2. Jai Gopal Vermiculture Technology

1. Objectives of the Practice

The practice of vermiculture serves as a low-cost solid waste management technology that could promote soil health, can be used in all agro-climatic zones except for areas with very low temperatures (<2°C) and promotes beneficial soil microorganism. The technology facilitates solid waste recycling and its conversion to vermicompost with the help of a novel Indian earthworm (*Perionyx ceylanesis*) developed through a selection and mating plan. The technology is intended to promote the establishment of vermiculture and vermibiomanure production unit as an ideal cottage industry in India and to promote start-up and entrepreneurship avenues.

2. The Context

This new Earthworm species is developed through selection and mating plan. It is an indigenous and eco-friendly and pro-sustainable agriculture. It is not hazardous for plants, animals, human beings and flora and fauna of the soil, so no special regulatory requirements required. The earthworm also has the ability to adopt to a variable temperature (2-46°C). It also has higher number of hatchlings per cocoon, a greater number of cocoons per week and greater number of earthworm population in three months with a long-life span. The genomic investigations behind the commercialized technology were the major challenge which was successfully identified and dealt with. For implementation of the technology, a proper protected site is required for cultivation.

3. The Practice

The new Indian earthworm species “Jai Gopal” is developed through selection and mating plan which is better than exotic earthworm *Eisenea foetida*, *Eudrilus eugeneae* with reference to following characters:

- High fecundity
- Heat and cold tolerance
- Harbours on animal and agro-based waste
- Voracious feeder
- Very rich in protein (contain 67% protein and all functional amino-acids)
- Breeding throughout the year except in very low temperature
- Acts as Bio-reactor to multiply beneficial soil and decomposition of microorganisms.
- Superior quality of vermicast and nutriwash produced
- Long life span than prevailing exotic earthworm species
- Smallest period of interval from hatchling to maturity

This technology is very cheap, eco-friendly and enhances soil health which has direct impact on health of plants, animal and human beings. This technology is pro-poor, pro-women, pro-environment and pro-farmer. This can be used in every village and municipality of our country for recycling. It is beneficial for sustainable agriculture and animal husbandry. The utilization of huge amount of biodegradable animal and farm waste results in several benefits to farmers, industries, environment and overall national economy. Earthworms can also be used as source of animal feed protein for poultry, fish and sucking pigs.

The technology is in practice in the institute and the students are trained on vermicomposting practices. The genetic engineering behind the technology also serves as a part of course work for the students which can be applied in their research investigations leading to newer products and technologies. The technology also generates entrepreneurship avenues fostering employment opportunities.

Web link: https://www.ivri.nic.in/News/News18112022_3.pdf
News: https://timesofindia.indiatimes.com/home/science/new-earthworm-species-developed-by-ivri-to-free-brahmaputra-basin-of-wild-aquatic-plants/articleshow/29837936.cms

4. Evidence of Success

The "Jai Gopal" Vermiculture technology has been commercialized to 66 entrepreneurs/industries across 12 states of the country to date. The technology has generated a total revenue of Rs. 8,44,975/- through sale of vermicompost and Rs. 26,02,315/- through sale of vermiculture. Further, a total of Rs. 18,82,656/- has been earned from the licensing of this technology. KVK of IVRI imparts training on vermicomposting practices every year through various programs. To cite an example of the success of this technology, a young farmer/entrepreneur Mr. Prateek Bajaj (21 y) had learned about this technology at the KVK, IVRI Izatnagar in 2015. Using this knowledge, he has established vermicompost and vermiculture units at his place of residence. His benefit to cost ratio is 1.98 each year which adds to his income. He has also commercialized his products which are now available in the market.

Web link: https://www.ivri.nic.in/Extension/Download/SuccessStory2.pdf

5. Problems Encountered and Resources Required

Temperature of vermicomposting and availability of labour are major challenges that are encountered to implement this technology. The package of practice for Jai Gopal Vermiculture is available with IVRI for purchase and can be transferred. The details of the technology are disseminated through training and awareness programs at the institute.

6. Notes (Optional)

Please add any other information that may be relevant for adopting/ implementing the Best Practice in other Institutions (in about150 words).