

A SWOT ANALYSIS OF VERMI COMPOST- AN OLD WINE IN NEW BOTTLE

¹Raghavendra Swami , ² Shivangi Sharma

Associate Professor & Head Deptt. of Management Studies GRD Institute of Management & Technology, Dehradun
Sr. Lecturer, Deptt. Of Management Studies, GRD Institute of Management & Technology, Dehradun
swami.grd11@gmail.com

ABSTRACT

Environmental degradation is a major threat in front of the world and the excessive use of chemical Fertilizers and pesticides contributes largely to the deterioration of the environment through depletion of fossil fuels, generation of carbon dioxide (CO₂) and contamination of water resources. It leads to loss of soil fertility due to imbalanced use of fertilizers that has adversely impacted agricultural productivity and causes soil degradation. Now there is a growing realization that the adoption of ecological and sustainable farming practices can only reverse the declining trend in the global productivity and environment protection.

The vermi compost market is still unexploited and full of sales opportunities. To assess its sales potential, we have conducted the SWOT analysis of this product and used "PORTER'S 5 Forces Model to analyze the market opportunities"

Keywords: Vermi Compost, Biodegradable organic waste, humification process, Ecological Agriculture, Microorganisms

reverse the declining trend in the global

INTRODUCTION

Environmental degradation is a major threat in front of the world, and the excessive use of chemical Fertilizers and pesticides contributes largely to the deterioration of the environment through depletion of fossil fuels, generation of carbon dioxide (CO₂) and contamination of water resources. It leads to loss of soil fertility due to imbalanced use of fertilizers that has adversely impacted agricultural productivity and causes soil degradation. Now there is a growing realization that the adoption of ecological and sustainable farming practices can only

productivity and environment protection (Aveyard 2007, Wani and Lee 2006), Wani et al. 2009). On one hand tropical soils are deficient in all necessary plant nutrients and on the other hand large quantities of such nutrients contained in domestic wastes and agricultural by products are wasted. It is estimated that in cities and rural areas of India nearly 700 million tonnes organic waste is generated annually which is either burned or land filled (Bhiday 2009). Such large quantities of organic wastes generated also pose a problem for safe disposal. Most of these organic residues are burned currently or

used as land fillings. In nature's laboratory there are a number of organisms (micro and macro) that have the ability to convert organic waste into valuable resources containing plant nutrients and organic matter, which are critical for maintaining soil productivity. Microorganisms and earthworms are important biological organisms helping nature to maintain nutrient flows from one system to another and also minimize environmental degradation (Zaller, J. G. 2007). The earthworm population is about 8–10 times higher in uncultivated area. This clearly indicates that earthworm population decreases with soil degradation and thus can be used as a sensitive indicator of soil degradation. In this article a simple biotechnological process, which could provide a 'win-win' solution to tackle the problem of safe disposal of waste as well as the to find out the ways to penetrate the existing market for vermi compost.

IMPORTANCE OF VERMI COMPOST

The utilization of vermicompost results in several benefits to farmers, industries, environment and overall national economy.

To farmers:

- Less reliance on purchased inputs of nutrients leading to lower cost of production
- Increased soil productivity through improved soil quality

Better quantity and quality of crops

- For landless people provides additional source of income generation

To Industries:

- Cost-effective pollution abatement technology

To environment:

- Wastes create no pollution, as they become valuable raw materials for enhancing soil fertility

To National Economy:

- Boost to rural economy
- Savings in purchased inputs
- Less wasteland formation

Advantages of vermicompost:

1. Vermi compost is rich in all essential plant nutrients.
2. Provides excellent effect on overall plant growth, encourages the growth of new shoots /leaves and improves the quality and shelf life of the produce.
3. Vermicompost is free flowing, easy to apply, handle and store and does not have bad odour.
4. It improves soil structure, texture, aeration, and water holding capacity and prevents soil erosion.
5. Vermi compost is rich in beneficial micro flora such as a fixers, P- solubilizers, cellulose ecomposing micro-flora etc. in addition to improve soil environment.
6. Vermi compost contains earthworm cocoons and increases the population and activity of earthworm in the soil.
7. It neutralizes the soil protection.
8. It prevents nutrient losses and increases the use efficiency of chemical fertilizers.
9. Vermi compost is free from pathogens, toxic elements, weed seeds etc.
10. Vermi compost minimizes the incidence of pest and diseases.
11. It enhances the decomposition of organic matter in soil.

12. It contains valuable vitamins, enzymes and hormones like auxins, gibberellins

Technical economical advantages

- Extremely small starting capital;
- It is possible to mechanize and automate vermin compost production;
- Earthworms are perfect for vermi compost production (the only animals capable of producing coprolites of that quality and so quickly);
- Qualitative market intermediate product-compost;
- Opportunity to establish effective production on different scales;
- Opportunity to use temporarily empty cowsheds, warehouses, vegetable stores, etc.;
- Illumination saving (earthworms can work in the dark);
- High profitability (low price of the starting materials, high added value);
- Sustainable sources of organic raw material;
- Wide range of organic raw material sources;
- Low labor costs;
- Low energy consumption;
- The ever increasing earthworm value (the 1500-times population increase) provides a 100% production scale-up annually;

— Technology is available for plain man-power to master;

— High output per sq.m. (1 t of vermicompost, 10 kg of earthworms within 365days);

— The earthworm lives 16 years.

Social economical advantages

— Social significance of the program "Ecological Agriculture";

— New highly paid vacancies, in villages first of all;

— Safe and ecologically clean production process (no health hazard);

— Safe contacts for earthworm health, earthworms do not carry diseases;

— Educational value: earthworms are useful "domestic animals", both adults and children can take care of them, they produce vermi compost providing plants with balanced food;

— The earthworms "Staratel" live in a colony but do not have epidemics;

— Wasteless production (vermi compost production results in 3 values: vermi compost, earthworm biomass and clean environment);

— Ecological value for the territory, including polluter sources elimination;

— Soil fertility improvement, in Nechernozemnaya area, first of all;

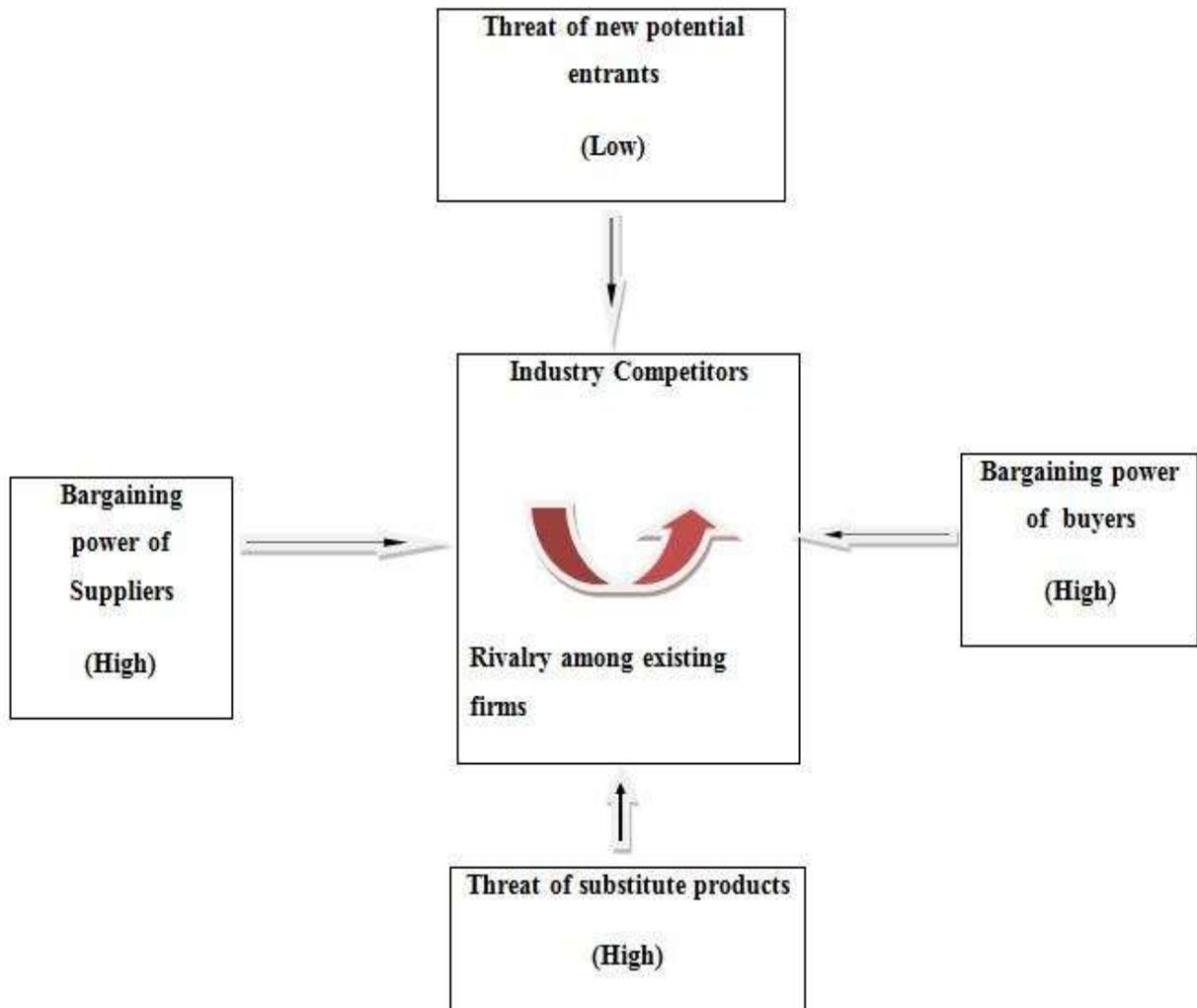
— High-quality ecologically pure food stuff production;

SWOT ANALYSIS OF VERMI-COM POST

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none">❖ Media is creating awareness at national and international level.❖ Vermi compost is giving Good results in farms.❖ Cheap price as compare to chemical fertilizers.❖ Crop, harvested by using this manure has high demand in international market.❖ This crop fetches premium selling price.❖ Infertility and soil erosion are the main problems in front of Indian farmers, the use of vermi compost improves soil structure, texture, aeration, water holding capacity and prevent soil erosion.	<ul style="list-style-type: none">❖ At initial level its use increases the cost of production.❖ Less awareness among the people.❖ Process to convert a farm land into an organic farm land is tedious and time consuming.❖ Organic certification is very costly.❖❖ Publicity by government agencies is not effective.❖ Because of the (natural) way of production, we can not reduce the production time.
OPPORTUNITIES	THREATS
<ul style="list-style-type: none">❖ Absence of competitors in the market can be a big opportunity for producers.❖ Legitimate support by the government to the farmers to start this unit.❖ Wide scope at national and international level.❖ People are more concerned about their health so they want to consume organic food.❖ Till now no need to procure any kind of	<ul style="list-style-type: none">❖ Some small players have distorted its image in its nascent stage.❖ 90% farmers are using chemical fertilizers.❖ Big sellers of chemical fertilizers are hushing up the progress of small producers of Vermi Compost by offering attractive margins to wholesalers so that they would sell chemical fertilizers only.❖ International agencies for organic certification have made very strict norms

<p>license i.e. either to produce or sell this compost.</p> <ul style="list-style-type: none">❖ Hundreds of tones biodegradable organic waste is being thrown in cities creating disposal problems in the country. This waste can be converted into valuable compost by utilizing as raw material	<p>which are very difficult to meet out for the farmers of developing county like India.</p> <ul style="list-style-type: none">❖ Due to excessive use of chemical fertilizers and pesticides by large no of farmers, a small farmer cannot take initiative to convert his farm into organic (Change the sentence)
---	---

PORTER'S FIVE FORCES FOR VRMI-COMPOST



➤ **Threats of new entrants**

(Low) :

- Distilleries are converting their waste into BIO fertilizers but farmers are not adopting it.
- Sugar mills are also trying to woo the farmers but producing BIO fertilizers but not getting the good response.
- New entrants are not getting proper support from government and facing problems.
- Significant support to vermi compost industry is a deterrent for new entrants.

➤ **Bargaining power of suppliers (High) :**

- 35% of market share is covered by public companies like-

NFL,FACT,RCF,SAIL,NL C,PPL,HFC,Brahamputra vally fertilizers etc. 2% market share is covered by co-operative companies like **IFFCO and KRIBHCO** and 63% a large number of market share is covered by private sector i.e. **OSWAL,TATA,Indogulf,Ch ambal,Nagarjuna,Coromanda l,Zuari,etc** thus the bargaining power of suppliers is also high and government organizations are exercising certain power over the buyers by providing subsidies on fertilizers.

➤ **Bargaining power of buyers**

(High) :

- Bargaining power of buyers is high because the spectrum of substitutes available to the farmers is large.

➤ **Threat of substitute (High) :**

- Bio fertilizers
- Chemical fertilizers
- Manure (cattle,dung,FYM)
- Green manures
- Biotech fertilizers
- Fertilizers given through leaves provided by herbicides companies.

➤ **Rivalry among existing competitors (High) :**

- Major market share is captured by chemical fertilizers companies.
- Both co-operative companies and private companies are already playing in market.
- Cost competitiveness between private and public players.
- Companies playing in the market are coming up with different product such as completely water soluble fertilizers, spray fertilizers, fertilizers with micro nutrient which have less wastage and more efficiency.
- Improved technology and high yielding varieties which require less fertilizers used by farmers so high competition in selling between different companies.
- Good distribution channel of different companies which leads to cost competitiveness

and quality of products.

- Because of government support to the public companies the prices are lower in comparison of private players.

➤ **Attractiveness of the Industry**

- India is fully agriculture dependent country, 70% of Indian population depends on agriculture.
- For young generation agriculture business is an attractive career because of using of new technology and good income from farm production.
- Continuous high demand of agricultural products of organic food in Indian market as well as in foreign market.

Future Trends of fertilizers industry:

- 2007-08 demand was 26 million MT
- 2008-09 demand 29 million MT against supply of 20 million MT.
- 2011-12 expected production 35.5 million MT.
- Gujarat is expected to play a leading role in fertilizer production.

Technical economical advantages

- Extremely small starting capital;
- It is possible to mechanize and automate vermicompost production;
- Earthworms are perfect for vermicompost production (the only animals capable of

reducing coprolites of that quality and so quickly);

— Qualitative market intermediate product - compost;

— Opportunity to establish effective production on different scales;

— Opportunity to use temporarily empty cowsheds, warehouses, vegetable stores, etc.;

— Illumination saving (earthworms can work in the dark);

— High profitability (low price of the starting materials, high added value);

— Sustainable sources of organic raw material;

— Wide range of organic raw material sources;

— Low labor costs;

— Low energy consumption;

— The ever increasing earthworm value (the 1500-times population increase) provides a

100% production scale-up annually;

— Technology is available for plain man-power to master;

— High output per sq.m. (1 t of vermicompost, 10 kg of earthworms within 365 days);

— The earthworm lives 16 years.

Social economical advantages

— Social significance of the program "Ecological Agriculture";

— New highly paid vacancies, in villages first of all;

— Safe and ecologically clean production process (no health hazard);

— Safe contacts for earthworm health, earthworms do not carry diseases;

— Educational value: earthworms are useful "domestic animals", both adults and children

can take care of them, they produce vermicompost providing plants with balanced food;

— The earthworms "Staratel" live in a colony but do not have epidemics;

— Wasteless production (vermicompost production results in 3 values: vermicompost,

earthworm biomass and clean environment);

— Ecological value for the territory, including polluter sources elimination;

— Soil fertility improvement, in Nechernozemnaya area, first of all;

— High-quality ecologically pure food stuff production;

CONCLUSION

The production of degradable organic waste and its safe disposal becomes the current global problem. Meanwhile the rejuvenation of degraded soils by protecting topsoil and sustainability of productive soils is a major concern at the international level. Provision of a sustainable environment in the soil by amending with good quality organic soil additives enhances the water holding capacity and nutrient supplying capacity of soil and also the development of resistance in plants to pests and diseases. By reducing the time of humification process and by evolving the methods to minimize the loss of nutrients during the course of decomposition, the fantasy becomes fact. Earthworms can serve as tools to facilitate these functions. They serve as "nature's plowman" and form nature's gift to produce good humus, which is the most precious material to fulfill the nutritional needs of crops.

Hence, after this study we can say that vermi compost has a huge potential not only in Indian market but also at Global level. This segment is still unexplored and can show unprecedented growth.

REFERENCES:

1. Aveyard Jim. 2007. Land degradation: Changing attitudes - why? Journal of Soil Conservation, New South Wales 44:46-51.
2. An Open Access Journal published by ICRISAT SAT journal | ejournal.icrisat.org August 2006 | Volume 2 | Issue 116
3. Arancon, N.Q., Edwards, C.A., Lee, S.S., and Yardim, E. 2009. Management of plant parasitic nematode populations by use of vermicomposts. Proceedings of the Brighton Crop Protection Conference, 18-21 November, Pests

- and Diseases, Vol. II, Pages 705-710. Brighton, U.K.
4. **Bhiday MR.** 2009. Earthworms in agriculture. *Indian Farming* 43(12):31–34.
 5. **Coleman D C.** 2005. Through a red darkly: an ecological assessment of root soil microbial faunal interactions. Pages 1–21 *in* Ecological interaction in Soil (Fitter AH, Atkinson D, Read DJ and Usher MB, eds.). London, UK: Blackwell Scientific Publications.
 6. **ICRISAT and APRLP.** 2009. Vermicomposting: Conversion of organic wastes into valuable manure. Andhra Pradesh, India: ICRISAT and APRLP. 4 pp.
 7. **Jadhav AD, Talashilkar SC and Pawar AG.** 2006. Influence of the conjunctive use of FYM, vermicompost and urea on growth and nutrient uptake in rice. *Journal of Maharashtra Agricultural Universities* 22(2):249–250.
 8. **Parmelee RW, Bohlen PJ and Blair JM.** 1998. Earthworms and nutrient cycling processes: integrating across the ecological hierarchy. Pages 123–143 *in* Earthworm Ecology (Edwards CA, ed.). New York, USA: St Lucie Press.
 9. **Vermi Co.** 2008. Vermicomposting technology for waste management and agriculture: an executive summary. (<http://www.vermico.com/summary.htm>) PO Box 2334, Grants Pass, OR 97528, USA: Vermi Co.
 10. **Wani SP.** 2009. Improving the livelihoods: New partnerships for win-win solutions for natural resource management. Paper submitted in the 2nd International Agronomy Congress held at New Delhi, India during 26–30 November 2002.
 11. **Zaller, J. G.** 2007. Vermicompost as a substitute for peat in potting media: effects on germination, biomass allocation, yields and fruit quality of three tomato varieties. *Scientia Horticulturae* 112 (2), 191-199
1. <http://betuco.be/compost/Latest%20Developments%20in%20Mid-to-Large-Scale%20Vermicomposting.pdf> (latest developments)
 2. <http://www.wormpost.com/benefits/composting.html>
 3. <http://eng.green-pik.ru/sections/33.html>