholdings and experience in vermiculture enterprise were significant at 0.05 level of probability with the role performance of rural women. This led to rejection of null hypothesis for education, landholding, annual income, socio-economic status, experience, source of information, economic motivation and scientific orientation. The age did not show significant correlation with role performance by rural women in vermiculture enterprise. Therefore, null hypothesis for this characteristic has been accepted. The findings of Alka Patki (1991) were found to be in conformity with these findings wherein they reported that variables, namely landholding and education were noted as significantly related with role performance of rural women in agriculture activities.

Nikhade *et al.* (1985) reported that similar finding with present study reported that income of the farmer had significant association with the use of fertilisers. Alka Patki *et al.* (2000) also reported significant relationship between the

source of information and role performance of rural women. The findings of Sheela (1991) also reported the present study with the observation of significant association between economic motivation and knowledge of dairy women about improved dairy practices. Alka Patki *et al.* (2000) also supported the results of the present study with observation of non-significant association between age and role performance.

Thus from above findings, it could be interpreted that the respondents with higher education, landholding, annual income, socio-economic status, experience in vermiculture enterprise, source of information, economic motivation, scientific orientation had higher level of role performance in vermiculture enterprise.

Multiple Regression Analysis : In order to ascertain the contribution of selected independent variables towards role performance by rural women in vermiculture enterprise, multiple regressions analysis was carried out and the results of this analysis are furnished in Table 5.

Table 5 : Multiple Regression Analysis of Independent Variables with Role Performance by Respondents in Vermiculture Enterprise

S. No.	Variables	Regression coefficient (g)	SE of 'b'	't' value
1	Age	0.3870	0.221	1.7466
2	Education	0.4287	0.3074	1.3779
3	Landholding	1.9698*	0.8962	2.1978
4	Annual income	0.00014*	0.000062	2.3114
5	Socio-economic status	0.4838	1.1452	0.4220
6	Experience in vermiculture enterprise	4.4441**	1.7405	2.5532
7	Source of information	2.4651**	0.9345	2.6378
8	Economic motivation	0.7513**	0.2832	2.6527
9	Scientific orientation	0.2298	0.2968	0.7142

$R^2 = 0.8783$, $F = 12.03^{**}$

* Significant at 0.05 level of probability.

** Significant at 0.01 level of probability.

All the nine independent predictor variables were fitted in regression analysis. The result presented in Table 5 showed that experience in vermiculture enterprise, source of information and economic motivation proved to be significant contributor at 0.01 per cent level of probability while landholding and annual income were significant at 0.05 per cent level of probability. The coefficient of determination R^2 showed that all nine independent predictor variables jointly explained 87.83 per cent of the variation in role performance by rural women. 'F' value for R^2 was also found to be significant at 0.01 level of probability. The unexplained variation, 12.17 per cent, may be attributed to

the factors not included in this study and also may be due to certain strenuous factors which were out of scope for the present study.

When the influence of an individual variable on level of role performance was studied, it was obvious that out of nine independent variables landholding, annual income, experience in vermiculture enterprise, source of information, economic motivation had significant contribution in role performance.

Constraints : The constraints faced by the respondents while performing the role in vermiculture enterprise are furnished in Table 6.

Table 6. Distribution of Respondents According to Constraints Faced by Them

S. No.	Constraints	Respondents	
		Number	Percentage
1	Lack of marketing facilities for vermicompost	22	88.00
2	No timely available subsidies from the government	18	72.00
3	Lack of effective schemes and facilities provided by Government	10	40.00
4	Poor economic condition of rural women for vermiculture enterprise establishment	13	52.00
5	Unfavourable attitude towards use of vermicompost in the field	15	60.00
6	Lack of knowledge of preparation of vermicompost	10	40.00
7	Lack of organic feed for earthworm species	8	32.00
8	Difficulties in handling earthworm while separation of earthworm from vermicompost	11	44.00
9	Lack of effective earthworm species in vermiculture production	5	20.00
10	Earthworm died due to adverse climatic conditions like high temperature	8	32.00
11	Earthworm are eaten away by enemies like birds, ants	14	56.00

It was noted that majority of the respondents faced the problem regarding lack of marketing facilities for vermicompost. It was stated by 88 per cent respondents, followed by no timely available subsidies from the government which was stated by 72 per cent respondents. Some other major constraints expressed by the respondents were

unfavourable attitude towards use of vermicompost in the field (60 per cent), earthworm are eaten away by enemies like birds and ants (56 per cent), poor economic conditions of rural women for vermiculture enterprises establishment (52 per cent).

Considerable majority of respondents expressed difficulties in handling an earthworm

while separation of earthworm from vermicompost (44 per cent), lack of effective scheme and facilities provided by the Government (40 per cent), lack of knowledge of preparation of vermicompost (40 per cent), lack of organic feed for earthworm species (32 per cent), earthworm died due to adverse climatic conditions like high temperature (32 per cent) and lack of effective earthworm species in vermiculture production (20 per cent).

Thus, it could be inferred that majority of the producers expressed poor economic condition, lack of subsidies from government, non-availability of poor marketing facilities, supply of organic wastes, and attacks by ants as major constraints.

Conclusion

It can be concluded from the study that majority of respondents were having high level role performance in vermiculture enterprise. As regards the relational analysis, independent variables, namely education, landholding, annual income, socio-economic status, experience in vermiculture enterprise, economic motivation and scientific orientation were found to be significant with role performance whereas age did not show significant correlation. The multiple regressions of all nine variables showed 87.83 per cent variation in role performance.

But the limitation of the present study was that the present study was carried with only 25 rural women of one village due to time constraints. Therefore, the results of the present study were only confined to the particular area.

Suggestions and Recommendations

Findings of the present investigation revealed that majority of rural women are performing important role in vermiculture

enterprise. The study suggests that systematic efforts on the part of extension agency are required to promote role performance of rural women about the practices like selection of inoculated earthworm culture species for vermiculture enterprise, preparation of beds/digging of pits for vermiculture enterprise, mixing of composting material so as to prepare feed mixture for earthworm, protection of earthworms from its natural enemies, putting/filling of vermicompost in gunny/ plastic bags for marketing and selling of vermicompost as well as its allied by-products. As the role performance of these practices were found to be meagre among them, it is necessary in this connection to arrange the field tours of rural women by extension agency to show rural women involving various practices of vermiculture enterprises.

Statistically, it is revealed that out of nine characters, education, landholding, annual income, socio-economic status, experience in vermiculture enterprise, source of information, economic motivation, scientific orientation with role performance and other characters like age did not have any relationship with role performance.

It means that as education, landholding, annual income, socio-economic status, experience in vermiculture enterprise, source of information, economic motivation and scientific orientation increases, role performance of rural women also increases. But in this study majority of the respondents were having semi-medium level of landholding, so it is necessary that extension agencies need to make more efforts to encourage small and medium landholding respondents about the role performance of vermiculture enterprise.

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