

RESEARCH ARTICLE :

Constraints faced by the respondents in adoption of vermicomposting technology by farmers of Gulbarga district in Karnataka

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SUMMARY : The present study was conducted in Gulbarga district of Karnataka during the year 2012-13. Based on highest number of vermicomposting pits, four taluks namely Gulbarga, Jewargi, Aland and Afazalpur were purposively selected and from each taluk, two villages were selected and from each village, fifteen farmers were selected randomly. Thus, the total sample size constitutes 120 respondents for the study. The *ex-post facto* research design was used for the study. The data were collected using pre-tested structured interview schedule personally. The collected data were analyzed using appropriate statistical tools. The results of the study revealed that, more than 70 per cent of farmers expressed non availability of worms at village level and non-availability of suitable and convenient space for vermicompost production as major constraints. Around sixty per cent of farmers suggested for making provision for availability of worms at hobli level.

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KEY WORDS :

Constraints,
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BACKGROUND AND OBJECTIVES

Vermicompost is highly nutritive and a powerful plant growth promoter and protector and is scientifically proving to be a miracle plant growth promoter. It is rich in NPK, micronutrients, beneficial soil microbes and also contains plant growth hormones and enzymes secreted by earthworms. Vermicompost retains nutrients for long time and also protect crops from pests and diseases. It has high moisture holding capacity and hence also reduces the use of water for irrigation by 40-50%. Vermicompost rich in

humus (secreted by earthworms) provide the ability to glue clay, silt and sand particles together enhancing the texture and structure of soil and preventing soil erosion. Billions of tons of humic substances are disappearing from soil worldwide every year due to floods, fires and poor agricultural practices. From vermiculture, we get well decomposed worm casts, which can be used as manure for all agriculture and horticulture crops, vegetables, flowers, gardens, etc. In the process, earthworms also get multiplied and the excess worms can be converted into vermi-protein

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which can be utilized as feed for poultry and fisheries. The vermishash can also be used as spray on crops. Thus, various economic uses can be obtained from organic wastes and garbage and prevent pollution. Vermicomposting has tremendous prospects in converting agro-wastes and city garbage into valuable agricultural input. When organic manures are used, the chemical nutrients are also utilized well by crops as they improve soil health and balance the negative effects of chemicals. The prime market for vermicompost is in agriculture and horticulture.

Vermicompost is an eco-friendly natural fertilizer prepared from biodegradable organic wastes and is free from chemical inputs. It promotes better root growth and nutrient absorption and it improves nutrient status of soil both macro and micro-nutrient and also the physical, chemical and biological properties of the soil and it improves soil aeration, texture and tilth thereby reducing soil compaction. Taking in to consideration the need for higher production of vermicompost and lack of empirical studies as far as knowledge, adoption and constraints from the farmers' point of view in Hyderabad-Karnataka area the present study was undertaken with an objective to know constraints of farmers in adoption of vermicomposting technology.

RESOURCES AND METHODS

The study was conducted in Gulbarga district of Karnataka during the year 2012-13. Gulbarga district was purposively selected for the study because the district stands top in number of vermicompost pits among the six districts that fall under University of Agricultural Sciences, Raichur jurisdiction and also from the point of view of convenience to the researcher. In the present investigation, *ex-post facto* research design was employed. Out of seven taluks, four taluks *viz.*, Gulbarga, Jewargi, Aland and Afazalpur were purposively selected, because they had maximum number of vermicompost farmers. From each taluk, two villages were selected based on more number of vermicompost farmers available in the village and from each village, fifteen farmers were selected randomly. Thus, the total sample size constitutes 120 respondents for the study. The data were collected using pre-tested structured interview schedule personally. The collected information was analyzed using appropriate statistical tools like frequency, percentage, mean, standard deviation and correlation etc.

OBSERVATIONS AND ANALYSIS

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

Age :

The results pertaining to age presented in Table 1 indicated that majority (75.00 %) of the respondents were middle aged followed by old age (15.83 %) and young age (9.17 %). Middle aged farmers are more enthusiastic had more knowledge and experience regarding vermicomposting technology. Generally this age group (between 31 to 50 years) farmers have more physical vigor, active in adoption of agricultural practices and also have more responsibility towards family than younger ones. Thus, most of the vermicompost farmers were from middle age group that could be justified.

Land holding :

With respect to land holding (30.00 %) of the vermicompost farmers belonged to small farmers category followed by big farmers (25.83 %), semi medium farmers (23.33 %) and medium farmers (16.67 %) and very negligible per cent (4.17 %) of them belonged to marginal farmers. Over one third (30.00 %) of the vermicompost farmers belonged to small farmers category this could be due to fragmentation of ancestral land from generation to generation because of increased population day by day might have led to smaller size of land holdings. However, 16.67 per cent of the respondents who had land holding above 10 acres. The possible reasons that could be attributed to this were those who had agriculture as the main occupation of the family almost depended on their land for their livelihood. Since the size of land holding will be generally high in dry areas.

Risk orientation :

The result shown in Table 1 revealed that, majority (40.83 %) of the farmers had medium level of risk orientation followed by high (37.50 %) and low (21.67 %) categories. It should be mentioned here that, the individuals will be very critical and cautious in understanding different aspects of technology. There is a tendency in farmers to take risk based on their income, land holding and other resources. Risk taking varies with socio-economic status of the individuals.

Scientific orientation :

The result shown in Table 1 revealed that, majority (38.34 %) of the vermicompost farmers had medium scientific orientation whereas, 31.66 per cent and 30.00 per cent of them had high and low level of scientific orientation, respectively. The possible reason could be scientific orientation is the orientation of farmer to adopt new technologies in a scientific way. This might be due to the willingness to take risks partly.

Constraints faced by the respondents in adoption of vermicomposting technology :

It is clear from the Table 2 that, more than 70 per cent of farmers expressed as major constraints of non availability of worms at village level (72.50 %) followed by non-availability of suitable and convenient space for vermicompost production (70.00 %). The reason might be that non-availability of worms in village level is one of the important constraints because the study area is predominately dry area which is not congenial for vermicompost production and multiplication of worms as well and also other possible reason might be suitable and convenient place is due to lack of water, non-availability of shade and other biotic factors which influence the acclimatization of worms at higher and effective temperature hence the above situation existed. Non-

availability of adequate quantity of raw material (56.67%) and inadequate quantity of water (55.84%) were the other major constraints as experienced by the respondents. The possible reasons for the above constraints could be attributed to the dryland nature of farming where in it is very difficult to get sufficient agricultural waste material or crop residues as raw material for the preparation of vermicompost. The rainfed area farmers expressed the problem of inadequate quantity of watering. Lack of financial support for vermicompost enterprises it is being constraint as expressed by 52.50 per cent farmers. The possible reason might be due to inadequate subsidy support and loan facility for promotion of vermicompost which results in above situation. More than 40 per cent of the respondents expressed incidence of pest on worms as a major constraint. The possible reason might be not aware of management of ants with low cost technologies, in addition to illiteracy, relatively less mass media participation results in existence of above situation. Finally non availability of labour, the possible reason might be scarcity of labour with in discharging operational activities of vermicomposting in addition to scope for employment opportunities in government schemes likes MGNAREGA, watershed and other employment programmes. The above said programmes create the scarcity of labor availability for agricultural and allied

Table 1 : Personal profile of farmers

Sr. No.	Characteristics	(n=120)	
		Frequency	Percentage
1.	Age		
	Young (upto 30 years)	11	9.17
	Middle (31-50 years)	90	75.00
	Old (>51 years)	19	15.83
2.	Land holding		
	Marginal (upto 2.5 acre)	5	4.17
	Small (2.51-5.00 acre)	36	30.00
	Semi medium (5.01-10.00 acre)	28	23.33
	Medium (10.01-25.00 acre)	20	16.67
	Big (>25.00 acre)	31	25.84
3.	Risk orientation		
	Low (Mean – 0.425 SD)	26	21.67
	Medium (Mean ± 0.425 SD)	49	40.83
	High (Mean + 0.425 SD)	45	37.50
4.	Scientific orientation		
	Low (Mean – 0.425 SD)	38	30.00
	Medium (Mean ± 0.425 SD)	45	38.34
	High (Mean + 0.425 SD)	37	31.66

operation, hence the above situation.

Suggestion given by farmers for improvement of adoption vermicomposting practices :

It is observed from the Table 3 that, around sixty per cent of farmers suggested that, provision for availability of worms at hobli level, if the availability and accessibility of worms made available at hobli level, many more may get attracted to this enterprise in near future. In primitive Indian villages, shortage of convenient place for production of vermicomposting is being observed, that why the community land can be made available to the farmers definitely more and more farmers came forward for production of vermicompost. In the era of high labour charges, quality material for pit construction and other expenses require relatively higher amount of loan to meet the present expenses that's why more amount of facility to be given to the farmers compared to previous scale of finance. Organizing the series of capacity building activities definitely influences the more number of farmers coming forward to vermicompost enterprise. Which is supported by more quantity of crop residues and relatively adequate quantity of water available in almost all villages only important variables like interest, risk orientation, management orientation of farmers

played very important role in initiation of vermicompost production. The environment protection and recycling mechanism could be popularized at different villages, which results in more and more farmers came forward to start vermicompost production. The existing subsidy facility can be increased to attract the farmers, unemployment youth and farm women to start vermicomposting on large scale which results in regular of income and employment opportunities for family members, inturn influences the livelihood improvement of the family as a whole. Patil (2008); Chothe and Borkar (2000); Christain *et al.* (2004) and Iqbal *et al.* (1996) also studied constraints in different aspects and Binkadakatti on impact of KVK trainings on use of bio fertilizers and bio-pesticides by the farmers.

Conclusion :

It is clear from the results that, majority of the farmers facing the constraints like non-availability of earth worms at hobli level and non-availability of suitable and convenient space for vermicompost production was the major constraint experienced by majority of the respondents. So the developmental departments, organizations involved in agricultural extension activities should make provision for availability of earth worms at

Sr. No.	Constraints	Frequency	Percentage	Rank
1.	Non-availability of worms at villages	87	72.50	I
2.	Non-availability of suitable and convenient space for vermicompost production	84	70.00	II
3.	Non-availability of adequate quantity of raw material	68	56.67	III
4.	Inadequate quantity of water	67	55.84	IV
5.	Lack of financial support to extend vermicompost enterprises	63	52.50	V
6.	Incidence of pests on worms	52	43.34	VII
7.	Non-availability of labour	42	35.00	VIII

Sr. No.	Suggestions	Frequency	Percentage	Rank
1.	Provision for availability of worms at hobli level	73	60.84	I
2.	Community land can be made available for storing raw material and production of vermicompost	70	58.34	II
3.	Loan facility can be strengthened from KGB bank, cooperative societies and nationalized bank at farmers door	68	56.67	III
4.	To organize capacity building activities for practicing farmers, farm women & rural youth about vermicompost production	66	55.00	IV
5.	Awareness programme can be organized at gram panchayat, school and rural institution level about environment protection through recycle mechanism	63	52.50	V
6.	To provide subsidy facility for promotion of vermicompost enterprise	62	51.67	IV

hobli level and also concentrate on the variables that have significant relationship with the knowledge and adoption of vermicomposting technology.

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