

## The Glimmers of Brown Gold: Vermicompost

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A nature's gift that nurtures the soil, revitalizes ecosystems, and safeguards our planet's delicate balance." Vermicompost, also known as worm compost or worm castings, is a nutrient-rich organic fertilizer produced by earthworms through the process of decomposition. It plays a pivotal role in sustainable agriculture, promoting soil health, enhancing crop productivity, and contributing to environmental conservation. Earthworms consume biomass and excrete it in digested form called worm casts. Worm casts are popularly called as Black gold. The casts are rich in nutrients, growth promoting substances, beneficial soil micro flora and having properties of inhibiting pathogenic microbes. Vermicompost is stable, fine granular organic manure, which enriches soil quality by improving its physicochemical and biological properties. It is highly useful in raising seedlings and for crop production. Vermicompost is becoming popular as a major component of organic farming system. Using vermicompost can fulfil the requirements for organically grown products.

### **Vermicompost production technique adopted in India:**

- Vermicomposting is done by either bed or pit method. In bed method composting is done on the pucca / kachcha floor by making bed of organic mixture while in pit method it is done in the cemented pits.
- Vermicomposting unit should be in a cool, moist and shady site
- Cow dung and chopped dried leafy materials are mixed in the proportion of 3: 1 and are kept for partial decomposition for 15 – 20 days.
- A layer of 15-20cm of chopped dried leaves/grasses should be kept as bedding material at the bottom of the bed.
- Beds of partially decomposed material of size 6x2x2 feet should be made.
- Each bed should contain 1.5-2.0q of raw material and the number of beds can be increased as per raw material
- Red earthworm (1500-2000) should be released on the upper layer of bed.

- Water should be sprinkled with can immediately after the release of worms
- Beds should be kept moist by sprinkling of water (daily) and by covering with gunny bags/polythene.
- Bed should be turned once after 30 days for maintaining aeration and for proper decomposition.
- Compost gets ready in 45-50 days. The finished product is 3/4th of the raw materials used.
- Harvesting:
- When raw material is completely decomposed it appears black and granular. Watering should be stopped as compost gets ready. The compost should be kept over a heap of partially decomposed cow dung so that earthworms could migrate to cow dung from compost. After two days compost can be separated and sieved for use.

#### **Unparalleled advantages of vermicompost production**

- ✚ Vermicompost acts as a natural source of essential nutrients. Unlike synthetic fertilizers, which often lead to nutrient imbalances and environmental pollution, vermicompost provides a well-balanced blend of nitrogen, phosphorus, potassium, and micronutrients. These nutrients are released slowly, ensuring a steady supply to plants without the risk of nutrient leaching or runoff.
- ✚ In addition to its nutritional benefits, vermicompost also enhances the soil's ability to suppress plant diseases. It contains beneficial microorganisms that help suppress harmful pathogens, reducing the need for chemical pesticides and promoting a healthier ecosystem.
- ✚ Vermicompost aids in carbon sequestration, contributing to climate change mitigation. The process of vermicomposting sequesters carbon dioxide from organic waste, preventing its release into the atmosphere and reducing greenhouse gas emissions.
- ✚ The use of vermicompost also supports waste management efforts. Organic waste such as kitchen scraps, agricultural residues, and yard trimmings can be effectively converted into valuable vermicompost, diverting these materials from landfills and reducing the burden on waste management systems.

#### **Vermicompost production in Indian context**

- ✚ In 2020-21, India produced 3.88mn (million) tonnes of organic fertilisers, a dramatic decrease from 338.72mn tonnes in 2017-18, a new report said adding that a targeted, ambitious, and well- funded nationwide programme is needed to drive the change towards organic and natural farming.
- ✚ As per Volza's India Export data, Vermicompost export shipments from India stood at 131, exported by 39 India Exporters to 49 Buyers.
- ✚ India exports most of its Vermicompost to United Arab Emirates, Maldives and South Korea and is the largest exporter of Vermicompost in the World.
- ✚ The top 3 exporters of Vermicompost are India with 131 shipments followed by Turkey with 5 and Indonesia at the 3rd spot with 4 shipments
- ✚ Top 3 Product Categories of Vermicompost Exports from India are HSN Code 31010099: 31010099
- ✚ HSN Code 39269099: 39269099
- ✚ HSN Code 84799090: 84799090

### Hurdles in completing the race of vermicompost production

- **Lack of Awareness:** One of the significant issues is the limited knowledge and awareness about vermicomposting practices among farmers and the general public.
- **Inadequate Infrastructure:** The lack of proper infrastructure and facilities for large-scale vermicompost production hampers its widespread adoption.
- **Quality Control:** Ensuring consistent quality of vermicompost can be challenging due to variations in feedstock, environmental conditions, and vermicomposting techniques
- **Market Access:** Farmers often face challenges in accessing the market for selling their vermicompost due to limited distribution networks and demand.
- **Lack of Standardization:** The absence of standardized guidelines and certification for vermicompost quality can hinder consumer confidence and market expansion
- **Distribution Channels:** In India, the distribution of vermicompost is often localized, with small- scale producers selling directly to farmers and gardeners. Larger companies may distribute through agricultural supply stores. Globally, the distribution channels vary based on the scale of production and market demand.

### Stepping stones for India's success

- **Awareness and Training Programs:** Organize awareness campaigns and training



programs to educate farmers and agricultural communities about the benefits of vermicompost and its application in enhancing soil fertility. This can be done through workshops, seminars, and demonstrations.

- **Research and Development:** Invest in research and development to improve the vermicomposting process, making it more efficient and cost-effective. This could involve studying different types of organic waste suitable for vermicomposting, optimizing worm populations, and identifying best practices.
- **Financial Incentives:** Provide financial incentives and subsidies to farmers and entrepreneurs who engage in vermicompost production. This could help offset initial setup costs and encourage more individuals to adopt vermicomposting practices.
- **Government Support:** The government can play a crucial role in promoting vermicompost by creating policies that support its production and use. They can also establish standards and certifications to ensure the quality of vermicompost products.
- **Collaborations and Partnerships:** Foster collaborations between research institutions, NGOs, and private companies to work on vermicompost-related projects. This can lead to innovations and a more coordinated approach to increasing production and marketing.

Future aspects of vermicompost production in India

- **Urban Agriculture and Rooftop Farming:** In urban areas with limited space, vermicompost can play a significant role in supporting rooftop farming and urban agriculture initiatives. This trend is likely to increase as people become more interested in locally sourced food and sustainable living.
- **Vermicompost-based Products:** Besides traditional vermicompost, there is potential for the development of value-added products derived from vermicompost, such as nutrient-rich extracts, microbial inoculants, and biopesticides. These products can further enhance agricultural productivity and contribute to sustainable pest management practices.
- **Integration of Technology:** The integration of technology in vermicomposting processes can lead to increased efficiency, automation, and data-driven decision-making. IoT-based sensors, automation in feeding and harvesting, and smart monitoring systems may become more prevalent in vermicompost production facilities

## Conclusion

In conclusion, the future of vermicompost in the Indian context looks promising, with potential growth in sustainable agriculture, waste management, and climate change mitigation. However, realizing this potential will require concerted efforts from various stakeholders, including farmers, entrepreneurs, policymakers, and researchers. By leveraging technology, investing in research, and promoting awareness, India can harness the benefits of vermicompost to build a more sustainable and resilient agricultural sector for the future. *“An investment in vermicompost will pay you the best interest in future”.*

