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PREMIUM



## **Sample Proposal for Demonstration & Transfer of Vermiculture Technology for Rural People**

## Project Summary

The introduction of the new hybrid varieties in intensive agriculture has forced farmers to use chemical fertilizers excessively in the last two decades. Deliberate and excessive use of chemical fertilizers disturbs the ecological balance of the soil due to the scarcity of manure. The availability of organic fertilizers is limited due to the dwindling resources of animal manure. The Earth is already on a slippery slope to ecological disaster with our soil levels lacking vital nutrients and reducing itself every year unless we put back into the earth, then what a way out. Due to less cultivable land and non-availability of fodder resources, it is becoming very difficult for farmers to raise animals only for manure.

It is estimated that the country requires about XXXX cores M.T. of organic manure but we could only produce only XXXX cores M.T. organic manure. Thus, it can be understood that the figures show there is a huge shortage of organic fertilizers in the. Therefore, it is imperative to find a suitable viable alternative to conventional manure. Vermicompost has proved to be a boon for the bioorganic-fertilizer industry in the country in recent years.

The project is an attempt to make best use of the local resources by user of user-friendly application, simple and cost-effective technology for production of Vermiculture. In Rural areas the huge mass of available crop residues waste, dry leaves of trees and plants, greens waste which is thrown away or burnt can readily be used along dung in appropriate proportion for production of Vermiculture.

Vermiculture is the practice of cultivating creepy crawlies in order to help them breakdown organic waste. The Vermicompost is a 100% organic fertilizer that is made up to worm casting also known as worm humus Vermicompost and partially decomposed matter. Vermicompost contains a highly active biological mixture of bacteria, enzyme partially decomposed matter and animal dung. The castings are rich in water soluble nutrients and contain more than 50% more humus than what is normally found in top soil as the organic matter move through the elementary canal of the earthworm a thin layer of oil deposited on the castings. The layer erodes over a period of 2 months.

The cocoons in Vermicompost contains eggs that hatch within two weeks means the process of decomposition are continued by the young one in the soil provided the soil is loose damp and rich enough in organic matter or the worms to stay alive. The process and the bacteria in the alimentary canal of earthworm transform organic waste to the natural fertilizers. The chemical changes that the organic waste undergoes include

deodorizing and neutralizing the PH of carbonic is neutral. Humus also buffers the soil reduce the detrimental effects of excessive acid or alkaline soil.

It also simulated plant growth, Control plant pathogens, harmful fungi nematodes and harmful bacteria. Humus the prominent aggregation of soil increases the articulation of the soil and soil permeability of water and air. This is one of the unique and innovative proposed project in xxxxx region. The project will be located in xxxxxx village of xxxxxxx in xxxxxxx District of xxxxx State.

The benefits of using Vermicompost can be enumerated as under:

- Vermicompost has the ability to fight against the plant disease.
- Improve the texture, structure and chemical composition of the solids as they burrow in search of foods.
- Provides plants nutrients in desired quantities and soluble forms.
- Vermicompost increases the yield capacity of soil to return.
- Reduces under requirements up to 40% under irrigated condition and ensures sufficient output in short rainfall under rained conditions.
- Improve quality of farm products increases nutrients contents.
- Very rich in macro-micro flora improves soil health. Microbial ability in worm.
- Easy to apply and can be applied at any stage of the crop.
- Reduces cost of production as it is economical and increases production.
- Reduces the acid forming carbon in the soil.

Earthworm excrete a highly nitrous fertilizer which contains five times the available nitrogen, seven times the available phosphorus, three times the exchange able magnesium, eleven times the available potash and 1.5 times the calcium found 6 inches of top soil.

The organization will work for dissemination of technology in Vermiculture production; through extend techniques principles and philosophies viz. Organization of demonstrations, training, workshop, seminar, meeting etc. with the principles of seeing is believing and doing is learning are the function of the organization.

By establishment of the center for production of the Vermiculture the crop residues unused or underused waste, plant – vegetable waste in the surroundings village of the project area will be purchased at the @ xx per Kg. The cost of the production of the Vermicompost would be xx as such the beneficiaries would get the cost / value to the thrown away or unused or under used crop waste. The yield of the crops would be

increased. It has been estimated that more than B.P.L. beneficiaries farmers) in the areas will be supplied xx Kg. Vermiculture to minimum xxxx hectares of land every year.

It is also estimated that more than xx enterprises would be set up convert low value crop waste and animal dung to produce very high quality soil conditions on farm fertility management is 100 hectares of land to each enough for him and will help increase the productivity by 30 – 35%. The consultancy services will also be extended by the trainer to the farmers in the district. Thus, this arrangement will create employment. The trust will organize five days training for the trainers. The batch of 10 participants, as trainers will be trained in each month. The demonstration will be given at site.

In the areas no efforts are made systematically to popularize or diffusion of the technology in Vermiculture by the State or Central Government, although giving more impetus for adoption of the technology through TSFs. The extensive extension educational efforts are required to diffuse and adopt and technology by the ultimate users. Realizing the importance of biotechnology in the present day context the organization is making all efforts to set up center of excellence of Vermiculture and Bio – pesticide, Bio – fertilizer, Bio – manure. The project is prepared after carrying out extensive survey regarding the requirements of the region the thrust areas of the center includes agriculture – animal – production – environment – health care development. The main objective is to conduct and co-ordinate basic and applied research to provide linkages and support for commercialization.

## **OBJECTIVES OF THE PROJECT**

The overall goal to improve the quality of life of the rural small, marginal farmer or BPL people through sustainable organic farming without depletion or erosion of local natural resource base.

### **Specific Objective:**

- To generate cost effective technology which will utilize the locally available human resources, local materials that are not currently used or under used or wrongly used.
- Conduct survey to prepare resource inventories and assesses requirements.
- Organic training in Vermicompost.
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- To generate awareness in the rural community in organic farming practices, which will conform productive benefit and help, conserve, protect and regenerate natural resources base and local ecology for sustainable use.
- To introduce economically important and agrochemical sustainable Vermicompost that has the potential higher economical return.
- Integration between government agencies, technical institutions working in the field of rural development through seminar, workshop, meetings etc.
- The long-term objectives would be:
- To achieve sustainability of natural resources through a combination of conservation protection and regeneration of practices and method.
- To create employment and income generation in the rural areas.
- To provide us development planners with more insight in the process of peoples participations for self-reliance.

### **Expected Project Output**

- Development of community based institutional mechanism to promote development and sustain efforts in organic farming system.
- Check of topsoil erosion, soil destruction and adverse effects of prolonged use of chemical fertilizer.
- Cost effective and highly nutritive crops.
- Promotion of multiple sources of income through diversified farming system.
- Make efforts for reliable, permanent and sustainable linkage between farmers field institutions for productive agriculture farming conforming rewards.
- Employment generations.
- Interaction between Government agencies technical institutions, and the NGOs.

### **Proposed activities and methodology:**

Vermiculture through the development of the proprietary equipments and processes effectively created a system that consistently and cost effectively stabilizes a large range of organic waste including cow dung. The critical elements of Vermiculture are: -

#### **The Worm:**

The earthworm species *Eudrilus* is widely used world over for the Vermicompost production. The worm can thrive well in the variable Indian climate because of the pointed end of the worm they can easily burrow in the soil crop plant waste they can

move forward or backward in the waste materials the body of the worm is cylindrical. The worm is of the fighting nature easily lives in the 10 degrees to 35-degree Celsius temperatures and 20 to 60% humidity. The weight of a worm is 1000 to 1500 mg life cycle is of 150 to 180 days. Worms start reproduction after 40 to 50 days of its birth. Worms give egg every after 2 days and continued for 4 to 6 weeks. They like to remain

in the darkened matured earthworm requires 1.5gm to 6gm. Feed in a day. Under the appropriate condition 40 to 50% moisture, 20 to 30°C temp. Within 2 months decomposable waste would be ready. This is estimated that the initial production level of 12 tones per month would require setting up of 30m X 1 mtr. bed requiring 30 Kg of worms.

### **Construction of the Shed:**

It is very much essential to control the environment of Vermiculture the worms are to be protected from the extreme temperature, (heat) rains, or cold. And has to create conducive atmosphere for growth. The height of the shed should be about 8, and half bricks wall with and freely aeration the shed should be semi – permanent. The roof of the shed should be of cement sheet or G.I. sheet. The length should be East – West in direction. The flooring should not stagnate water. The red ants & other insects should be avoided by using insecticides like Endosulphan, Chloropyrifos liquid, Nuvon etc. before construction of the flooring 3, layer of fine sand is given.

### **Setting up of the Beds:**

While preparing the bed the availability of local raw materials, water resources, labour etc, readily available. On the flooring the 2, fine sand layer is given the helps in keeping the bed moist. The earthworm on the eggs do not enter in the sand or through. This arrangement helps in releasing out the excessive water. The process of setting up evolves mixing of cow dung with half decomposed crop residue or plant leaf litter (NADEP PROCESS) moistening with water, and laying this feed material on the raised bed about width of 30 to 40 inches and 18 inches in height material should be arranged in dome shape this bed arrangements helps in taking out of the casting. The bed is covered by 4 – inch manure. Then the layer of worm is given.

Over the worm then again 4 – inch layer of manure is given. Again, it is covered with 12 – inch layer of mixture of waste and the cow dung decomposed material. The bed is covered with gunny bags. Gunny bags are required for preserving the necessary moisture level and also provided suitable environment for working of worm. It is also optimizing the environment the development of bacteria and fungi. The proportion of cow dung manure and farm waste should be 1:3.

The organic waste given to the worm is mostly the half decomposed one? However, adding 20% of 9 to 10 days old cow dung hasten the process of decomposition? The worm bed fully populated are fed across their entire surface on the deadly regime controlling the depth of feeding is critical to the process if too much is fed or if it is fed to

thickly worm there is potential for the material to compost or turn anaerobic. It is thus essential that the quantity feed match the daily quantity consumed by the worm.

Worms eat between one half and their own body weight per day. One of the major limitations with the worms form is the high potential for the formation of aerobic zones, which contaminate the material promoting pathogen re – growth. This is available raised bed designed which maximizes the airflow in to the and facilitated even distribution of the cow dung.

#### **Technical Process: -**

For starting Vermicompost project will be adopted in all sheds following procedure

Shed Size	5m x 20m	2 Nos.
Pit Size	5m x 15m	2 Nos.

1. First the daily cow dung + Farm waste will be dumped into the compost pit (NADEP process)
2. Above half decomposed material will be now utilize for Vermicompost production as per procedure given below.
  - In above mention shed we get 2 beds of size 1m x 28m.
  - Demarking of the area and moist it by watering.
  - Spreading of 2 feet layer of leaf litter, wheat strews or grass or crop waste and moist it with water again.
  - Spreading of 4 – 6 inch layer of half decomposed F.Y.M. and vermicompost again moist it.
  - Spreading 30kg Earthworm (*Esenia - fortida*) evenly on both beds.
  - Again spreading 2 – 4 inches layer or half decompose fym + Vermicompost.

- miming of cow dung with farm waste and keeping the ball of above material upto 12 inches.
- Covering the beds with gunny bag.

Regular watering by sprinkle irrigation system to keep the bed moist will be followed. After 2 months the compost will be ready for harvesting.

The worm will be on the top of the bed. The color of the Vermicompost would look like cooked tea powered, the indicates the Vermicompost is ready.

Then stop the watering at least for 1 to 2 days the worm will travel at the bottom of the bed and the compost can be easily removed manually. Only 5 to 7% worms may remain present in the Vermicompost. Maximum worm are available at the bottom of the bed, which can be again use for regeneration. As such in a year six cycles can be repeated in the same shed.

### **Status of Proposed Technology:**

Technology is already tested at the center and the full trials have already been undertaken. The Government under scheme TSF of the agriculture department has already established for center of Vermiculture at TSC in xxxxxx and some part of the xxxxxxxx. Various institute of Vermiculture production and reach at xxxxxx and xxxxxx etc, the production of Vermiculture on commercial basis is also being taken up. The effort are being made to popularize and commercialized the technology so that the farmers may adapt the technology on large scale with principle seeing is believing and doing is learning. The organization of training demonstration and production of Vermiculture are the activity of the center.

This project of Demonstration and Transfer of Vermiculture Technology will help to upgrade skill, knowledge and create confidence to start their entrepreneurship in Vermiculture production. The project will help to get self-employment by maximum utilization of rural crop/vegetable – horticulture waste and the cow dung, which readily available. Ultimately will increase the crop yield and minimize the use of chemical fertilizer. This technology is eco – friendly.

The farmer/beneficiaries can earn more than Rs. xxxxxx/- P.M. if farmers/beneficiaries starts production of Vermiculture in 1 M x 30 M beds. As such early 80 Tons of Vermiculture in 5 batches can be produced.

This activity will ultimately improve the socio-economic conditions of the beneficiaries.

### **Workforce available with the NGO:**

The organization already undertaking Agriculture and Animal Husbandry Technology Transfer Programme. Since last two years and giving demonstration to the rural farmers. To perform the tasks organization has already appointed following regular staff during.

1) Office Manger	-	1
2) Community Social Worker	-	2
3) Civil Engineer	-	1
4) Accountant	-	1
5) Computer Operator	-	1
6) Community Mobilizer	-	3
7) Vocational Skills Teacher	-	2
8) Multi-Tasking /support staff	-	2

### **Name of the Institution at which project will be carried out: -**

The project will be undertaken by the xxxxxxxxxxxx. The project site is xx Km away from xxxxxx. The project will be located at xxxxxx Village of xxxxxxxx Tahsil in xxxxxx District. The project area falls in a rural area of xxxxxx village. The village has been selected on the basis of availability of land, electricity, resources and excellent communication facilities, covering 5 villages around the site. The installed system consists of a central small worm farm at the site for training and demonstration purpose. The minimum temperature in the area is 80C and maximum up to 450C (Block profile and District profile is enclosed.)

### **Name of the other Institution involved in the project:**

The xxxxxxxxxxxxxxxx has agreed to co – operate and help in extending all their technical support in production of the Vermiculture. The letter form the secretary of the NGO is enclosed for the ready reference. The organization i.e xxxxxxxxxxxxxxxxxxxxxxxx is implementing the project in village xxxxxxxx of District xxxxxxxx, which has been  
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sanctioned by xxxxxxxxxx itself. The organization possess technically specialized staff and doing work on the production of Vermiculture on trial/demonstration basis and dissemination of transfer of technology work since xxxx – xxxx in xxxxxxxxxx specially in xxxxxxxx District of xxxxxxxx Region.

The Department of Agriculture, xxxxxxxxxx has also agreed to extend all their technical support in production and dissemination of technology in Vermiculture.

**Time Duration: Time schedule for each of the Project Activities**

Particular of Activities	Period Required
Creation of Infrastructure	Two Months
<b>Construction of Shed</b> Preparation of Compost Pits (Nadep process) Shade for Vermicompost Construction of beds Installation of Machines & Equipments Preparation of compost Procurement of raw material for compost (Crop Waste) Preparation of Compost	Two to three months
Installation of beds with row compost material and red earthworms 1 <sup>st</sup> installment of Vermicompost.	

Training in Vermiculture of the Beneficiaries	
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(Note: Appointment of staff will be made immediately after the issue of sanction and release of grant)

The technical Vermiculture Training – cum – Demonstration Programme will be undertaken under the strict advice of the experts in the field w.f. form xxxx.

### Staff Requirements:

The total requirement of manpower is estimated at 4 persons. Following are the details of categories of persons required by the society for smooth running of Vermicompost plant. Staff requirement in the project is proposed for 2 years. The salaries & allowance of staff are as per statement enclosed.

Sr. No.	Category	No. of Persons required
1	Agriculture Officer/Project Officer	1
2	Supervisor	1
3	Labour	2
<b>Total</b>		<b>4</b>

### Staff Expenditure:

Sr. No.	Items	Nos.	Monthly	Yearly Exp (In Lakhs)	Project Period (Two Years)
<b>A</b>	<b>Manpower Cost</b>				
	Agriculture officer	1			

	Supervisor	1			
	Labour	2			
<b>B</b>	<b>TA/DA &amp; POL</b>				
<b>Total (A + B)</b>					

### List of Equipment & Cost of Project: -

Details of the project requirements like viz. Semi-permanent Structure building, equipments, Material Supplies etc. with details is give in Annexure I

### Abstract of the Project Budget: -

<b>Sr. No.</b>	<b>Particulars</b>	<b>Amount</b>
1	Construction of Shed & Building	
2	Equipment, Furniture & Material	
3	Recurring Cost	
4	Staff Requirement	
5	Awareness Activities	
6	Training	
7	Construction of Shed of Beneficiaries & other Related Activities	
8	Administrative and overhead cost	
	<b>Grand Total</b>	

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