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### A Pilot Study of Vermibiotechnology for Empowerment of Weaker Section of Society of India

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vermicompost  
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#### A B S T R A C T

Initially supported by Department of Biotechnology, Government of India through funding of a project way back in 2001, author initiated to trained weaker-section of society of Western UP, India for production of vermicompost with exotic sp. of earthworm *Eisenia foetida*. Eventually, Farmers of the area developed distinct identity among farming community of western U.P., through setting-up a series of vermicompost units, in rural areas and self employment opportunities among the weaker sections of the society.

### Introduction

India over several millenniums has been the treasure land of biological wealth, intellectual knowledge and spiritual wisdom. She had also been the cradle of many ancient human civilizations like the world famous Indus valley, Ganges delta, Cauvery delta civilization etc. During both pre and post Vedic periods, arts, science and technology had flourished well in various fields. Ancient mathematicians India invented the 'Zero' and made remarkable contributions to the field of 'Algebra'. An ancient astronomer named Aryabhatta had discovered the earth's rotation and also the solar and lunar eclipses. Five planets had

been known to the Vedic Indians even before the telescopes were invented (Yadav and Sigh, 2014).

Ancient physicians had established two excellent medicinal system viz., 'Sidha' and 'Ayurveda' which are now recognized as 'healthy friendly' systems. A scientist named Bramagupta had discovered a scientific theory synonymous to the Newton's laws of gravity. Similarly the biological wealth of India could be evidenced in the report of Kothari (2001). India is classified among the 12 mega diversity centers of the world in relation to

crops. As many as 167 species of crops, 320 species of wild crop relatives and several species of domesticated animals have been identified. India with its traditional crop varieties and crop production techniques was able to feed its population and was exporting some selected produces to other continents. All the Indian villages were self sufficient, self sustained and self-reliant units. In fact, urban centers were dependent upon the villages rather than vice-versa.

When India attained independence, it faced a severe shortage of food supply during 1950's and 60's due to various reasons. To overcome this problem, India entered in the era of Green Revolution. By this, self sufficiency in food production was somehow archived with the introduction of so called high yielding varieties, inorganic fertilizers, pesticides, modern implements etc. These were imported from western countries in the name of 'technological packages' without taking care of their adaptability to Indian conditions and the possible consequences.

Apart from the substantial increase in the crop yield through 'Green Revolution' these modern technologies have made the Indian farmers become poorer as they required heavy investment on costly external resources of uncertain future availability. Now, a section of policy makers and agricultural scientists have understood that continuation of modern agriculture might lead to severe ecological and economic problems. They are also convinced that modern agriculture may not be able to meet requirement of ever-increasing population in the future. The permanent and cheapest solution to overcome the dangerous effects of modernized agriculture is to develop a farming system which is economically productive and long-lasting is sustainable farming or natural farming by simple and in-

expensive practices like vermibiotechnology.

### **Vermi-Biotechnology**

Vermi-biotechnology is an eco-friendly, socially sound and economically viable innovative type of technology to manage the organic waste resource on low capital input. It can provide employment to millions of youth; can eliminate the dependence on chemical, convert wastes into fertilizers, can bring waste-land under cultivation and can make a country green and prosperous in a span of just a few years. Usually 2 kg of earthworm recycle 1 kg of organic wastes in 24 hours in ideal conditions. The worms recycle moist food of their own weight in every 24 hours It can be started with very low start-up cost and can be done with available infrastructure and space. The earthworms perform all processing naturally and resulting product provides stable organic matter. It increase water-holding capacity and improves soil quality, pH, soil biological activities and the soil productivity in subsequent years.

### **Vermi-Farming in Western Up, India: A Pilot Study**

During the period from 2000, an effective demonstration of techno-economic viability of vermitechnology is being implemented in the villages of Aligarh and Hathras district,UP through setting-up of series of vermicompost units in rural areas. Some 7322.00 kgs. earthworms have been provided to 666 farmers at free of cost and 170.00 kg on the basis of no-profit-no-loss basis for the establishment of vermicompost units at the beneficiaries land. 5960.00 kg. vermicompost was provided for demonstration/trial plots of Ashwagandha, Kalmegh, Sannai, vegetable crops and ornamental plants. In order to transfer this

technology from lab to land – training programmes were conducted in the regional language using audio-visual aids and practical programmes for the production of vermicompost through proven biotechnology, were conducted. A hatchery-cum-demonstration unit comprising sixty beds has been established to provide

vermised, technical knowledge and other required knowledge. Some 4000 farmers visited the hatchery-cum-demonstration, during the study period and had detailed interaction with project staff. The visitors were provided necessary technical guidance for this technology.

**Figure.1** Vermicompost Units set-up under the project: Production of Vermicompost by women farmers (2007-2010)



Fig. 1

At: village Mukundpur; Block Lodha  
District Aligarh



Fig. 2

At: village Mukundpur; Block Lodha  
District Aligarh

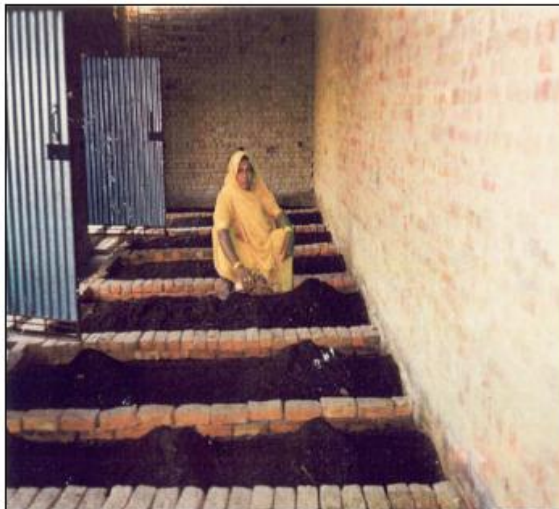


Fig. 3

At: village Balukhera; Block Dhanipur  
District Aligarh



Fig. 4

At: village Rajpur; Block Khair  
District Aligarh

Twenty-six training programmes were organized to create awareness on production, application and sale of vermicompost through sale counters in rural areas. Four hundred and eight vermicompost units were established by 217 beneficiaries under the project in Aligarh and Hathras districts. They marketed 19,735.41 Quintals produce @ Rs. 200-300 per quintal and earned some Rs. 5.0 lakhs, and rest of the vermicompost was used by them in their own crops especially wheat, potato and rose cultivation.

Vermin-mela were organized on 31.12.2006, 08.03.2008 and 07.03.2010 where some 4350 farmers and other beneficiaries visited the exhibition and stalls and had detailed interaction with experts. Two villages (Balukhera and Pankhani, Dhanipur Block, Aligarh) were developed as 'Vermi-village' for the production of earthworms and supply the earthworm to new beneficiaries by a group of at least fifteen women from a single village. This is a novel initiative in this sector and directly relates to improving the economy of beneficiaries particularly those of weaker sections of society. 5.0 Conclusions:

Pains taking efforts made in the project during the study period have brought tangible results by way of: (i) setting-up a hatchery-cum-demonstration unit, comprising 60 vermibeds; (ii) providing 4000 kg vermiseeds to beneficiaries; (iii) organizing 13 training programmes on vermitechnology where some 600 women farmers participated; (iv) setting-up of 270 vermicompost units by women farmers in rural areas; (v) production and sale of 19 mt vermicompost through sale-purchase-counters by SHG of women farmers, fetching them an earning of Rs. 5 lakhs annually; (vi) development of two 'vermin-villages' for sustainable supply of

earthworm seeds to new upcoming beneficiaries; (vii) organizing exhibition, bio-fairs, meetings by the project on vermitechnology, providing recent updates by experts, where some 4350 farmers and others participated; (viii) participation of project in the Govt. exhibitions, krashak gosthi, meetings to educate, train and provide information on vermitechnology through interaction with farmers and exhibits, models etc; (ix) analysis of field soil where vermicompost has been applied and study its effect on rose cultivation; (x) new initiative on organic cultivation of vegetable and horticultural crops by SHG of women farmers, fetching them high prices.

Although the objectives of the project have been achieved far and wide, and participating weaker section the study area (Aligarh) definitely feel privileged and empowered with vermitechnology at their hand, yet, there is still a necessity to continue these efforts in other parts of country to run this programme in order to ensure participation of women in this new venture.

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