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An Economic analysis of vermicompost production under Gothan and Godhan Nyay Yojna: A case study of Chhattisgarh plains

¹Bhawana Patel, ²Dr. AK Gauraha, ³Dr. MR Chandrakar and ⁴Kajal

^{1, 2, 3, 4}Department of Agri-Business and Rural Management, College of Agriculture Raipur, Indira Gandhi Krishi Vishwavidyalaya, Raipur, Chhattisgarh, India

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Corresponding Author: Bhawana Patel

Abstract

The present study examined the economics of vermicompost production of Gothan established under the Gothan and Godhan Nyay yojna scheme in Chhattisgarh. The study was based on primary data conducted in Raipur and Raigarh districts of the Chhattisgarh plains. City gothan and village gothan were selected for the study and from each district 4 gothans were selected. The Net Income of City Gothan was Rs. 264.64 and Village Gothan was Rs. 234.91. Compared to Village Gothan, City Gothan had a higher net income.

Keywords: Cost of production, Godhan Nyay Scheme, Gothan scheme, vermicompost, SHGs

Introduction

Vermicomposting is as a bio-oxidative process in which earthworms interact intensively with microorganisms and other fauna within the decomposer community, accelerating the stabilization of organic matter and modifying its physical and biochemical properties. The action of the earthworms in this process is physical or mechanical. Physical participation in degrading organic substrates results in fragmentation, thereby increasing the surface area of action, turnover and aeration. Vermicomposting may be the viable option to handle solid waste in an environmentally friendly way. (Ali *et al.* 2015) ^[1]. Cow dung may not only act as a substitute for chemical fertilizers because it supplements organic matter, but also as a conditioner for soil (Garg and Kaushik 2005; Yadav *et al.* 2013) ^[5, 10]. It not only improves the different properties of soil but also acts as a source of microorganisms producing biological nematocidal agents with no negative effect on environment (Gupta *et al.* 2016) ^[6]. Chhattisgarh government launched Gothan and Godhan Nyay Yojna under the ambitious Suraji village scheme Narwa, Garwa, Ghurwa and Badi in Chhattisgarh. Narwa means canal Garwa means cow. Both the male and female cattle are known as Garwa. Ghurwa means a place where cow dung is stored to convert into Farm Yard Manure (FYM), which is prepared from cow dung, and second is vermicompost, produced by earthworm scientifically known as earthworm Badi *Eisenia foetida*. means kitchen garden. Godhan Nyay Yojana' is the scheme launched on 21st July 2020, on the occasion of Hareli, the first festival of the state, by the Chhattisgarh government. This scheme aims at boosting the rural economy by procuring cow dung at Rs 2 per kilogram from farmers and cattle rearers initially in the rural area later in the urban area too. After procuring the cow dung, the government would

get the procured cow dung turned into vermicompost by Women Self-Help Group (WSHG) and later the organic manure would be sold to the farmer at ₹ 10 per kilogram, encouraging organic fertilizer and discouraging chemical one. The income from this scheme will supplement and complement the agriculture income of the farmer and cattle owner. (Readers' Blog by The Times of India, 2020) ^[9].

Methodology

The study was based on primary data conducted in Raipur and Raigarh districts of the Chhattisgarh plains. City gothan and village gothan were selected for the study and from each district 4 gothans and from each gothan 1 self-help group were selected randomly. Finally, a total number of 80 respondents were selected randomly from these gothans. The data were analysed using different analytical tools to achieve the stipulated objective of the study.

Cost Concept: Cost related to vermicompost production.

Profitability Concepts

- **Gross Income:** Physical Production × Price per qt.
- **Net income:** Gross Income- Total Cost
- **Input-Output Ratio:** Gross Income/Total Cost
- **Benefit-Cost ratio:** Net Income/ Total Cost

Results and Discussion

Cost and Returns of Vermicompost

The cost and returns of Vermicompost have been presented in the table 2. It is evident from the table that the total cost of production of vermicompost per qt was (765.09) Rupee in Village Gothan and (735.76) Rupee in City Gothan. The average production cost of vermicompost per qt was Rs. (750.42). Findings are in consonance with studies conducted

by Kumar *et al.* (2021)^[7]. From the table 1 it is clear that on an average the maximum cost shared by cow dung, which was Rs. 582.02 (77.56 percent), followed by culture cost Rs. 73.17 (9.75 percent), cooperative bank commission charge Rs. 50 per qt (6.66 percent), Transportation cost Rs. 10.23 (1.36 percent) and Jute bags cost Rs. 34.99 (4.66 Percent). Table 2 presents average returns from vermicompost production. As we know price of vermicompost fixed by Govt. was Rs. 1000 per qt. the Net Income of City Gothan

was Rs. 264.64 and Village Gothan was Rs. 234.91. The net income of City Gothan was Higher than the net income of Village Gothan. The overall Net Income was Rs. 249.57 per qt. Findings are in consonance with studies conducted by Kumar *et al.* (2021)^[7]. Ratio of Gross Income and Total Cost represent Input – Output Ratio, which was higher in City Gothan 1:1.31 and lower in Village Gothan 1:1.36. The Overall Input-Output Ratio was 1:1.34. The reason behind the difference in returns between Gothans was input costs.

Table 1: Costs of Vermicompost Production (per qt)

| Particulars | Village Gothan | | City Gothan | | Average | |
|---|----------------|----------------|--------------|----------------|--------------|----------------|
| | Quantity | Value | Quantity | Value | Quantity | Value |
| Cow dung (2rs. / kg) | 2.94 | 589.26 (77.02) | 2.86 | 574.79 (78.12) | 2.9 | 582.02 (77.56) |
| Culture (265 and 250 rs./kg) | 0.0033 | 83.15 (10.87) | 0.0025 | 63.19 (8.59) | 0.0029 | 73.17 (9.75) |
| Jute bags (10 and 11 rs./pc) | 3.33 | 33.33 (4.36) | 3.33 | 36.66 (4.99) | 3.33 | 34.99 (4.66) |
| Cooperative society/ bank commission @ 5% | 50 (6.53) | | 50 (6.79) | | 50 (6.66) | |
| Transportation Cost (Rs.) | 9.35 (1.22) | | 11.11 (1.51) | | 10.23 (1.36) | |
| Total Cost | 765.09 (100) | | 735.76 (100) | | 750.42 (100) | |

Note: Figure in parentheses indicates the percentage to the Total

Table 2: Total Cost, Gross Income and Net Return of Vermicompost production (Rs./qt)

| Particulars | Village Gothan | City Gothan | Average |
|-------------------------|----------------|-------------|---------|
| Total Cost (Rs.) | 765.09 | 735.76 | 750.42 |
| Production (qt.) | 1 | 1 | 1 |
| Gross Income (Rs. / qt) | 1000 | 1000 | 1000 |
| Input-Output Ratio | 1:1.31 | 1:1.36 | 1:1.34 |
| Net Income (Rs. /qt) | 234.91 | 264.24 | 249.57 |

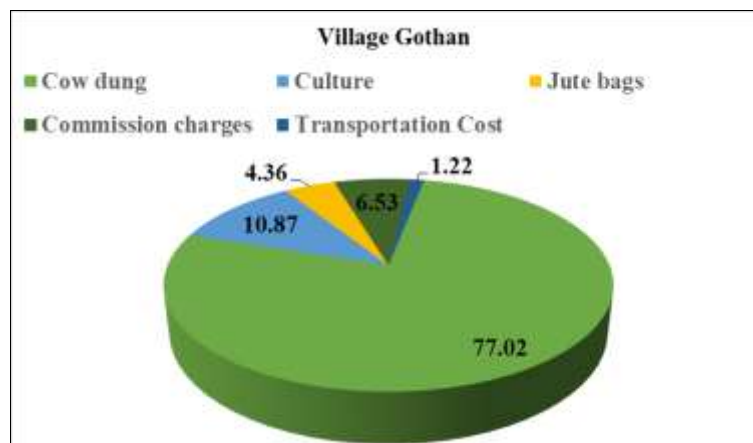


Fig 1: Costs of Vermicompost Production under Village Gothan

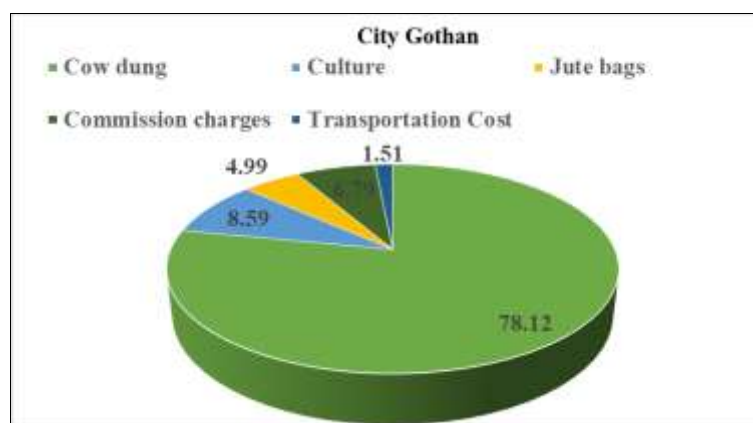


Fig 2: Costs of Vermicompost Production under City Gothan

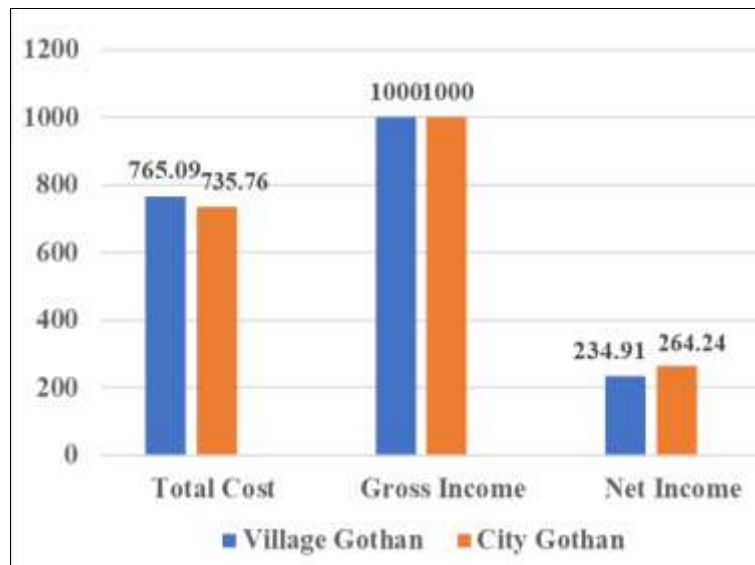


Fig 3: Total Cost, Gross Income and Net Income of Vermicompost

Conclusion

The findings indicate that the newly introduced programs have significantly contributed to enhancing the living conditions of livestock farmers and women's self-help groups by offering them employment opportunities. Concurrently, in the long term, the adoption of vermicomposting is expected to augment the soil fertility. The study concluded that total cost of production of vermicompost per qt was (765.09) Rupee in Village Gothan and (735.76) Rupee in City Gothan. The overall production cost of vermicompost per qt was Rs. (750.42). The Net Income of City Gothan was Rs. 264.64 and Village Gothan was Rs. 234.91. The net income of City Gothan was Higher than the net income of Village Gothan. The overall Net Income was Rs. 249.57 per qt. The Overall Input-Output Ratio was 1:1.34.

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