International Journal of Commerce and Management Studies (IJCAMS)
Peer Reviewed, Indexed Journal, ISSN 2456-3684
Vol.8, No.1, 2023, www.ijcams.com

Vermicomposting: An Opportunity for Economic Development and Entrepreneurship of Women.

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Abstract

Production of large quantity of organic waste, has become a serious issue in urban areas. Vermicomposting has become alternative safe andcost-effective way for converting this waste to compost. Vermicomposting is less expensive in term of cost and more intensive in term of labour. It provides fair employment with less investment. After training, urban women performed well in kitchen and garden waste management by vermicomposting. They converted kitchen and garden waste into 5.57 Quintal of compost which was sold at the rate of Rs 25/-. The urban women helped out to reduce the kitchen and garden waste from going to landfills, thus helping in bio-degradable waste management. Instead, they gained monetary benefits which encouraged them to motivate others also.

Keyword: *Urban, Women, Biowaste, Vermicompost, Kitchen waste and Garden Waste.*

Introduction

The problem of solid waste management in urban areas has been increased due to rapid increase of population. Production of large quantity of organic waste, including garden waste, kitchen waste, animal waste has been a serious issue of concern. Effective and proper disposal of these waste has become very important to maintain healthy environment. (Senapati BK andJulka 1993). Vermicomposting has become an alternative eco-friendly way for safe hygienic andcost-effective disposal of organic waste. Earthworms converts the organic waste into compost which is high in nutrient content than the raw waste organic material from which it is formed. As earthworms converts the most of the organic waste into compost, its role in breakdown of rural and urban waste is very important.In rural areas agrowaste is nowadays converted into vermicompost. Number of NGOs with the help of government schemes has initiated vermicomposting.

Role of women in vermicomposting in rural areas is very much participatory (Ekatpure et al., 2011) according to NATP annual report (Anonymous 2003), vermicomposting as enterprise has been promoted at centres of Udaipur, Dharwad,Parbhani, Hisar, Ludhiana and New Delhi, where more than 100 beneficiaries has been running these enterprises successfully and earning a good amount of money. Farm women are considered as invisible work force in various agricultural operations.

But the role of urban women in vermicomposting is negligible. Less study has been done on role of urban women in the conversion of organic waste (garden waste and kitchen) into compost by vermicomposting.

Hence this project was carried out with following **objectives 1.** To train the women in vermicomposting techniques and procedures and **2.** Motivate them to utilize their own kitchen and garden waste thus **3.** Reducing the waste load on municipal corporation **4**. To empower women economically **5.** To study participation level of women.

Methodology

1. The present study was carried out at Uttam Nagar, Amravati, Maharashtra. Group of (20) women from the surrounding area was involved for the project who were interested to take training. The basic theoretical knowledge was imparted to the women and then they were trained to prepare the bed.

Substrate used:

- Kitchen waste- collected from all the neighbouring household.
- Garden waste-collected from surrounding area, piled up and then used.

- Cow dung- collected from nearby milkman.
- Earthworm-*Eisenia fetida* species of worms were obtained from KVK, Ghatkhed.

Experimental setup

The vermicomposting experiment was conducted on a cemented earth surface with the polybag for the bed preparation.
The garden waste, with partially decomposed twigs and branches were spread at the base, then layers of kitchen waste+ cow dung+ garden waste+cow dung were spread. 2 kg of earthworms were added. Moisture level was maintained by sprinkling water, to avoid direct sunlight, bed was covered by gunny bags.
Women took care of the bed by observing the bed daily and watering them regularly.

Observation

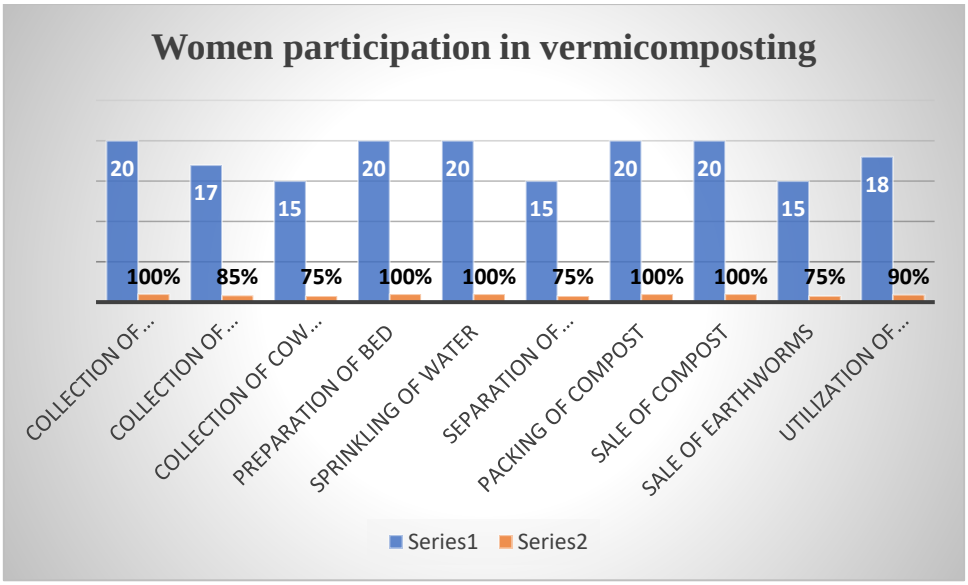
After 30-35 days fine granular, odourless casting of the worms could be seen on the upper surface of the bed.
After about 65 days almost 85% of the bed was converted into the vermicompost.
In about 80 days 100% vermicompost was produced.
Women were trained in the identification of earthworm life stages. Women learnt the procedure of vermicomposting
They learnt the post-harvest procedures of collection, filtering, packing and selling.
They participated in selling.
They utilized their own kitchen and garden waste.

Result and discussion

5.57 quintal of vermicompost was formed after 80 days which was sold at the rate of Rs. 25 per kg. thus earning them Rs. 13,925
8.31kg of earthworm were produced which was sold at Rs. 500/- per kg and raised Rs. 4.150/-
Kitchen and garden waste was not dumped in the municipal garbage.
Vermicomposting is an appropriate technology for residue and waste management (Jambhekar 1992).
Women were trained to convert the waste into the compost.
They learn to produce vermicompost.
100% women were engaged in collection of kitchen waste.
85% of women engaged in collection of garden waste.
15% of women involved in cow dung collection, separation of earthwormsand sale of earthworms.
100% women were involved in preparation of bed, sprinkling of water, packing of compost and sale of compost.
18% of women utilised this earning from vermicomposting.

Table 1: Women participation in vermicomposting

Sr. No.	Practice	Participation in production	
1	Collection of kitchen waste	20	100%
2	Collection of garden waste	17	85%
3	Collection of cow dung	15	75%
4	Preparation of bed	20	100%
5	Sprinkling of water	20	100%
6	Separation of earthworms	15	75%
7	Packing of compost	20	100%
8	Sale of compost	20	100%
9	Sale of earthworms	15	75%
10	Utilization of earning	18	90%



Conclusion

It was observed from the result that [after getting training in vermicomposting] urban women participated actively in converting the kitchen and garden waste into valuable compost and get monitory earnings(Rs-18075/-) from the same. The findings of Jyosila (1985) supported the present study which reported that rural women took care of most of the farm operations. These findings are also in co-relation with the findings of Varsha Rathod (2006), Nita Divekar(2010), and Mankar et al., (2013)

The 100% participation of urban women in collection of kitchen waste, preparation of bed, sprinkling of water, packing and sale of compost might be due to proper training and awareness regarding the importance of vermiculture in multiple aspects ie. of reducing the waste load on municipal corporation, getting compost for own garden and monitory benefits by sale of compostand worms.

75% participation of urban women in collection of cow dung, separation of earthworm and sale of earthworm might be due to lack of contacts with milkman, hesitation to handle earthworm and less linkages to vermicomposting units.

Limitation of the project study was that the study was carried with only 20 urban women of one area. Hence, the result is confined to the particular area.

Suggestions and recommendations

Finding of the present study revealed that the urban women perform very well in the vermicomposting, i.e., production, maintenance, harvesting, sales and utilization.

However, the study suggests the mass systemic efforts to train the urban women about the practices like selection of earthworms, preparation of beds, mixing of composting material, protection of worms from enemies, separation of worms, packing of compostand selling of compost and by-products which will at large involve more urban women to contribute in kitchen and garden waste management with (monetary gains) and socio-economic upliftment.

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