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Vermicomposting: Integral part of Organic Farming

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Day by Day Agriculture is becoming more intensive as the limited availability of resources particularly land and heavy popularity load.All Researchers, Scientists are directed on increasing the per unit Agriculture production by exploiting the resources.Before Green revolution there was use of traditional technology and Local Varieties of crops by farmers hence there was no problem with soil fertility as less exhaustive use

But after green revolution High yielding varieties, modern crop management techniques are developed which leads to deterioration of fertility status of soils. Farmers are preferring synthetic chemical fertilizers instead of organic inputs like FYM,Vermicompst,etc for instant and cheapest results. But now a days several organizations and countries identified the need of using organic inputs and organic farming. Policy makers are also becoming serious about the same

Organic Farming and Use of Organic inputs has several benefits on soil health and ultimately on human health too.

Various Inputs used in Organic Farming:-

- Farm Yard Manure
- Vermicompost
- Green Manure
- Biofertilizers

Overview on Vermicomposting:-

Vermicomposting is a method of making compost with the use of earthworm, in which earthworms uses biomass and produces material with high nutrientive and biological value.

Selection of Site:-

Vermicompost can be produced in any place with shade, high humidity and cool. Abandoned cattle shed or poultry shed or unused buildings can be used. If it is to be produced in open area, shady place is selected. A thatched roof may be provided to protect the process from direct sunlight and rain. The waste heaped for vermicompost production should be covered with moist gunny bags.

Material Required:-

1. Vermi bin/cemented tank
2. Thatch roof
3. Polythene sheet
4. Waste materials
5. Cow dung
6. Water
7. Gunny bags
8. Plastic net
9. Vermi worm

Important Species of Earthworms:-

Eisenia foetida,Eudrilus euginae, Perionyx excavatus,Lumbricus rubellus and P. arboricola

Procedure For Vermicomposting:-

1.. The compost can be prepared in concrete tank (size is depending upon the availability of raw materials e.g.1.5×1×0.75 m is convenient) could be used.
2. Collect and heap the weed biomass, or straw under sun for about 7-10 days or until well decomposed. Chop the hard materials required.
3. Sprinkle cow dung slurry on the heap for quick decompose
4. Place a thin layer of surface soil/sand (1-2 inch) at the bottom of the tank.
5. Place fine bedding material such as partially decomposed cow dung/dried leaves etc. over the soil or sand layer
6. Place the chopped bio-waste and partially decomposed cow dung layer-wise in the tank up to a depth of 0.5-1.0 ft.
7. Release about 1000-2000 worms/m 2 of any of the above earthworm species over the mixture.
8. Cover the compost mixture with dry straw or thatch or gunny bag.
9. Sprinkle water as and when necessary to maintain 70-80% moisture content.
10. Provide shade over the compost mixture to protect from rain water and direct sunshine.
11. Stop sprinkling of water when 80-98% bio waste is decomposed. Maturity could be judged visually by observing the formation of granular structure of the compost at the surface of the tank
12. Collect the vermicompost by scrapping layer-wise from the top of the tank and keep it under shade.
13. Sieve gently the vermicompost and pack it for further use or sale

How to know Vermicompst is Ready?

1.The Worms will crawl to upper layer of pit.
2.Colour of Compost turns black and became light in weight

Nutrient Status of Vermicompst:-

Sr.No	Particularls	Nutrient Content
1	Nitrogen %	1-1.60
2	Phosphorus%	0.50-5.04
3	Potassium %	0.80-1.50
4	Calcium %	0.44
5	Magnesium %	0.15
6	C/N Ratio	15.50

PHOTOGRAPHS:-


(Photo- Spreading straw and Cow dung in vermicompost unit at MES's College Of Agriculture,Sonai (MS) under the guidance of Prof.N.B.Murade and Prof.R.J.Gadakh)

Benefits Of Vermicompst Application:-

- ✓ 1.It improves soil physical characteristics like water holding capacity,Bulk density, Porosity,drainage etc
- ✓ 2.Earthworm casting contains many beneficial microorganisms like Azospirillium, Actinomycetes, and Phosphobacillus, which multiply faster through digestive system of earthworms.
- ✓ 3.Vermicompost also rich source of several enzymes, auxins and complex growth regulators like Gibberellines, which are beneficial for plant growth.
- ✓ 4.It is cheaper source of Nutrients and also easy to prepare for farmers at their field.
- ✓ 5.It improves the buffering capacity of soil.
- ✓ 6.It is harmless to soil microflora and fauna ,also doesn't cause harm to environment.

Conclusion:-

In India Farmers are rearing livestocks along with agricultural crops ,so availability of cow dung is not a limiting factor.Good quality vermicompost can be prepared by every farmer in their field with least cost and multiple benefits. For preparation of Vermicompst 45-60 days are required, No need of Special daily operations except watering so its convenient to every farmer.

Agriculture is facing with big task of minimizing the soil fertility & health Hazzard along with supply of enough amount of food for heavy population load. With use of such organic and eco-friendly inputs we can tackle the issue.

Reference - National Research Centre For Women In Agriculture (NRCWA),Bhubaneshwar,Orissa (ICAR) ,Technical Bulletin-3 ,entitled as VERMICULTURE BIOTECHNOLOGY FOR ECO-FRIENDLY AGRICULTURE-2004