



E-ISSN: 2278-4136
P-ISSN: 2349-8234
JPP 2018; 7(5): 3144-3146
Received: 24-07-2018
Accepted: 25-08-2018

SB Agrawal

Associate Professor Agronomy,
Senior Scientist Home Science,
Jawahar Lal Nehru Krishi
Vishwa Vidyalaya, Jabalpur,
Madhya Pradesh, India

DP Sharma

Senior Scientist & Head KVK
Jabalpur, Madhya Pradesh,
India

BS Kirar

Senior Scientist & Head KVK
Panna, Madhya Pradesh, India

Atul Shrivastava

Assistant Professor Agronomy,
Senior Scientist Home Science,
Jawahar Lal Nehru Krishi
Vishwa Vidyalaya, Jabalpur,
Madhya Pradesh, India

Archana Pandey

Assistant Professor Agronomy,
Senior Scientist Home Science,
Jawahar Lal Nehru Krishi
Vishwa Vidyalaya, Jabalpur,
Madhya Pradesh, India

Impact analysis of a training programme on preparation and use of vermicompost in crop production

SB Agrawal, DP Sharma, BS Kirar, Atul Shrivastava and Archana Pandey

Abstract

The Indian soils are poor in quality with respect to availability of plant nutrients and biological properties. On the other hand a huge quantity of biowastes are generating due to the activities of human, agricultural practices, industries, rearing of animals etc. These biowastes are also rich in plant nutrients and contributes a lot to the farms with the use of living creature known as earthworms. They have an ability to digest biowastes and excrete out in the form of vermicelly known as vermicast. In spite of these, our farmers are not aware about the multifarious benefits of earthworms. Therefore, the awareness cum skill oriented programme was initiated in the seven villages of Panagar block belongs to the Jabalpur district during 2011 to 2015. The post analysis was made in order to assess the impact of training on the skill improvement in vermicompost production and subsequently its use.

Results of study reveal that out of 104 trainees, 46, 35 and 23 belongs to young, old and middle age group, respectively. The maximum 32 participants having middle level of education followed by 31 participants primary education. Whereas, the least number (04) was recorded under graduate education. Similarly, 89 participants having the occupation of agriculture, 07 no. agriculture + service. The changes were recorded in the participants with respect to preparation and use of vermicompost. The more than 40 percent (40.38%) trainees started the use of vermicompost in their crop field during kharif and 23.07% in rabi season. However, the 49.03% started the use of vermicompost in zaid crop. The 25% use of FYM in kharif season replaced by vermicompost after imparting trainings. Trainees become aware about the advantages of vermicompost as it may be used as a supplemental source of nutrients and provide additional nitrogen over FYM. The unemployed person may start their business because vermicompost may be sold in the market.

Keywords: Training vermicompost, vermicast, problems, awareness, impact

Introduction

India is endowed with various types of natural organics in different parts of the country. These include green manure, FYM, biogas slurry, excreta of human and animals, compost of rural and urban. Bio inoculants are some natural important sources of nutrients. There is a huge quantity of bio wastes i.e. animal dung (100 mt), crop residues (300 mt), rural compost (285 mt) urban compost (45 mt) and bio gas slurry (28 mt) in which availability of nutrients are 3.75, 2.25, 1.87 and 1.20 mt NPK, respectively. These bio wastes which are in huge quantity may be converted into valuable compost with the use of living creature like earthworms especially the *Eisenia fetida* species. The earthworms are live on rotting waste. They have an ability to digest waste and excrete out in the form of manure which is rich in plant nutrients and harmons. Vermicompost is a product developed through composting of undecomposed organic wastes (crop residues, vegetable residues, feed and fodder wastes, excreta of animals etc.) using earthworms (Bandyopadhyay, 2013) ^[1]. Vermicomposting of organic materials reduces green house gases methane and nitrous oxide emissions as compared to natural decomposition.

Raining is a vital and essential to enhance motivation, create confidence and inculcate efficiency of an individual. If the peoples are trained by taking into consideration their needs, training could be more useful and effective. A training may be described as an actual condition different from a desired condition in the "people" aspect of organization performance or more specifically when change in present human knowledge, skill and attitude can bring about the desired performance (Das and Mishra, 2002) ^[3].

Correspondence**DP Sharma**

Senior Scientist & Head KVK
Jabalpur, Madhya Pradesh,
India

Research Methodology

The study confined to Jabalpur district comprises of seven blocks. The Panagar block was selected purposely by Krishi Vigyan Kendra, Jabalpur to imparted number of trainings and demonstrations on vermicompost technology. The Krishi Vigyan Kendra, Jabalpur adopted four clusters of villages in Panagar block for disseminating the vermicompost technology through method demonstration and trainings.

Seven villages i.e. Gudgawan, Bhidarikala, Jatwan, Urdua-Khurd, Umaria Choubey, Khazari and Pipariya have been selected from all four clusters for the present study. A list of all the participants was prepared for the trainings programme in seven villages of Panagar block and 104 trainees were selected randomly from the list of 260 participants for the study.

Table 1: No of training organized and participants attended during 2011 to 2015

Year	No of training organized	Duration of training (Days)	No of Participants attended	No of villages	Name of selected villages
	O3	10	60	02	Gudagwa, Bhidarikala, Jatawan, Urdwankhurd, Umariachaubag, Khazari, and Pipariya
	03	05	75	02	
	05	05	125	03	
Total	11	20	260	07	

The awareness cum skill improvement programme was first time initiated in the villages of Jabalpur district in MP in order to popularize the vermicompost production technology amongst the farmers through trainings with respect to preparation and use of vermicompost in crop production. An attempt has been made in the research article to assess the impact of training programmes with the following objectives.

- To study the profile of the trainees
- To determine the impact of training programme

- To identify perception of trainees regarding vermicompost
- To identify the problems encountered during preparation of vermicompost

Results and Discussion

Profile of the respondents with respect to their age, education, occupation are given in Table 2. Out of total vermicompost trainees belongs to 33.65 percent old age, 44.23 percent young age and 22.12 percent middle age group.

Table 2: Distribution of vermicompost trainees according to their age, education level and occupation

Age group	No of trainees	Percentage
Young age	46	44.23
Middle age	23	22.12
Old age	35	33.65
Total	104	100
Education level	No of trainees	Percentage
Illiterate	19	18.27
Up to primary level	31	29.81
Middle level	32	30.77
High School	14	13.47
Higher Secondary	04	3.84
Graduate	04	3.84
Total	104	100
Occupation	No of trainees	Percentage
Agriculture	89	85.58
Agriculture + Agricultural labour	05	4.80
Agriculture + other occupation	03	2.89
Agriculture + Service	07	6.73
Total	100	100

Out of the total vermicompost trainees 30.77, 29.81, 18.27 and 13.47 percent respectively were passed middle, primary, illiterate and high School education, respectively and only 3.84 percent of them were educated up to higher secondary and graduation level.

The majority of (85.58%) trainees were belongs to agriculture followed by (6.73%) Agriculture + Service, while 4.80 percent belongs to agriculture + agricultural labour as well as 2.89 percent agriculture + other occupation related to their caste.

Table 3: Percentage change due to training programme in use of vermicompost in different seasons

No. of Participants		Before training		After training		% change over before	
		FYM	Vermicompost	FYM	Vermicompost	FYM	Vermicompost
104	Kharif	82 (78.3)	0	56 (53.00)	42 (40.38)	25	40.38
104	Rabi	0	0	0	24 (23.07)	0	23.07
104	Zaid	29 (27.88)	0	22 (21.15)	51 (49.09)	6.73	49.03

Figure are in Parantheses showing the percentage

The change with respect to use of vermicompost before and after training are presented in Table 3. Data in relation to use

of compost and vermicompost by the trainees in different crop seasons indicated that before training 78.3 percent trainees

were used FYM in kharif season, they neither used compost nor vermicompost in rabi season. However, only 27.88 percent trainees used FYM during summer season. Furthermore, after imparting training, the use of FYM reduced by 25 percent from 78.84 to 53.84 percent. Out of 104 participants 40.38 percent (42) and 23.07 (24) trained farmers started to use vermicompost during Kharif and Rabi season, respectively, as well as 49.03 percent was used in summer season.

Perception of trainees towards vermicompost

Provide an additional nitrogen (1.5 to 2.0%) over FYM (0.5%)	54.70%
Reduces the possibility of termite infestation in field	29.01%
Reduces the possibility of weed infestation in field	44.6%
Supplemental source of fertilizers use	95.0%
Improved soil structure and water holding capacity	18.5%
Sold in the market and may be a source of income	46.0%
A means of the safe disposal of farm and urban wastes	45.4%

The majority of trainees (Farmers and farm women) become aware about the advantages of vermicompost after training programme. The 95 percent farmer know that vermicompost

may be used as a supplemental source of nutrients, while 44.6 and 29.01 percent farmers reported the use of vermicompost in crop production may escape infestation of weeds and termites in crop field, respectively. The 46 percent farmers know that vermicompost may be used as source of income and can be sold in the market. The 18.5 percent farmers were also aware that the vermicompost is a good means for the soil health as it keep the soil porous which helps in the retention of water and cultural operations. The 54.6 trainees also reported that the availability of nutrients are more as compared to traditional compost as it promotes the growth of crops like peas, chickpeas, wheat etc. It was evident that the adoption of vermicompost technology by the trainees of Bhidari Kala and Khazari village was 53.1 and 40.7 percent, respectively. Whereas, only 36 percent adoption was in remaining villages. The reason for higher adoption in Bhidari Kala village was that it is pre dominantly paddy-wheat growing area and having on an average four fine milch animals and paddy wastes neither utilized as fodder for milch animals nor as fuel. The water pond and dense population of trees in Bhidari kala village provide a facility to supply water as and when required and continuous shed which are an essential requisite for vermicomposting.

Table 4: The major problems encountered by trainees during vermicompost production

Particular	No of participants	%	Ranking
Making of pit shed, supply of water	21	20.19	VI
Partial decomposition regarding collection, supply of organic wastes transportation etc	22	21.15	V
Unskilled labourers/filling of pits and making of heaps	09	8.65	VIII
Attack of birds/predators/insects especially ants	39	37.5	II
Inadequate supply of dung/organic wastes/water	26	25	IV
Removal of vermicompost, isolation of raw materials and earthworms	36	34.61	III
Storage problem	14	13.46	VII
Marketing	79	75.96	I

Trainees adopted the preparation of vermicompost at their own location faced number of problems. However, the majority had the problems related to marketing (95.6%) and attack of predators (37.5%) as well as separation of remnants and earthworms (34.61%). The least persons 09 (8.65%) were concern with the availability of unskilled workers for filling of pits and making of heaps.

Conclusion

Thus, it is inferred that the persons prepared the vermicompost for the use in their own field for crop production, there is no problem but, when they desire to sell or setup a commercial unit for the sack of income generation or business they have to search out the market for the selling of vermicompost and worms.

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