

Date: 17/10/2019

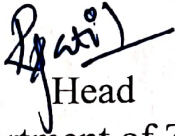
To,
The Principal
Karnatak Arts, Science and Commerce College, Bidar

Sub: Request to grant permission to start add-on course on
VERMICOMPOSTING for the academic year:-2019-2020: Reg.


Respected Sir,

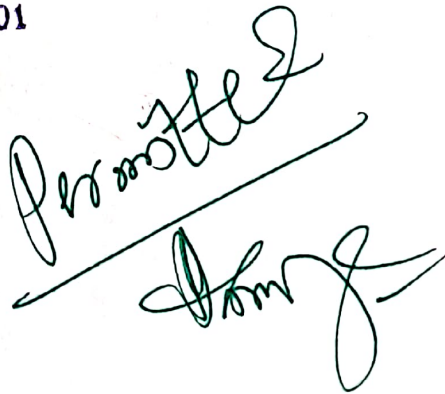
As per the guidelines issued by IQAC, we would like to start the add-on course on "VERMICOMPOSTING" from the academic year: 2019-2020, with intake of 20 students. Please permit us to start the add-on course and do the needful.

Thanking You.


Head

Department of Zoology
HEAD
Department of Zoology
Karnatak Arts Sci. & Commerce Colle
BIDAR-585401


Principal
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Karnatak Arts Sci & Com. College
B I U A R - 585 401


Permitted



Karnatak Arts, Science & Commerce College, Bidar

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Department of ZOOLOGY

Date: 25/10/2019

BOARD OF STUDIES MEETING

Board of Studies meeting of the Department of Zoology was conducted on 25-10-2019 at 12.00 pm in the UG and PG Course, Department of Zoology Karnataka College, Bidar.

AGENDA:

Innovations in the course:

Certificate courses can be started, appreciations courses to enhance student participation.

1. Interested students should be select.
2. Discussion about Title of certificate course.
3. Syllabus setting about theory and practical of add on course.
4. Credits/Evaluation.

External Member Board of Studies Zoology:

Dr. V.M.Channashetty, H.O.D. Dept.Of Zoology, B.V.Bhoomaraddy College, Bidar.

Members Present:

1. Dr. V.M.Channashetty

2. Dr. M.S.Reddy

3. Miss.Renuka Swamy

4. Dr.Ranibai M

RESOLUTIONS:

The common Board consisting of the above members have met in the UG and PG Course, Department of Zoology, Karnataka College Bidar, and considered the enclosed agenda. After deliberations and discussions, the Board members have resolved the following:

1. For.M.Sc.Post Graduate Zoology students have one of the add on course, those who have interested this course they should apply for admission in "VERMICOMPOSTING" Certificate course.
2. The members formulated the syllabus for Certificate Course "VERMICOMPOSTING", this is about 2- Months program.
3. The syllabus for practicals of the above certificate course was formulated on par with syllabus model of vermicompost subject.
4. There should be 2 hours per week for theory paper and 2 hrs. For each practical.
5. Marks and credits are allotted to theory and practical papers in each semester.


HQD

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**K.R.E. Society's
KARNATAK ARTS, SCIENCE & COMMERCE COLLEGE, BIDAR
Department of Zoology**

**Certificate course: Vermicompost Technology
(Scheme of teaching & examination)
(Effective from the Academic year: 2019-2020)**

Theory course VT-1

THEORY:	30h
UNIT-I	06h
1. General: Introduction to vermiculture, definition, meaning, economic importance, and their values in maintenance of soil structure role as four's of recycling, redeem, recycled & restore.	
2. Choosing the right worm, Useful species of earthworms. Local species of earthworms. Exotic species of earthworms.	
UNIT-II	10h
3. Small scale earthworm farming for home gardens. a) Earthworm compost for home gardens.	
4. Conventional commercial composting. a) earthworm composting in larger scale.	
5. Earthworm farming (vermiculture), extraction(harvest), vermicomposting harvest & processing	
6. Nutritional composition of vermicompost for plants, comparison with other fertilizers.	
7. Vermiwash collection, composition & use.	
UNIT-III	10h
8. Key to identify the species of earthworms.	
9. Biology of <i>Endrilus engeniae</i> .	
10. Biology of <i>Eisenia fetida</i> . a) Taxonomy anatomy, physiology and reproduction of <i>Endrilidae</i> a) Taxonomy, Anatomy, Physiology & Reproduction of <i>Lumbricidae</i> .	

b) Vital cycle of *Eisenia fetida*: alimentation, fecundity, annual reproducer potential & limit factors(gases, diet, humidity, temperature,pH, light & climatic factors).

UNIT-IV

04h

11. Considerations about economical aspects of this activity: Research & ratability according to different exploitation orientations. Complementary activities of anti evaluation.


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PRACTICAL COURSE- VT-02

UNIT-V PRACTICAL

	18h
1. Key to identify different types of earthworms	1h
2. Field trip collection of native earthworm & their identification.	2h
3. Study of systematic position, habits, habitat & external character of Eisenia fetida	2h
4. Study of life stages & development of Eisenia fetida	1h
5. Study of life stages & development of Eudrilus eugeniae	1h
6. Study of vermiculture, vermiwash & vermicompost equipments, devices.	1h
7. Preparation Vermibeds, maintenance of vermicompost & climatic conditions	2h
8. Harvesting, packaging, transport & storage of vermicomposting & separation of life stages.	2h
9. Study of verms diseases & enemies.	2h
10. Study the effects of vermicompost & vermiwash on any two short duration crop plants.	2h
11. Study the effect of sewage water on development of worms.	2h


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Academic Year - 2019-2020



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Department of Zoology:

CERTIFICATE COURSE IN VERICOMPOST TECHNOLOGY:

PREAMBLE

Vermicomposting truly is nature's great disappearing act! Aristotle once said, "Worms are the Intestines of the Earth". Using worms to convert decomposing food waste into nutrient-rich fertilizer is simple, inexpensive, energy efficient, and a great way to teach students to become life-long recyclers.

Vermicomposting technology is known throughout the world, albeit in limited areas. It may be considered a widely spread, though not necessarily popular technology. As a process for handling organic residuals, it represents an alternative approach in waste management, in as much as the material is neither land filled nor burned but is considered a resource that may be recycled. In this sense, vermicomposting is compatible with sound environmental principles that value conservation of resources and sustainable practices.

Vermicomposting is akin to composting in that similar feedstock-organic residuals -are used. Both systems utilize microbial activity to break down organic matter in the moist, aerobic environment. Vermicomposting is however faster, produces fewer odors and produces a superior product. But vermicomposting requires greater surface area, more moisture, and is susceptible to heat, high salt levels, high ammonia levels, and substances that may be toxic to earthworms. Of the 4400 identified earthworm species, specific species of litter dwelling earthworms are required for this purpose.

Vermicomposting in developing countries could prove to be useful in many instances. Where accumulation of food wastes, paper, cardboard, agriculture waste, manures and biosolids is problematic, composting and vermicomposting offer potential to turn waste material into a valuable soil amendment. In the past ten years an organization in India has promoted over 3,000 farmers and institutions to switch from conventional chemicals to the organic fertilizer, vermicompost. Vermiculture enables any scale or size of operation.

Vermicompost is being used in over 1, 00,000 hectare cultivated area in almost all agro-climatic zones in India. Noted for its ability to increase organic matter and trace minerals in soil, vermiculture has been the primary focus at Maharashtra Agricultural Bioteks in India, an organization that has initiated both commercial and educational ventures to promote



vermiculture. In 1985, Maharashtra Agricultural Bioteks was formed and established a small plant to manufacture vermicompost from agricultural waste. Those involved believed that a successful commercial venture based on regenerative principles might convince others to adapt sustainable practices. The organization currently produces 5,000 tons of vermicompost annually. Its real achievement, however, has been in raising awareness among farmers, researchers and policy makers in India about regenerative food production methods. The group is directly responsible for 2,000 farmers and horticulturalists adopting vermicomposting. These converts have begun secondary dissemination of the principles they were taught. In 1991-1992, Maharashtra Bioteks and the India Department of Science And Technology promoted the adoption of vermicompost technology in 13 states in India.

The duration of courses ranges from 10 days to 03 months. The Department of Zoology running this course.


Aims& Objective:


Students will be able to compost in a limited space and describe the decomposing process.

- ❖ The interested students will get the knowledge of composting, Students will get the employment, they can generate employments,.
- ❖ They will also turn towards organic farming, Will help to maintain the environment pollution free and will get the knowledge of biodiversity of local earthworms.
- ❖ The detail of the course is as follows: Focus: To convert unwanted, organic matter, particularly food scraps and paper into fertile soil.

Advantage of the Course & Future Prospects:

- ❖ Students can construct their own compost farm & thereby can get monthly income of Rs. 7000-8000.
- ❖ Students/ farmers by using vermicompost in their field can increase the crop yield. Students residing in cities can produce vermicompost in small scale for garden/household plants.
- ❖ They can get the jobs in educational institutes as vermicompost/vermiculture technician.
- ❖
- ❖ The candidate can generate income by supplying verms & vermicompost.
- ❖ .By developing & propagating vermicompost technology he/she will directly or indirectly help to prevent environmental pollution, by using vermicompost in the field & thereby increasing crop yield he will help to solve food problems.
- ❖ . It will lead towards organic farming & healthy food.
- ❖ . In today's world, recycling of garbage has become necessary in order to sustain our health and environment. **So let's join for Four R's of Recycling Reduce, Reuse, Recycle, Restore i.e. certificate course in Vermicompost.**


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Department of ZOOLOGY

Date: 20/11/2019

NOTICE

All the students are hereby informed that, the Department of **ZOOLOGY** is starting the add-on course on Vermicomposting from the Date: 20/11/2019, interested students can enrol their names on or before 30/11/2019, in the Department of Zoology.


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ADMISSION FORM

Certificate/Value added/Skill Development/Diploma/Advance Diploma Courses
&
IAS/IPS/NET/SET Coaching Classes

Name of the Department B.Sc Zoology. Year 2019-20

Name of the Student Amaragonda

Father's/Guardian's Name Chandragonda

Date of Birth
Date:

0	1
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 Month:

0	6
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 Year:

1	9	9	9
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Address for Correspondence :

A.T. Post. Yangonda (Pin. Code- 584326)
Tq. II. Aurad (B)
Dist II. Bidar

Semester/Class : Vth Sem (BZ)

Register No : 91863013

Percentage of previous semester : 76%

Contact No : 9901336719

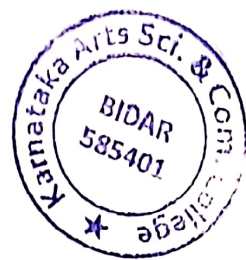
E-Mail ID : Amaragonda99@gmail.com

Course to be Joined: Training course in Vermiculture

Amaragonda
Signature of the Student

[Signature]
HOD/Coordinator

Kalyana
Principal
Karnatak Arts Science &
Commerce College, BIDAR



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Certificate course Time Table for the academic year: 2019- 2020
Department: Zoology (UG)
(With effect from 15/12/2019)

Period/ Days	08am to 9am	09am to 10am	11am to 02pm
Sunday	Theory (Renuka Swamy)	Theory (Dr. Ranibai Patil)	Practical (Renuka Swamy/ Dr. Ranibai Patil)

HOD
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Karnatak Arts Sci. & Commerce College
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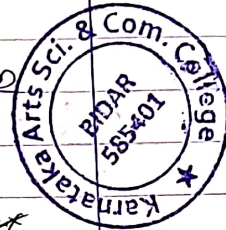
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Student Enrollment List 2019-2020

Sl. No.	Reg. No.	Name of the Student	Sign.
01	91863068	Manju S. Vijaykumar	
02	91863059	Mallikarjun S. Hanumanth	
03	91863013	Amargonda S. Chandargonda	
04	91862953	Nandakumar A. A. Achale	
05	91862902	Sandeep S. Shivraj	
06	91863024	Sunil S. Ambaji	
07	91862949	Sarvesh S. Mallikarjun	
08	91862952	Anush S. Sanjeev Kumar	
09	1862932	Habsh S. S. H. H. H.	
10	1863005	Monica D. Christada	
11	1863069	Heeba Ayesha Khanam	
12	1862987	Rashmi D. Manikappa	
13	1863128	Archana D. Ramesh	
14	91862999	Apoorva P. Subhash	
15	1863001	Evangelinestani D. Maenti	
16	1863026	manikeshwari D. Bhucmrao	
17	1863098	Deepika D. Jaihind	
18	1862981	Sushma D. Basavaraj	
19	1862918	Bharani D. Anantumar	
20	1862936	Kaveri D. Peerappa	



Approved

Date : 23/2/2020

Total Vermicompost taken out : 300 Kg. from two pots

The above Compost given to the department of Botany.

Kalyana
PRINCIPAL
Karnatak Arts Science & Commerce College, BIDAR

Received Compost
23.2.20

23/2/20



Sl.no.	Reg.no.	Name of the Student	Sign.
01	91863068	Manju S. Vijaykumar	<u>Manju</u>
02	91863059	Mallikarjun S. Hanumanth	<u>(Mallikarjun)</u>
03	91863013	Amargonda S. Chandelgonda	<u>Amargonda</u>
04	91862953	Nandakumar A. A. Acharya	<u>Nandakumar</u>
05	91862902	Sandeep S. Shivraj	<u>Sandeep</u>
06	91863024	Sunil S. Ambaji	<u>Sunil</u>
07	91862949	Sarvesh S. Mallikarjun	<u>Sarvesh</u>
08	91862952	Avinash S. Sanjeev Kumar	<u>Avinash</u>
09	1862932	Hrish S. Shivaram	<u>Hrish</u>
10	1863005	Monica D. Christadas	<u>Monica</u>
11	1863069	Heeba Ayesha Khanam	<u>Heeba</u>
12	1862987	Rashmi D. Manikappa	<u>Rashmi</u>
13	1863128	Archana D. Ramesh	<u>Archana</u>
14	91862999	Apoorva D. Subhash	<u>Apoorva</u>
15	1863001	Evangelinexani D. Maenti	<u>Evangelinexani</u>
16	1863026	Manikeshwari D. Bhoomrao	<u>Manikeshwari</u>
17	1863098	Deepika D. Jaishind	<u>Deepika</u>
18	1862981	Sushma D. Basavaraj	<u>Sushma</u>
19	1862918	Bhavani D. Anurag	<u>Bhavani</u>
20	1862936	Kaveri D. Peerappa	<u>Kaveri</u>

Date 023/2/2020

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The above compost given to the department of Botany.

Kalyana

PRINCIPAL
Department of Science

Principal

23/2/20



Karnatak Arts, Science & Commerce College, Bidar

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Department of ZOOLOGY



Date: 22/01/2020

NOTICE

All the students enrolled in add-on course on **Vermicomposting**, are hereby informed that, the course examination is scheduled on **25/01/2020**.,

At 10.0 am to 11.0 am, without fail.


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Answer the following questions briefly

1. What is Vermicomposting?

2. What are the steps of Vermicomposting?

3. What are the types of Vermicomposting?

4. What are the advantages of Vermicomposting?

5. How can we make Vermicompost at home?

Practical Question Paper

Marks - 25

Answer the following questions

1) What type of soil should we use for Vermicomposting?

2) How do we maintain the worms in the winter?

3) What type of container should we use for Vermicomposting?

4) How do we set up a Vermicomposting container?

5) What should we feed the worms?
What should we avoid adding to the Vermicomposting?

1) Which type of worms used for vermicompost?

2) How to maintain the worm in winter?

3) How to harvest the compost and worm casting?

4) What nutrients are used in vermicompost?

5) Which type of waste cannot be used for vermicompost?

1) Vermicomposting is the process of turning organic debris into worm casting. The worm castings are very important to the fertility of soil. The casting contains high amount of nitrogen, potassium, phosphorus, calcium and Magnesium.

Several researchers have demonstrated that calcium casting have excellent aeration, porosity, structure drainage and moisture holding capacity. The content of the earthworm casting, along with the natural tillage the earthworm burrowing action, enhances the permeability of water in the soil.

Vermicomposting or using earthworms to convert waste into soil additions, has been done on a relatively small scale for some time. A recommended rate of vermicompost application is 15-12%. Vermicompost contain water-soluble nutrients and is an excellent nutrient rich organic fertilizer and soil conditioner. Vermicompost can also be applied for treatment of sewage.

The worm which are used for vermicompost are as follows:-

* The earthworm species (or composting worms) most often used are red wigglers, through European nightcrawlers

Date / /

- And red earthworm could also be used.
- * Red worms to aerate the soil and convert organic matter into compost. Worms are eating machines that feed on the bacteria growing on the waste organic matter & pass through their digestive system matter & pass it through their digestive system producing worm castings.
- * Epigeic earthworms act as both the substrate and in vermicomposting and soil is not involved only epigeic earthworms, can be used in their process. Ex: Eisenia andrei & Eisenia fetida.
- * Epigeic earthworm acts as both the substrate and in vermicomposting & soil is not involved only epigeic earthworms, can be used in this process.
- * Blue worms can also be distinguished as travelling or Indian blue worm. These creatures also prefer to be in warmer temperature that ranges from 70 to 90.
- * The African Nightcrawlers can stand for higher temperature gives enough moisture.
- * Alabama used for composting in areas of tropical & subtropical region.

2.4.1.2 Earthworms, such as the common night crawler can survive winter condition by burrowing deep into the soil below the frost line.

- * The distance varies based on different types of container ranging from zero to six feet.
- * Winter vermicomposting is doable, just as long as we have to give extra care for red wigglers need. During winter, red wiggler will start feeling the cold temp as soon as the worm bin starts to absorb the winter weather.
- * The container should then be kept at a cool temp.

around 10°C, a cool shed. Dendrobena like all worms will continually feed & the bedding should be topped up as necessary.

* We can leave worm outside & then enclose the worm bin with thick layers of insulation, using blankets, hay bales & or other insulating material.

* We can move the worms from worm form to a warmer location such as shed.

* During winter most worms stay in their burrows & remain below soil frozen hard as rock and topped by ice & snow. They are coiled into a slime-coated ball & go into a deep-like state called estivation, which is similar to hibernation of bears.

* Worms survive at worm temperature. Cold weather kill worms.

vermicompost is ready for harvest when it contain few to no scraps of uneaten food or bedding. There are several methods for harvesting from small-scale systems: "dump & hand sort" let the worms do the sorting alternate containers & divided and dump. These differ on the amount of time and labours involved & whether the vermicomposter wants to save as many worms as possible from being dropped in harvested compost.

The pyramid method of harvesting worm compost is commonly used in small-scale vermicomposting & is considered the simplest method for single layer bins. In this process, compost is separated into large clumps, which is placed back into composting for further breakdown & lighter compost, with which the rest of the process continues. This lighter mix is placed into small piles on a tarp under sunlight.

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When harvesting the compost, it is possible to separate eggs & cocoons & return them to the bin. These embryos new worms are hatched. Cocoons are lemon-shaped yellowish objects that can usually be seen with the naked eye. The cocoons can hold up to 200 eggs. Cocoons can lay dormant for as long as two years if conditions are not conducive for hatching.

Suitable Worm Species

All worms makes compost but some species are suitable. Suitable species are:

- * Red wiggler
- * Night crawlers
- * African Night Crawlers
- * Blue worms.

Used The Nutrients used in vermicompost vary depending on the waste material that is being used for compost preparation. If the waste materials are heterogeneous one, there will be wide range of nutrients available in the compost. If waste material are homogeneous one, there will be only certain nutrients available. The common nutrients used are:

- Organic Carbon - 9.5 - 17.98%
- Nitrogen - 0.5 - 1.50%
- Phosphorus - 0.1 - 0.30%
- Potassium - 0.15 - 0.56%
- Sodium - 0.06 - 0.30%
- Calcium & Magnesium - 22.67 to 47.60 mg/kg
- Copper - 2 - 9.50 mg kg⁻¹
- Iron - 2 - 9.30 mg kg⁻¹
- Zinc - 5.70 - 11.50 mg kg⁻¹
- Sulphur - 108 - 548 mg kg⁻¹

Micro-nutrients beneficial soil microbes like nitrogen fixing bacteria & mycorrhizal fungi & are scientifically proving as miracle growth promoter & protectants.

* Vermicomposting contains high amount of Nitrogen potassium phosphorous, Calcium & Magnesium.

* Worm eat dirty animal manure & organic matter such as leaves dead root & grass.

Their digestive system turn their meals into humus full of necessary plant nutrients.

* The considerable enrichment of nutrients of the vermicompost of the 3 species of earthworms *E. eugeniae*, *E. fetida* & *P. encratus* compared to that of composts of substrates.

* Comparing the nutrients of vermicompost produced by 3 earthworm species it was found that the vermicompost of *E. eugeniae* possessed significantly higher concentration of the nutrients.

Ans The type of waste which cannot be used are :-

* There are few food waste that vermicomposting cannot compost, although meat waste & dairy products are likely to putrefy & in outdoor bins can attract vermin.

* Wet dung should not be used in vermicompost production.

* Higher cost of organic fertilizer than synthetic & in an obstacles for farmers to adopt organic farming on a large scale. Mass application of vermicompost is not achieved due to failure of policy implementation related to vermi-compost technology.

* Some problems associated with use of vermicompost as fertilizer such as phytotoxic substance high salt concentration and heavy metal content which negatively effect plant growth and development.

- * Plastic and plastic coated paper (like glossy magazines)
- * Stickers, including roggie stickers (envelopes, stamp paper)
- * Bread or yeast products (no crackers or cakes)
- * Salt, pepper and other spices
- * Cat or dog feces
- * Diseased or infested plants
- * Treated wood product
- * Any toxic waste products like mercury, lead etc.

Explain types of Earth Worms

Explain large & small scales vermicompost.

An earthworm is a terrestrial invertebrates that belongs to the phylum Annelida.

Externally body segmented & have setae small segments they are commonly found in soil they are hermaphrodites

Types of earthworm

Oligochaeta:-

Sub class of Animals in the phylum Annelida made up of many types of aquatic & terrestrial worm.

Specifically these comprise megastole earthworm classification

Kingdom - Animalia

Phylum - Annelida

Class - Clitellate

Sub class - Oligochaetae

2) Balanoglossus

- > It is an ocean dwelling a worm worm
- > It is an evolutionary link between invertebrates & vertebrates
- > It is a deuterostome & resembles the Ascidians
- > It has a notochord in upper part of the body & has no nerve cord
- > Its head may be as small as per 2.5mm

Classification:

Kingdom - Animalia

Phylum - Hemichordata

Class - Enteropneusta

Order - Enteropneusta

Family - Ptychodesidae
Genus - Balanoglossus

③ Lumbricus terrestris

- * It is a species of earthworm that is related to Lumbricus terrestris
- * Usually reddish violet / reddish brown & pale yellow
- * They are usually about 25 mm to 105 mm in length
- * Consists of segments 95 - 120 segments
- * Native distribution was mainland Europe & British Isles, but they have recently spread world wide in suitable habitats.

Classification

Kingdom - Animalia
 Phylum - Annelida
 Class - Clitellata
 Order - Opisthoxa
 Family - Lumbricidae
 Genus - Lumbricus
 Species - L. terrestris

2 Ans: Large Scale Vermicompost

① The window method - The window method of compost window frames were developed by Fletcher Sims Fr. of the Compost Cooperation in Canyon, Texas. The window composting system is noted as a sustainable, cost-efficient way for farmers to manage dairy waste.

② The second type is raised bed. Here the worms are fed an inch of worm chow across the top of the bed and an inch of casting are harvested from below by pulling a breaker bar across the large mesh screen.

which forms the bases of the bed.

Because red worms are surface dwellers constantly moving towards the near food source, the flow through system eliminates the need to separate worms for the casting before packaging.

Small Scale vermicompost.

- * Some vermicomposting at home, a large variety of bins are commercially available.
- * Metal containers often conduct heat too readily and are prone to rusting & may release heavy metals into the vermicompost.
- * Hemlock is another expensive and fairly rot-resistant wood species that may be used to build worm bins.
- * Worm compost bins made from plastic are ideal.
- * Small-scale vermicomposting is well-suited to turn kitchen waste into higher-quality soil amendments when space is limited.



Karnatak Arts, Science & Commerce College, Bidar

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College With Potential for Excellence



Department of ZOOLOGY

Add-on Course on:-VERMICOMPOSTING

Marks List

(2019-2020)

SL.No	NAME OF THE STUDENT	Assignment	Examination	Total	Signature
1	Manuj.V	14	08	22	Manuj
2	Mallikarjun	16	09	25	Mallikarjun
3	Amargonda	22	10	32	Amarg
4	Nandkumar	24	10	34	Nandk
5	Sandeep.S	22	12	34	Sandeep
6	Sunil	19	12	31	Sunil
7	Suresh	20	12	32	Suresh
8	Avinash	22	10	32	Avinash
9	Mahesh	12	08	20	Mahesh
10	Monica	17	08	25	Monica
11	Heeba Ayesha	23	13	36	Heeba
12	Rashmi	20	10	30	Rashmi
13	Archana	16	10	26	Archana
14	Apoorva	20	12	32	Apoorva
15	Evangalennroni	17	08	25	Evangal
16	Manikeshwari	14	09	23	Manikeshwari
17	Deepika	16	08	24	Deepika
18	Sushma	19	10	29	Sushma
19	Bhavani	17	09	26	Bhavani
20	Kaveri	19	12	31	Kaveri
21					
22					
23					
24					
25					


Course Co-ordinator
HEAD
Department of Zoology
Karnatak Arts Sci. & Commerce College
BIDAR-585401


Principal
PRINCIPAL
Karnatak Arts Sci. & Com. College
B I D A R-585 401



Karnatak Arts, Science & Commerce College, Bidar

ESTD. 1970

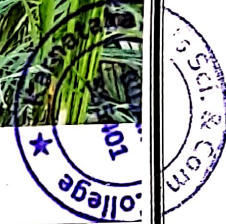
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Department of Zoology 2019-2020



REDMI NOTE 8 PRO
AI-BROAD CAMERA



Vermicompost Practical activity by
the students ; Academic year :- 2019-2020





K.R.E. SOCIETY'S

KARNATAK ARTS, SCIENCE & COMMERCE COLLEGE

BIDAR - 585 401. (Karnatak)

DEPARTMENT OF ZOOLOGY

TRAINING COURSE IN VERMICULTURE

2019 - 2020

CERTIFICATE

This is to certify that Mr. / ~~Miss~~ Mandkumar. A B.Sc. Vth Semester has completed the course of training in Laboratory

Vermiculture conducted by the Dept. of Zoology for the year 20 - 20
from Feb 2019 to Jan 2020.

HOD Zoology

HEAD

Principal

PRINCIPAL

Practical : Paper
 Academic year 2019 - 2020
 (Vermicompost Technology course)

Karnatak Arts, Science & Commerce Society's

Commerce College Bidar
 the Month of 20

Admission No.	Roll Number	Names	Date												the Month of 20															
			No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
01		Mangju S/o Vijaykumar		1	2	3	3	4	5	6	7	8	9	10	11	12	13	16	17	18	19	20	21	22	23	24	25	26	27	28
02		Mallikarjun S/o Hanumanth		1	1	2	3	3	4	5	6	7	8	8	9	10	11	13	14	15										
03		Amargonda S/o Chandargonda		1	2	3	4	4	5	6	7	7	8	8	9	10	12	13	14											
04		Nandkumar Aurade		1	1	2	2	2	3	4	5	5	6	7	8	9	13	14	15											
05		Sandeep S/o Shivraj		1	1	1	2	2	3	4	5	5	6	7	8	9	7	11	12	13										
06		Sunil S/o Ambaji		1	2	3	3	3	4	5	6	6	7	8	9		10	11	12											
07		Sarvesh S/o Mallikarjun		1	2	3	4	4	5	6	7	8	8	9	10	11	11	12	13											
08		Divyash S/o Sanjeevkumar		1	1	1	2	2	3	4	5	5	6	7	8	9	2	13	14	15										
09		Mahesh S/o Shivkumar		1	1	1	1	1	2	3	4	4	5	6	7	8	11	12	13											
10		Monica D/o Christadas		1	2	3	4	4	5	6	7	8	8	9	10	11	10	11	12											
11		Heeba Ayesha Khanam		1	2	2	3	3	4	5	6	7	7	8	9	10	1	12	13	14										
12		Rashmi D/o Manikappa		1	2	2	3	3	4	5	6	6	7	8	9	10	1	12	13	14										
13		Archana D/o A.Ramesh		1	1	1	1	1	2	3	4	4	5	6	7	8	9	10	11	12										
14		Apposva D/o Subhash		1	2	3	3	4	5	6	7	8	8	9	10	11	12	13	14	15										
15		Krangelinghani D/o Maruti		1	2	3	4	4	5	6	7	8	8	9	10	11	12	13	14	15										
16		Manikeshwari D/o Bheemara		1	1	1	2	2	3	4	5	5	6	7	8	9	10	11	12	13										
17		Deepika D/o Tailhind		1	2	3	4	4	5	6	7	8	8	9	10	11	12	13	14	15										
18		Sushma D/o Basavaraj		1	2	3	3	3	4	4	5	6	6	7	8	9	10	11	12	13										
19		Bhavani D/o Arunkumar		1	1	2	4	3	4	5	6	6	7	8	9	10	11	12	13	14										
20		Kaveri D/o Peerappa		1	2	3	4	4	5	6	7	8	8	9	10	11	12	13	14	15										

Signature of Lecturer with Date

Signature of H.O.D.

Checked by
 Verified by
 Checked by
 Checked by