A REPORT ON VERMICOMPOST REPORT (2017-2018)

VERMICULTURE / VERMICOMPOST UNIT

Vermiculture means artificial rearing or cultivation of worms (Earthworms) and the technology is the scientific process of using them for the betterment of human beings. Vermicompost is the excreta of earthworm, which is rich in humus. Earthworms eat cow dung or farm yard manure along with other farm wastes and pass it through their body and in the process convert it into Vermicompost. The municipal wastes; non-toxic solid and liquid waste of the industries and household garbage's can also be converted into Vermicompost in the same manner. Earthworms not only convert garbage into valuable manure but keep the environment healthy. Conversion of garbage by earthworms into compost and the multiplication of earthworms are simple process and can be easily handled by the farmers.

Species of Earthworm-

Eudrilus eugeniae is a species of earthworm popular in India. Is also called as the African night crawler. Throughout its life cycle, **Eudrilus eugeniae** grow much more rapidly in suitable conditions environmental conditions.

Method of preparation of Vermicompost Large/community Scale

Vermicomposting Methodology

A thatched roof shed preferably open from all sides with unpaved floor is erected in East-West direction length wise to protect the site from direct sunlight. A shed area of 12'X12' is sufficient to accommodate three vermibed of 10'X3' each having 1' space in between for treatment of 9-12 quintals of waste in a cycle of 40-45 days. The length of shed can be increased/decreased depending upon the quantity of waste to be treated and availability of space. The height of thatched roof is kept at 8 feet from the centre and 6 feet from the sides. The base of the site is raised at least 6 inches above ground to protect it from flooding during the rains. The vermibed are laid over the raised ground as per the procedure given below.

The site marked for vermibeds on the raised ground is watered and a 4"-6" layer of any slowly biodegradable agricultural residue such as dried leaves/straw/sugarcane trash etc. is laid

over it after soaking with water. This is followed by 1" layer of Vermicompost or farm yard manure.

Earthworms are released on each vermibed at the following rates:

For treatment of cow dung/ agriwaste: 1.0 kg. Per.

For treatment of household garbage: 1.5 kg. Per.

The loaded waste is finally covered with a Jute Mat to protect earthworms from birds and insects. Water is sprinkled on the vermibed daily according to requirement and season to keep them moist. The waste is turned upside down fortnightly without disturbing the basal layer (vermibed).The appearance of black granular crumbly powder on top of vermibed indicate harvest stage of the compost. Watering is stopped for at least 5 days at this stage. The earthworms go down and the compost is collected from the top without disturbing the lower layers (vermibed). The first lot of Vermicompost is ready for harvesting after 2-2 ½ months and the subsequent lots can be harvested after every 6 weeks of loading. The vermibed is loaded for the next treatment cycle.

Multiplication of worms in large scale

Prepare a mixture of cow dung and dried leaves in 1:1 proportion. Release earthworm 50 numbers/10 kg. Of mixture and mix dried grass/leaves or husk and keep it in shade. Sprinkle water over it time to time to maintain moisture level. By this process, earthworms multiply 300 times within one to two months. These earthworms can be used to prepare Vermicompost.

Advantages of Vermicomposting

- Vermicompost is an ecofriendly natural fertilizer prepared from biodegradable organic wastes and is free from chemical inputs.
- It does not have any adverse effect on soil, plant and environment.
- It improves soil aeration, texture and tilth thereby reducing soil compaction.
- It improves water retention capacity of soil because of its high organic matter content.
- It promotes better root growth and nutrient absorption.
- It improves nutrient status of soil-both macro-nutrients and micro-nutrients.

Precautions

- Vermicompost pit should be protected from direct sun light.
- To maintain moisture level, spray water on the pit as an when required.
- Protect the worms from ant, rat and bird

Nutrient Profile of Vermicompost and Farm Yard Manure

Nutrient	Vermicompost	Farm Yard Manure
N(%)	1.6	0.5
PO(%)	0.7	0.2
KO(%)	0.8	0.5
Ca(%)	0.5	0.9
Mg(%)	0.2	0.2
Fe(ppm)	175.0	146.5
Mn (ppm)	96.5	69.0
Zn(ppm)	24.5	14.5
Cu(ppm)	5.0	2.8
C:N ratio	15.5	31.3

Students and Farmers benifited in Academic Year- 2017-18

Number of Students benefited	Number farmers benefited
219	45

Padmashri Vikhe Patil College Pravaranagar

Vermicompost Unit

Padmashri Vikhe Patil College of Arts, Science and Commerce, Pravaranagar

A Report on Soil and Water Analysis

(2013-14 to 2017-18)

To ensure the sustainability for long term basis, it is necessary to manage and proper planning of natural sources like soil and water. There has been continuous deterioration of soil and water due to lack of planning, improper crop pattern, over use of chemical fertilizers, herbicide, pesticide and other hazardous agrochemicals. Now a day, it is essential to inculcate awareness among the farmers regarding conservation of soil and water as a remedial activity to improve food potency and to minimize health problems.

Department of Chemistry in collaboration with **Krishi Vigyan Kendra, Babhaleshwar** runs a consultancy service 'Soil and Water Analysis for native villagers. The main objective behind starting the consultancy service was that the most of the students and stakeholder belongs to the family with agricultural background. The farmers in rural area are not aware about the micronutrient level of soil and water utilized for agriculture purpose. By the use of excess fertilizers, insecticides and pesticides, the fertility of soils is reduced as a result of this the productivity is also declined. The decrease in annual crop yield weaken the farmers as economic point of view and also insufficient for the country like India which has increasing trend in population.

In order to aware the native villager farmers about the quality of soil and water used, , the Department of Chemistry was conducted Soil and Water analysis activity. And through which the parameters like pH, EC, Salinity, dissolve oxygen, TDS etc. were verified. The faculty members explained the parameters and guided the farmers. Student from chemistry department helps in consultancy service by providing their own soil and water sample from their farm.

The department organizes visits to KVK, Babhleshwar. The faculty members and students interact with the faculties of Department of Soil and Water Analysis KVK, Babhaleshwar and share the information regarding Soil and Water Analysis as consultancy service.


As a part of sustainable development of rural population, Savitribai Phule Pune University had adopted a village 'Kokangaon' from Sangamner tahasil for conducting and implementation of various schemes through National Service Scheme. NSS volunteer of our college had participated solely in this programme and decided to conduct activities like soil and water analysis, selection of assured and high yielding crop pattern and awareness of organic farming and use of bio-agrochemical.


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In a preliminary assessment study, we have collected soil and water from seven selected sites of Kokangaon area in order to get an idea about average parameters. The samples were collected and sampling was done as per scientific methods and tested in Department of Chemistry, PVP College, Pravaranagar.

The **Soil Health Card** (**SHC**) scheme has been started by Government of India under the 'Ministry of Agriculture and Farmers' Welfare. All over India, it has been planned to implement through the Agriculture Department of all the State.

As per policy of 'Ministry of Agriculture & Farmers welfare, Government of India', a '**Soil Health Card**' is used to assess the current status of soil health all the State and Union Territory Governments. The main aim of this scheme is to determine the changes in soil health influenced by land management. SHC displays soil health indicators which are mainly

based on the practical experience of farmers and knowledge of local natural resources available.

As a part of Soil Health Card Scheme of Government of India, Department of chemistry in connection with Pravara Phale Bhajeepala Cooperative Society, Loni has been effectively involved in the analysis of soil samples from different villages of Rahata Tahasil. Nearly, 3000 soil samples from 24 villages were analyzed. Ten students from Department of Chemistry and four faculty members of the department were monitored the scheme.

Head
Department of Chemistry
Padmashri Vikhe Patil College Pravaranagar

Year wise List of Beneficiaries

2013-14

Sr. No	Name of the Beneficiaries	Address	Soil of Water Sample	Remark
1.	Shri Londhe Chandrbhan Sukhdeo	A/P- Kolhar Kd, Tal- Rahuri	Soil Smaple	**Report Delivered**
2.	Shri. Lokhande Pandurang Kisan	A/P- Rampur, Tal- Rahuri	Soil Sample	**Report Delivered**
3.	Shri. Dattatraya Sarangdhar	AP- Adgaon Bk, Tal- Rahata, Dist- Ahmednagar	Water Sample	**Report Delivered**
4.	Shri. Sakharam Tukaram Anarthe	A/P- Hasanapur, Tal- Rahata, Dist- Ahmednagar	Water Sample	**Report Delivered**
5.	Shri. Dhondiba Vithoba Pulate	A/P- Durgapur, Tal- Rahata, Dist- Ahmednagar	Water Sample	**Report Delivered**

2014-15

Sr. No	Name of the Beneficiaries	Address	Soil of Water Sample	Remark
1.	Shri Shirsath Dilip Sukhdeo	Shirsath Wasti, A/P- Kolhar Kd, Tal- Rahuri	Soil Smaple	**Report Delivered**
2.	Shri. Gawade Vishwanath Digambar	A/P- Hanmantagaon, Tal- Rahata	Soil Sample	**Report Delivered**
3.	Shri. Shivaji Vithoba Pulate	A/P- Durgapur, Tal- Rahata, Dist- Ahmednagar	Soil Sample	**Report Delivered**
4.	Shri. Dattatraya Bajrang Aher	A/p- Pimpri Nirmal, Tal- Rahata, Dist Ahmednagar	Water Sample	**Report Delivered**
5.	Shri. Kacheshwar Damodhar Kharde	A/P- Kolhar Bhagwatipur, Tal- Rahata	Water Sample	**Report Delivered**

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Department of Chemistry
Padmashri Vikhe Patil College Pravaranagar

2015-16

Soil and Water Analysis Programme conducted at Kokangaon, Tal-Sangamner, Dist- Ahmednagar.

(Adopted Village by SPPU, Pune)

Total seven soil and water samples from different sites of Kokangaon were analyzed and reports submitted to concern institute (Sangamner College, Sangamner).

Table 1.Average physico-chemical parameters for the ground water from different sites of Kokangaon.

Sr. No.	Parameters	Site-I	Site-II	Site-III	Site-VI	Site-V	Site-VI	Site-VII
1.	pH	7.75	8.17	8.15	8.04	8.14	7.98	8.25
2.	EC (Electrical Conductivity)	0.19	0.27	0.22	0.17	0.20	0.18	0.25
3.	TDS (Total Dissolved Solids) in ppt	0.4	0.6	0.34	0.44	1.2	0.63	0.50
4.	DO in (Dissolve Oxygen) in ppm	3.9	2.6	3.4	4.0	2.2	3.3	2.4

Table 2. Average Physico chemical parameters of soils from different sites of Kokangaon.

Sr. No.	Parameters	Site-I	Site-II	Site-III	Site-VI	Site-V	Site-VI	Site-VII
1.	pH	7.24	8.13	8.23	8.31	8.29	8.40	8.40
2.	EC (Electrical Conductivity)	1.2	1.9	2.1	1.8	1.6	2.2	1.5
3.	$CaCO_3$ %	7.4	5.2	7.0	9.3	6.2	8.0	5.1
4.	Nitrogen	175	244	280	210	272	190	170

2016-17

Sr. No	Name of the Beneficiaries	Address	Soil of Water Sample	Remark
1.	Shri Gholap Satish Kerunath	A/P- Hanmantagaon, Tal- Rahata	Soil Sample	**Report Delivered**
2.	Shri. Shinde Ashok Karbhari	Anapwadi, Tal- Rahuri, Dist Ahmednagar	Soil Sample	**Report Delivered**
3.	Shri. Gholap Nanasaheb Macchindra	A/P- Pathare Bk, tal- Rahata Dist- Ahmednagar	Soil Sample	**Report Delivered**

Head
Department of Chemistry
Padmashri Vikhe Patil College Pravaranagar

2017-18

Sr. No	Place of Soil Samples Collected	Total Number of Samples Analyzed	Water/Soil Sample	Remark
1.	Pimpri Lokai, Tal- Rahata	55	Soil	**Report submitted to PFBS**
2.	Gogalgaon, Tal- Rahata	83	Soil	**Report submitted to PFBS**
3.	Adgaon Bk, Tal- Rahata	115	Soil	**Report submitted to PFBS**
4.	Adgaon Kd. , Tal- Rahata	45	Soil	**Report submitted to PFBS**
5.	Khadkewake, Tal- Rahata	65	Soil	**Report submitted to PFBS**
6.	Chandrapur, Tal- Rahata	36	Soil	**Report submitted to PFBS**
7.	Walki, Tal- Rahata	14	Soil	**Report submitted to PFBS**
8.	Kelvad Bk, Tal- Rahata	214	Soil	**Report submitted to PFBS**
9.	Kelvad Kd. , Tal- Rahata	128	Soil	**Report submitted to PFBS**
10.	Pimpri Nirmal, Tal- Rahata	198	Soil	**Report submitted to PFBS**
11.	Nandurkhi, Tal- Rahata	31	Soil	**Report submitted to PFBS**
12.	Sasnapur, Tal- Rahata	115	Soil	**Report submitted to PFBS**
13.	Durgapur, Tal- Rahata	154	Soil	**Report submitted to PFBS**
14.	Dadh Bk. , Tal- Rahata	269	Soil	**Report submitted to PFBS**
15.	Savli Viheer, Tal- Rahata	64	Soil	**Report submitted to PFBS**
16.	Na.Pa Wadi, Tal- Rahata	119	Soil	**Report submitted to PFBS**
17.	Rastapur, Tal- Rahata	115	Soil	**Report submitted to PFBS**
18.	Astagaon, Tal- Rahata	277	Soil	**Report submitted to PFBS**
19.	Nandurkhi, Tal- Rahata	154	Soil	**Report submitted to PFBS**
20.	Dahegaon, Tal- Rahata	133	Soil	**Report submitted to PFBS**
21.	Pimpalwadi, Tal- Rahata	128	Soil	**Report submitted to PFBS**
22.	Dorhale, Tal- Rahata	89	Soil	**Report submitted to PFBS**
23.	Pimplas, Tal- Rahata	149	Soil	**Report submitted to PFBS**
24.	Korhale , Tal- Rahata	330	Soil	**Report submitted to PFBS**

Head

Head
Department of Chemistry
Padmashri Vikhe Patil College Pravaranagar

Padmashri Vikhe Patil College of Arts, Science and Commerce, Pravaranagar

DEPARTMENT OF CHEMISTRY

Consultancy Service for nearby Villagers

'Soil and Water Analysis' To ensure the sustainability for long term basis, it is necessary to manage and proper planning of natural sources like soil and water. There has been continuous deterioration of soil and water due to lack of planning, improper crop pattern, over use of chemical fertilizers, herbicide, pesticide and other hazardous agrochemicals. Now a day, it is essential to inculcate awareness among the farmers regarding conservation of soil and water as a remedial activity to improve food potency and to minimize health problems.

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Padmashri Vikhe Patil College Pravaranagar

"Swasth Dharaa... Khet Haraa..." - Healthy Earth. Green Farm.

DEPARTMENT OF CHEMISTRY
SOIL HEALTH CARD

The **Soil Health Card (SHC)** scheme has been started by Government of India under the 'Ministry of Agriculture and Farmers' Welfare. All over India, it has been planned to implement through the Agriculture Department of all the State.

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The main aim of this scheme is to determine the changes in soil health influenced by land management. SHC displays soil health indicators which are mainly based on the practical experience of farmers and knowledge of local natural resources available.

Key Features of Soil Heath Card

As stated by Ministry of Agriculture & Farmers welfare **Soil Heath Card** have following features

- To cover as many as all farmers under the scheme.
- It will cover all the parts of the country.
- In the form of soil card, the farmers will get a report. and this report will contain all the details about the soil of their particular farm.
- A farm will get the soil card once in every 3 years.

Advantages of SHC to farmers

- Soil Health Card Scheme is beneficial scheme for farmers in India.
- It is will useful to select crop pattern in order to get maximum yield by knowing quality and the type of the soil.
- It is also useful to improve the micronutrients level of the soil.
- The determination of soil health indicators from technical specialists helps to improve the crop benefits.
- The scheme will provides a formatted report by analysis helps to decide which crops should be cultivate.

"Swasth Dharaa… Khet Haraa..." - Healthy Earth. Green Farm.

- The soil will monitor by technical authorities regularly i.e. once in every 3 years and reports will provide to farmers. Hence, the farmers get idea about changes in the soil parameters.
- It will help to get a proper soil health record for the soil management practices.
- This will give the clear cut idea nutrient deficiency of the soil to farmers.
- The main aim of SHC is to find out particular soil type and improve in it.

Soil Health Card determines the soil status with respect to 12 parameters, namely N, P, K (Macro-nutrients); S (Secondary- nutrient); Zn, Fe, Cu, Mn, Bo (Micro - nutrients); and pH, EC, OC (Physical parameters).

The list of the parameters stated for analysis

Sr.No.	Parameter	Test Value	Unit	Rating
1.	pH			
2.	Electrical Conductance(EC)			
3.	Organic Carbon (OC)			
4.	Available Nitrogen (N)			
5.	Available Phosphorus (P)			
6.	Available Potassium (K)			
7.	Available Sulphur (S)			
8.	Available Zinc (Zn)			
9.	Available Boron (B)			
10.	Available Iron (Fe)			
11.	Available Manganese (Mn)			
12.	Available Copper (Cu)			

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List of the Students

Sr.No	Name of the Students	Class
1.	Mr. Varpe Shubham	M.Sc-I
2.	Mr. Bhange Akshay	M.Sc-I
3.	Mr. Tarle Satish	M.Sc-I

4.	Mr. Jarange Pramod	M.Sc-I
5.	Mr. Kolse Avinash	M.Sc-I
6.	Mr. Meghale Nitin	M.Sc-I
7.	Mr. Kakade Vaibhav	M.Sc-I
8.	Mr. Somwanshi Abhijeet	M.Sc-II
9.	Mr. Gholap Akash	M.Sc-II
10.	Mr. Changude Vaibhav	M.Sc-I

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