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A Vermi Compost, as An Agribusiness, A Good Entrepreneurship is an Eco – Friendly Project

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ABSTRACT

Vermicompost, as an agribusines to venture it as women entrepreneurship. The creepy and crawly creatures of evolution, the friend of farmer serve as an animal of object for this, as a solid waste serve as a tool for the present study. The composition of vermicompost consists of 13 elements i.e., Nitrogen 1.5-2% Phosphates 1-2%, Potassium 1-2%, Calcium 1-3%, Magnesium 1-2%, Sulphur <1%, Zinc 200 ppm, Copper, Molybdenum, Iron, Boron, Chlorates & Silica. So nutrient rich soil as vermipost is an excellent organic fertilizer and soil conditioner as it contains water soluble nutrients too. Conversion of biodegradable solid waste matter by earthworms the Lamarch worm, into vermicast is known as vermitechnology. The nutrients in the organic matter contains more bioavailable forms of vermicast, hormones and enzymes which it acquires during the passage of organic matter through complete gutted animal. The hormones and enzymes are plant growth regulators, act as stimulants & help to discourage plant pathogens, and promote more yield and healthy produce. Vermicomposts are finely divided mature peat like material with a high porosity, aeration, drainage and water – holding capacity and microbial activity which are stabilized by interactions between earthworm and microorganisms. It can be used in any season of the year to any crop and for the cultivation of mushroom. It is a natural process of course as an industry which does not need electricity. Raw material like cow dung, dried leaves, coconut scrub and agro wastes are available in college campus in abundance. As a model in the college campus we have a pilot project as a square foot gardening, About 2500 species of earthworm, have been identified, more than 500 species are in India. Earthworms are categorized into epigeic, anegeic and endogeic species based on ecological and tropic function of soils. In the present study only these epigeic worms like Eisenia foefida and Eudrilus eugniea are largely used in converting organic wastes into vermicompost which are surface dwellers. They are capable of working hard on the litter layer and can convert all the organic waste into manure, they are of no significant value in modifying the structure of the soil. For the preparation of vermiwash (a good foliar spray) locally available earthworms like Perionyxexcavates and Lampitomauritii can be used. On organic farming there is no state or central sales tax. Income tax is also exempted for 10years. So less investment and good income provides employment to unemployed youth. 2 Tones of organic manure sold in Rs. 5000 to Rs 8,000/-, so from 100 Cows Rs. 1-10 Lakhs income can be generated. So money can be as a profit and prosperity will come to farmer and nation. This paper discusses on economic aspects indetailed and the project overall prospect.

KEYWORDS : Vermi compost Recycling, solid waste.

INTRODUCTION:

Aim:-

To improve soil condition and to restore the nutrient losses in the soil.

Obj:-

"Women self help groups have become financially independent".

The fast development of Science and Technology, which resulted in substantial benefits to humankind and also contributing significantly for the degradation of environment. The Green Revolution of India encouraged indiscriminate use of fertilizers. As a result tropical soils which are prone to nutrient loss are turning unproductive.Nowthere is a concern about sustaining productively rather than enjoying the high but short-lived yields and financial returns. The productivity status of the soil is showing the same downward trend.Lack of manure availability in required quantities is forcing farmers to look for different resources to build up the top soil.To protect the topsoil, to restore the sustainability of productive soils, and to rejuvenate and degraded soils are the major concerns at the international level. Minimizing the use of fertilizers and pesticides or herbicides brings down the level of air, water and soil pollution.

Vermitechnology has been proved worldwide to improve soil conditions and to restore the nutrient losses in the soil.The species most commonly used is Eisenia foetida. It is ubiquitous and can colonize any type of leaf lifter. They are tolerant to high temperatures and can be easily handlied due to its small size.African species:Often called tiger or red worm they do not require soil at all. Eudriluseuginea is another species native to Africa. It grows fast and is a prolific breeder.One advantage is that copulation is not mandatory for this worm species and red soil is commonly preferred.Vermicompost has 5 time more nitrogen, 7 times more phosphorus and 11 times more potassium.Vermiwash, the liquid manure collected after passing water through a column of vermicompost is found to be useful as foliar spray and can be used for raising nurseries and Orchids. The production of degradable organic waste and the problem of its disposal is a global problem.

It has become a people's movement and the farmer themselves are promoting organic farming. Intensive farming is the need of the hour, now we welcome organic and non-chemical farming like Vermicompost making. Globally the estimated quantity of wastes generation was 12 billion xcav in 2002, it was raised to 13-14 billion xcav in 2010-12 About 19 billiontonnes of solid wastes are expected to be generated annually by the year 2025 (yashizawn at all 2004). Presently in India about 1000 million tones above of solid waste is being generated annually as by – product during industrial, mining, municipal, agricultural and other processes. To safeguard the environment, efforts are bring made for recycling different wastes and utilize them in value added application.

Methodology:

The present study was carried out in our college campus located in Vijayawada, Krishna District to motivate students towards solid waste management and also to develop environmental consciousness. In 2007 UGC has given permission to take up project under CPE grant. Two vermicompost beds were raised of size 50 ft. length 3ft. width and 1ft. depth in our college campus and is being running successfully. The study was conducted from 2007-14 and giving training to students through certificate course. Each batch contains 30-40,the social economic status of the students were measured with the help of scale developed by Thakare (2004).

Performance of the student index= $\frac{\text{Sum of the obtained score}}{\text{total obtainable score}} \times 100$

Total No. of student participated = 300 students

Following Materials are required to start the Vermicompost.

1. Good vacant land with water facility
2. Good earthworm species (non-borrowing or epigeic species) like Eudrilus eugeniae, Eisenia foetida, Perionyx xcavates and Dichogaster curgensis.
3. Bio degradable waste materials eg, agricultural wastes, weeds, farm wastes and after harvest materials, rice husks, ricebran, castor & groundnut residues, oil cakes, sugarcane trash, coir waste, paper waste, paper pulp garden trash, kitchen (or) house hold wastes, hotel wastes, urban solid wastes, poultry wastes, fly ash

etc., can be used for vermicomposting.
4. Thatching material for shed (to protect from sunlight and rain drops) e.g., palm leaves, rice-straw, asbestors sheets, plastic or tarpeline cover with wire mesh.
5. Old gunny bags or rice straw lay (to cover the top of the vermicompost bed to protect from evaporation of moisture or to protect from predators.
6. Siever for compost (2 -3mm sieve mesh).

It is possible to make vermicompost directly on ground place 3 – 4" of fibrous material in the bottom straw, coconut scrap twigs and husk. Spread it out on the fibrous material and cover with dried cowdung (which has aged for atleast one month) or organic mulch

1. Worms start feeding slowly at temp 38^0 F or maxi 88^0 F
2. Life span of Eudrilus is 3 ½ to 10 ½ year.
3. These worms work for 24 hrs and voracious feeders.
4. Sexual maturity 85 to 150 days
5. First eleven segments synthesize the elements Ca, Na, Mg, Cv^{++}, Ir, Zn, Potash N_2 = 0.7 – 1.67, Protein 1.5 – 2.75

So crops grown on these soils are a consequently healthy and resistant to disease and pest. Vermicompost is an organic fertilizer which is completely natural and totally harmless (non toxic)

The chief objective of this technology is that individuals and women entrepreneurs should acquire awareness and knowledge, develop attitudes, acquire skills, abilities and participate in solving environmental citizen.Recognizing that students are future decision makers, though this training is envt-friendly.Which is definitely motivating them to gain skill for ascertaining sustainable development of agriculture.The major concern is that to protect the topsoil, to restore the sustainability of productive soils and to rejuvenate the degraded soils.

The idea could "Fundamentally alter the basic concept of agriculture. So that we can maintain sustaining productivity rather than enjoying the high and to get good yield and financial returns. A training programme was conducted in 2009 to motivate self helps groups and involve then to acquire revenue generation activities. So that they are growing vegetables organically. Recycling is usually a better alternative to either dumping or burning wastes. It saves money, energy, raw material and land space while also reducing pollution.

Nutrient contents of different organic manures

manure	nutrient	contents	%percentage
Vermicompost	Nitrogen 60	Phosphorus 2.20	Potash 0.07
FYM	0.80	0.41	0.67
Urban Compost	1.20	1.92	1.07
Rural Compost	1.22	1.08	1.20
Compost	2.90	2.05	0.90
Groundnut compost	1.60	1.04	1.26

ConStruction of Vermi bed:-

Vermicomposting is set up by initially placing abasal layer of vermibed comprising of broken bricks (3 – 4cm) followed by a layer of course sand to a total thickness of 6 – 7cm. to ensure proper drainage, a 15cm moist layer of loamy soil is added.

Raw material = Dried leaves, Coconut scrub, Cow dung are scattered in the pit covered with a 10cm layer of hay.

Dimensions of bed:-

50 ft long + 3 ft width and 1ft. height → 1 Ton compost Bed

No. of days I crop =90 days
II Crop =40 days } only 3 crops per annum
III Crop =30 days producing

* Water is sprayed till the entire set up is moist but not wet. The pit may then be covered with old jute bags to discover age predators. 40 – 60% relative humidity was maintained in the bed.

Capus Vermi Shed **Compost Sieving**


Students take up course in Vermi Compost technology

HANS INDIA

SCR celebrates Thinking Day

Press Relase

Economic aspects:

The eco-friendly project has made women financially independent Self help strategies come to the rescue in difficult times. Unless agricultural policies aim at making farmers, particularly women, financially self reliant, the nation cannot achieve its goal of sustainable food security – Prof. M.S. Swaminathan, MSSRF, Taramani, Chennai. The challenge especially becomes tougher with poor and marginal women farmers as increasing their income becomes a necessity in the absence of any adult male members in the family. Most of the residents (70% rural people) lived in a frugal life. Regular cyclone attacks destroyed their livelihood, livestock and shelter.

1. Vermicompost = Vegetablematter + animal matter and straw + cow dung/Horse dung.
2. Proprietor/Supplier = Mr. Krishna Rao MA LLB – Nuzvid/Krishna Dt., A.P.
3. 1kg of Earthworm appox(500 – 600 worms) costs = Rs.300/-
4. Compost with peat material contains cocoons. (each cocoon gives birth 2 – 4 babies)
5. 3 Ton Cowdung (1 – truck load) gives – 1 Ton compost
   2007 - 10) 1 Truck load costs – Rs.1,800/-
   2010 - 13) 1 Lorry load – Rs. 2000/- - 2,500/-
6. Marketing 1 Ton compost cost – 1,000/- (2007-09)
   2,000/- (2010 – 12)
   4000/- (2013 – 14)
   Income: 6 Tonne compost =6 x 4000/- = Rs. 24,000/- (1tonn cost 4000/-)
   Expenditure = 16,000 = 8000/-
   Profit = Rs. 8,000/-

Project Details

Name of the Project - Campus Manure Plant
Place - Maris Stella College Vijayawada
Annual capacity - 8 tonnes per annum
Name of the Product - Vermicompost
No.of working days - 300
No.of persons employed - 1
No.of cycles - 3 cycles per annum July to February

means of finance:

- Own Land
- Shed and Office
- Siever, Shovel for mixing, Cutter, Plastic Bags etc.,
- Own land
  Capital Expenditure

Working capital for one cycle
Raw material, Cow dung
Agricultural/Muncipal waste
- Each time investment of cowdung is necessary.
1 lorry load means 3 tonnes costs Rs.2500/-

Expenditure:

Cost of earthworms	-	1kg 300
Waste material	-	2 tonnes
Cowdung	-	1 truck load
Thatching material	-	Puccashed

Cost of Vermicompost:
- 1 kg of compost 20/-
1 tonn = 2000/-

Vermiculture or Vermicomposting is the erm given to the process fo conversion of biodegradable matter into the soil by the different species of earthworm into a darkness called Vermicast.

Here organic matters in the soil are party converted into more bloravailable forms.

Advantages of Vermicompost:-
1. Rich in micro flora like azosprulium/actimomycetes. Phosphobacillus multiply fast in the digestive system of earthworm.
2. Enzymes, auxins and growth regulators like gibberlins which have not been in different soil and environmental conditions, under which earthworms feed organic waste.
3. Earthworms cocoons multiply through vermiculture. Make it porous, improve water infilteration and moisture retention.
4. Soil P^H is neutralized by buffering action.
5. Vermicompost reduce the incidence of nematodes.
6. He does not need electricity.

CONCLUSION

Vermicomposting improves the physical structure of soil and enriches it with micro organisms and adding enzymes like phosphatase and Celluluse and hormon such as auxinsand gibberlic acid. Worm casting are 20 times higher than the soil. Definitely enhances germination plant growth and crop yield; improves root eration and structure of organic residuals can be recycled easily it provides an opportunity for employment. Composing and vermicompost offer good potential to turn waste material into a valuable soil amendment.