RESEARCH ARTICLE :

Knowledge of vermiculture technology among the rural women: A case of Rajasthan

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SUMMARY : The research study was carried out in Bikaner district. Bikaner Panchayat Samiti was selected purposely due promotion of organic farming in DBT project. Two villages Bharupuwa and Husangsar were selected purposively; as these villages are under DBT project and vermiculture technology was promoted in them. For the study total 120 respondents were selected. Pre-structured interview schedule was used for data collection. The major findings of the present study revealed that the overall knowledge of respondents was medium. Out of five aspects, the knowledge about the aspect of basic knowledge was very good than other aspect.

BACKGROUND AND OBJECTIVES

Sustainability is by kindness; not by cruelty. Nature knows how to manage its resources best. We just have to assist and not interfere with it. If we look at nature contemplatively it tells us what to do. Farming is not a business it is the religion of farmers; a way of happy living (Save, 1993).

In present agriculture, land holding per head is decreasing. Continuous increase in the demand of food with the increase of population, the continuous use of chemicals over years without adequate organic recycling has not only aggravated multi-nutrient deficiencies in soil plant system but has also detoriated soil health by generating nutritional imbalance and reduction in soil biomass and organic matter. In these prevailing circumstances environmental pollution can be reduced by use of organic farming.

The primary goal of organic farming is to optimize the health and productivity of interdependent communities of soil life, plant and people. Use of organic manure is an important component of organic farming. The important organic manure are FYM, green manure, compost, vermicompost and city compost etc. Vermicompost contains Fe, Ca, Mg, Zn, Cu, vitamins, enzymes, antibiotics, growth hormones and immobilized micro flora.

Vermicompost is very rich in micro flora, provide all plant nutrients in desired quantities and soluble forms, improves texture, structure and chemical composition of the soil, easy to apply, has very high moisture retention capacity, improves quality of farm produce

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(colour, texture, taste, size etc.) increase shelf life and nutrient content of food, most economical input etc. Therefore, vermitechnology is an effective means for sustaining soil health.

Modern agriculture with its potential to wrest the country out of food trap and to reach the era of self-sufficiency in food grain production also has brought a plethora of environmental problems. The present day agriculture is no more sustainable in most parts of the country due to environmental degradation, loss in productivity and series of consequent complex problems. Under these circumstances the only way to help farmers and prevent environmental pollution is to increase the fertility of available land, using the warm powered technology named "Vermitech". Vermiculture is the process of using earthworms to convert vegetable and animal waste into useful product, namely vermiompost.

Dominance for chemical agriculture in last few decades have deteriorated the soil health and created the problem of agricultural waste disposal in rural areas. It is important to maintain environmental and agricultural sustainability without reducing productivity. Vermiculture technology has been considered as a sound and viable option to regenerate the soil health through recycling the agricultural waste. Women play a vital role in agriculture, where she contributes 43 per cent. It was therefore, thought necessary to assess the knowledge of rural women regarding vermiculture technology, Therefore, present study was undertaken with the specific objectives: To assess the knowledge of rural women regarding vermiculture technology.

RESOURCES AND METHODS

The research study was carried out in Bikaner district of Rajasthan state. From the district, Bikaner Panchayat Samiti was selected purposely due promotion of organic farming in DBT project as it was covered under DBT project *i.e.* "DBT'S Bio-resource Complex,

CHSc., Bikaner during 2005-2008". Two villages Bharupuwa and Husangsar were selected purposively; as these villages were under DBT project and vermiculture technology was promoted in them. For the selection of respondents, a comprehensive list of respondent in, the age group of 15-45 years was prepared from each village. From this prepared list, sixty rural women were selected from each village randomly by chit method. Thus, finally sample size was one hundred and twenty.

Knowledge test was developed by the researcher was used for the analysis of the data with the help of available literature and consultation with experts. A knowledge test on vermiculture technology comprised of 17 question and total range of score was 0-70. Score 1 and 0 was given for right and wrong answer, respectively. The total score of individual respondents for all items were calculated and three levels of knowledge of respondents were categorized low, medium and high level.

OBSERVATIONS AND ANALYSIS

The results obtained from the present study as well as discussions have been summarized under following heads:

Various measures of knowledge score of rural women regarding vermiculture technology :

Data presented in Table 1 reveal that highest score obtained by respondents was 63 and lowest was 47 with a range of 16 and co-efficient of range was 0.15. Mean score was 55.81 and standard deviation was 4.01, whereas co-efficient of variation was 7.19 per cent.

In the basic knowledge related aspect highest score obtained by respondents was 8 and lowest was 6 with a range of 2 and co-efficient of range was 0.14. Mean score was 7.27 and standard deviation was 0.62, whereas co-efficient of variation was 8.47 per cent.

Table 1 : Various measures of knowledge score					(n=120)
Sr. No	Aspect	Range of knowledge	Co-efficient of range	Mean score	Standard deviation	Co-efficient of variation (%)
1.	Basic knowledge	6-8 (2)	0.14	7.27	0.62	8.47
2.	Raw material	11-18 (7)	0.24	14.00	1.77	12.61
3.	Earthworm	5-10 (5)	0.33	8.27	1.26	15.20
4.	Water	1-4 (3)	0.60	2.90	0.83	28.64
5.	Bed	19-29 (10)	0.21	23.38	2.13	9.09
6.	Over all	47-63 (16)	0.15	55.81	4.01	7.19

In the raw material related aspect, highest score obtained by respondents was 18 and lowest was 11 with a range of 7 and co-efficient of range was 0.24. Mean score was 14 and standard deviation was 1.77, whereas co-efficient of variation was 12.61 per cent.

In the earthworm related aspect highest score obtained by respondents was 10 and lowest was 5 with a range of 5 and co-efficient of range was 0.33. Mean score was 8.27 and standard deviation was 1.26, whereas co-efficient of variation was 15.20 per cent.

In the water related aspect highest score obtained by respondents was 4 and lowest was 1 with a range of 3 and co-efficient of range was 0.60. Mean score was 2.90 and standard deviation was 0.83, whereas co-efficient of variation was 28.64 per cent.

In the bed related aspect highest score obtained by respondents was 29 and lowest was 19 with a range of 10 and co-efficient of range was 0.21. Mean score was 23.38 and standard deviation was 2.13, whereas co-efficient of variation was 9.09 per cent.

These measures may be used to compare amount of various in the knowledge among the respondents for various aspects.

The aspect (basic knowledge) in which the co-efficient of variation is less than the other (raw material, earthworm, water, bed) has more homogeneity in the knowledge among the all respondents. To compare the different (range) between highest and lowest score obtained by the respondents in each aspects. The co-efficient of range was calculated. The basic knowledge of the aspect for which the co-efficient of range is minimum has said more homogeneity between score obtained by the respondents.

The Table 1 shows that the co-efficient of variation (8.47%) and co-efficient of range (0.14) for knowledge aspect is minimum as compared to the other aspects. It can be concluded that there is more homogeneity among the scores obtained by respondents.

Knowledge level of rural women regarding vermiculture technology :

Perusal of Table 2 reveals that majority of respondents (65%) were found in the category of medium level knowledge with mean per cent score 79.36 while 17.50 per cent respondents each were in the category of low as well as high level of knowledge with mean per cent score of 71.70 and 89.12, respectively (Arora *et al.*, 2012).

Saini (2005) found that 65.63 per cent farmers were categorized in medium knowledge level, 19.37 per cent farmers in high knowledge level and 15 per cent farmers had low knowledge level about vermitechnology.

Aspect wise knowledge of respondents regarding vermiculture technology :

Aspect-1 : Basic knowledge :

The first aspect of knowledge check was basic knowledge which included eight items. Table 3(I) reveals that majority of respondents (55%) had medium level of knowledge with mean per cent score of 87.50 while 35.83

Table 2 : Distribution of rural respondents by overall knowledge and mean per cent scores of each category			(n= 120)
Knowledge with score range	n	%	Mean percent score
Low (<52)	21	17.50	71.70
Medium (52-59)	78	65.00	79.36
High (60-70)	21	17.50	89.12

Table 3 (I) : Basic knowledge aspect wise knowledge of respondents			(n =120)
Knowledge with score range	n	Percentage	Mean per cent score
Low (<7)	11	9.17	75.00
Medium (7)	66	55.00	87.50
High (8)	43	35.83	100.00

Table 3 (II) : Raw material aspect wise knowledge of respondents			(n=120)
Knowledge with score range	n	Percentage	Mean per cent score
Low (<13)	21	17.50	66.40
Medium (13-15)	77	64.17	75.97
High (16-18)	22	18.33	94.95

per cent respondents had high level of knowledge with mean per cent score of 100. Only 9.17 per cent respondents had low level of knowledge with mean per cent score of 75 regarding basic knowledge aspect (Bansari Lal, 2012).

Aspect-2 : Raw material :

The second aspect of knowledge check was raw material which included eighteen items. Table 3 (II) reveals that majority of respondents (64.17%) had medium level of knowledge with mean per cent score of 75.97 while 18.33 per cent respondents had high level of knowledge with mean per cent score of 94.95. Only 17.50 per cent respondents had low level of knowledge with mean per cent score of 66.40 regarding raw material aspect.

Aspect -3 : Earthworm :

The third aspect of knowledge check was earthworm which included eleven items. Table 3 (III) reveals that majority of respondents (45%) had medium level of knowledge with mean per cent score of 77.44

while 33.33 per cent respondents had high level of knowledge with mean per cent score of 61.82 and only 21.67 per cent respondents had low level of knowledge with mean per cent score of 90.91 regarding earthworm aspect (Haque *et al.*, 1999 and Save, 1993).

Aspect-4 : Water:

The fourth aspect of knowledge check was water which included four items. Table 3 (IV) reveals that majority of respondents (60%) had medium level of knowledge with mean per cent score of 75 while 20 per cent respondents each had low level of knowledge with mean per cent score of 37.50 and high level of knowledge with mean per cent score of 100 regarding water aspect.

Aspect -5 : Bed :

The five aspect of knowledge check was bed which included twenty nine items. Table 3 (V) reveals that majority of respondents (65.83%) had medium level of knowledge with mean per cent score of 79.88 while 17.50 per cent respondents had high level of knowledge with mean per cent score of 92.78. Only 16.67 per cent

Table 3 (III) Earthworm aspect wise knowledge of respondents			(n =120)
Knowledge with score range	n	Percentage	Mean per cent score
Low (<8)	40	33.33	61.89
Medium (8-9)	54	45.00	77.44
High (10-11)	26	21.67	90.91

Table 3 (IV) : Water aspect wise knowledge of respondents			(n=120)
Knowledge with score range	n	Percentage	Mean per cent score
Low (<3)	24	20.00	37.50
Medium (3)	72	60.00	75.00
High (4)	24	20.00	100.00

Table 3 (V) Bed aspect wise knowledge of respondents			(n =120)
Knowledge with score range	n	Percentage	Mean per cent score
Low (<22)	20	16.67	70.69
Medium (22-25)	79	65.83	79.88
High (26-29)	21	17.50	92.78

Table 4: Knowledge of respondents regarding different aspect of vermiculture technology			(n =120)
Sr. No	Aspect	Over all mean percent score	Ranking
1.	Basic knowledge	90.83	I
2.	Raw material	77.78	III
3.	Earthworm	75.15	IV
4.	Water	72.50	V
5.	Bed	80.60	II

respondents had low level of knowledge with mean per cent score of 70.69 regarding bed aspect.

Aspect wise knowledge of respondents regarding different aspect of vermiculture technology :

Table 4 presents information about overall mean per cent score of each aspect. Perusal of Table 4 reveals that out of five aspects the knowledge of first aspect basic knowledge ranked first overall mean per cent scores of 90.83 while the knowledge for the aspect of bed ranked second with over all mean per cent scores 80.60, raw material ranked third with over all mean per cent scores of 77.78, earthworm ranked fourth with over all mean per cent scores of 75.15 and the knowledge for the aspect water ranked fifth with overall mean per cent scores of 72.50 (Kaur, 2002).

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REFERENCES

Arora, L., Agarwal, S. and Kalla, P.N. (2012). Knowledge, attitude and practices regarding vermiculture biotechnology of hostel students of Rajasthan University. *Rajasthan J. Extn. Edu.*, **20**: 53-56.

Bansari Lal (2012). Association between attitude of respondents towards farm T.V. programmes and selected independent variables in Jammu and Kashmir, India. *J. Commun.*, **3**(1): 47-49.

Haque, S.M.A., Haque, M.E. and Hossain, M.A. (1999). Farmers' knowledge on use of organic matter in crop production. *Bangladesh J. Training & Development*, **12** (1-2): 19-24.

Kaur, P. (2002). Evaluation of vermiculture technology transfer programme among rural women in terms of knowledge and adoption. M.Sc. Thesis, Maharana Pratap University of Agriculture and Technology, Udaipur, RAJASTHAN (INDIA).

Saini, H. (2005). Knowledge and attitude of farmers towards vermitechnology in Jaipur district of Rajasthan. M.Sc. (Ag.) Thesis, RAU, Bikaner Campus Jobner.

Save, Bhaskar (1993). Natural farming- The experience of Kalpanruuskha farm. *Vermiculture Extended Abstracts*, **11** : 10.4 - 10.30.

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