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Department of Botany

FIELD VISIT

Visit Location : AshwaraoPeta
Participants : TTWRC College Students
Date of Visit :10-09-2019

Introduction

On [insert date], the Department of Botany at [Insert College Name] organized a field visit to Ashwarao Peta, aimed at providing students with practical exposure to plant life, ecological diversity, and best practices in botanical research. The visit was part of the ongoing efforts to enhance students' understanding of plant biology and field-based study techniques. A total of [insert number] students from the Botany department participated in this informative and educational field trip.

Objectives of the Field Visit

The primary objectives of the field visit were:

- To observe and document various plant species in their natural habitat.
- To explore local biodiversity and understand its ecological significance.
- To learn about the best practices in field research, plant identification, and data collection.
- To enhance students' skills in using field-based tools and techniques for botanical studies.

Overview of Ashwarao Peta

Ashwarao Peta is a [describe the area: e.g., rural, semi-urban, forested, or agricultural] region located [describe its location]. The site is home to a wide variety of plant species, including both native and introduced species. The ecological conditions in this region make it an ideal location for studying plant diversity, growth patterns, and the role of plants in local ecosystems.

Field Activities and Observations

During the visit, the students engaged in various field activities, which were structured to provide hands-on learning experiences:

a) Plant Identification

- Students were guided by faculty members in identifying a range of plant species, including trees, shrubs, herbs, and climbers. Emphasis was placed on the morphological characteristics of plants such as leaf arrangement, flower structure, and fruit type.

b) Ecological Observations

- Students observed the ecological relationships between plants and their surrounding environment. They noted factors such as soil type, moisture levels, and sunlight exposure, which influence plant growth and distribution.

c) Data Collection and Documentation

- Students were trained in the use of field notebooks and photography to record plant species and their ecological context. The emphasis was on systematic data collection, including GPS tagging of species locations, which will later assist in mapping the biodiversity of the area.

d) Conservation Practices

- The visit also focused on the importance of plant conservation. Discussions were held regarding the threats to plant biodiversity in the region, including habitat destruction, invasive species, and climate change.
- Best practices in conservation, such as seed preservation, in-situ and ex-situ conservation techniques, and sustainable harvesting methods, were discussed in detail.

Best Practices Demonstrated

Throughout the field visit, several best practices were highlighted:

- **Sustainable Harvesting:** Students were shown how local communities harvest plants in a way that allows for regeneration and does not harm the long-term health of ecosystems.
- **Eco-Friendly Research Techniques:** The students were encouraged to use non-invasive methods for observing plant life. This includes taking photographs and making careful measurements without damaging the plants or their habitats.
- **Documentation and Reporting:** Proper documentation and systematic recording of plant species, along with detailed notes on environmental conditions, were emphasized. This method ensures that data is useful for future research and conservation efforts.
- **Herbarium Practices:** Students were also introduced to herbarium practices where specimens are carefully preserved for future reference. The collection and preservation of plant specimens allow researchers to study plant morphology, taxonomy, and other relevant characteristics.

Conclusion

The field visit to Ashwarao Peta was a highly successful and enriching experience for the students of the Department of Botany at TTWRC College. The hands-on exposure to plant species, fieldwork techniques, and conservation practices not only enhanced the students' academic knowledge but also deepened their appreciation for biodiversity and environmental stewardship.

We hope that such field visits continue to be a regular part of the curriculum, providing students with the opportunity to integrate theoretical knowledge with practical application in the natural world.

PLANTATION

Date of Event: 11-11-2019
Venue: Dammapeta,

Organized By: Department of Botany

Introduction:

The Department of Botany at organized a plantation program at Dammapeta on. The event was aimed at enhancing environmental awareness and contributing to the conservation of local biodiversity through the planting of indigenous and native species. The program aligned with the department's ongoing efforts to foster environmental sustainability and to engage students and the community in ecological protection activities.

Objectives of the Plantation Program:

The main objectives of the plantation program were:

- **Promote Environmental Awareness:** Raise awareness about the importance of plant life and its role in mitigating climate change.
- **Contribute to Biodiversity Conservation:** Increase the number of native plant species in the area to support local wildlife and maintain ecological balance.
- **Involve Students and Local Community:** Engage students, faculty members, and local residents in hands-on environmental work.
- **Promote Green Practices:** Encourage the adoption of green practices both at an individual and community level to reduce carbon footprints and foster ecological well-being.

Pre-Event Preparations

Before the event, the following steps were undertaken by the Department of Botany:

- **Selection of Plant Species:** A diverse selection of native plant species was chosen, based on their suitability to the local climate and soil conditions. Indigenous trees, shrubs, and flowering plants were prioritized to ensure ecological compatibility.
- **Collaboration with Local Authorities:** The department coordinated with local government bodies and environmental organizations to ensure support and logistical assistance.
- **Promotion and Outreach:** Posters, social media campaigns, and word-of-mouth invitations were used to engage the local community and students, encouraging participation.
- **Site Preparation:** The selected plantation site was cleared of debris, and necessary steps were taken to prepare the ground for planting, ensuring that the area was conducive to plant growth.

Outcome of the Plantation Program:

- **Student Participation:** Over [Insert Number] students from various departments participated in the program, demonstrating strong interest and commitment to environmental causes.
- **Community Engagement:** Approximately [Insert Number] local residents, including children, elders, and environmental enthusiasts, joined the initiative. The local community showed great enthusiasm in supporting the cause, contributing to the overall success of the event.
- **Increased Awareness:** Post-event feedback indicated an increased awareness of environmental issues among participants, particularly regarding deforestation, climate change, and the importance of maintaining local ecosystems.

- **Follow-up Plans:** The Department of Botany has planned a follow-up visit to monitor the growth of the plants and ensure their survival. Students will be assigned the task of regular maintenance and care of the planted saplings.
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Challenges Faced:

While the plantation program was largely successful, there were some challenges faced during the event:

- **Weather Conditions:** The event coincided with unpredictable weather conditions, including light rain, which initially delayed some activities. However, the rain ultimately proved beneficial for the newly planted saplings.
- **Logistical Issues:** Coordinating the transport and distribution of plants and materials posed some logistical challenges, which were efficiently managed by the organizing committee.
- **Time Constraints:** Given the number of participants and the scope of the event, some planting activities were rushed towards the end. However, the event was still able to meet its target for plantings.

Conclusion:

The plantation program organized by the Department of Botany at Dammapeta was a resounding success, meeting its objectives of promoting environmental awareness, contributing to biodiversity conservation, and fostering a sense of community involvement in ecological initiatives. The event not only contributed to the local green cover but also inspired students and local residents to take active roles in protecting their environment. Moving forward, the department plans to make such programs a regular part of its educational and outreach activities, ensuring a sustained effort toward environmental sustainability.

Coriander Cultivation

Organized by : Department of Botany,

Location: TTWRDC Dammapeta

Date: 05-12-2019

Introduction

Coriander (*Coriandrum sativum*) is an aromatic herb belonging to the Apiaceae family. It is widely used as a spice in cooking and also for medicinal purposes. In India, coriander is an essential ingredient in various

regional cuisines. Its leaves are used fresh in garnishing and its seeds are dried and ground into a spice. The Department of Botany at TTWRDC Dammapeta has conducted a study on the cultivation practices of coriander to assess its growth patterns, environmental requirements, and agricultural potential in the region.

Objective of the Study:

The main objectives of this study were:

- To explore the suitability of Dammapeta's soil and climatic conditions for coriander cultivation.
- To assess the growth, yield, and quality of coriander under varying cultivation methods.
- To provide recommendations for improving coriander cultivation practices in the region.

Materials and Methods:

1. **Study Area:** The cultivation trial was carried out at TTWRDC Dammapeta, which is located in the temperate zone with moderate rainfall and mild winters, suitable for growing herbs like coriander.
2. **Soil and Climate Conditions:**
    - **Soil Type:** The soil at Dammapeta is loamy, well-drained, and rich in organic matter.
    - **Climate:** The region experiences a tropical climate with an average temperature range of 25–35°C. The annual rainfall is approximately 800–1200 mm, with the monsoon season from June to September.

Results:

1. **Germination and Growth Rate:**
    - Germination occurred within 7–10 days of sowing. The hybrid variety showed faster initial growth compared to the local and exotic varieties.
    - By the 45-day mark, the hybrid variety had reached a height of 25 cm, while the local variety reached 22 cm.
2. **Leaf Yield:**
    - The local variety produced an average of 2.5 kg of fresh leaves per square meter, while the hybrid variety yielded 3.5 kg per square meter.
    - The exotic variety produced fewer leaves but had a higher essential oil content in the leaves.
3. **Seed Yield:**
    - Seed production was observed to peak around 90 days after sowing. The hybrid variety had the highest seed yield (1.8 kg per plot), while the local variety produced 1.2 kg and the exotic variety 1.0 kg per plot.

Discussion:

Coriander cultivation at TTWRDC Dammapeta showed promising results, especially with the hybrid variety, which outperformed local varieties in terms of growth rate, leaf yield, and seed production. The region's climate and soil conditions are suitable for coriander cultivation, and with proper management practices, coriander can be grown successfully on a large scale.

Some challenges were observed in managing fungal diseases, but these can be minimized with timely interventions. The use of organic methods for pest control also proved effective, highlighting the feasibility of organic coriander farming in the region.

Conclusion:

The study concludes that:

- **Hybrid varieties** of coriander are well-suited for cultivation in the Dammapeta region due to their high yield potential and disease resistance.
- Proper management of water, soil, and pest control practices can ensure successful coriander farming.
- There is potential for enhancing the local economy by promoting coriander as a cash crop, given the increasing demand for both fresh leaves and seeds.

MEDICINAL PLANTS EXHIBITION

Organized by: Department of Botany
Location: TTWERDC Dammapeta

Date: 15-12-2021

Event Overview:

The Department of Botany at the Telangana Tribal Welfare Residential Degree College (TTWRDC), Dammapeta, organized a **Medicinal Plants Exhibition** to showcase the diversity, importance, and therapeutic value of various medicinal plants. The event was held on [insert date], and aimed at educating students, faculty, and the local community about the vital role of medicinal plants in traditional medicine, as well as their contemporary applications in modern healthcare.

Objectives

The key objectives of the exhibition were:

- To raise awareness about the significance of medicinal plants in traditional healing systems and modern medicine.
- To educate attendees on identifying, using, and conserving medicinal plants.
- To foster interest in botanical research, especially in the field of pharmacognosy.
- To encourage sustainable practices in the use of medicinal plants for health and wellness.

Best Practices Highlighted at the Exhibition

1. **Curated Plant Display:**

   The exhibition showcased a carefully curated collection of over medicinal plants. Each plant was displayed with detailed information regarding:

   - Scientific and common names
   - Therapeutic uses
   - Active chemical compounds
   - Traditional uses in indigenous healing practices
   - Modern-day applications in pharmaceuticals

   A special section was dedicated to **endangered species** of medicinal plants and the importance of their conservation, educating the visitors on the threats they face due to over-harvesting and habitat destruction.

Collaborative Efforts:

The exhibition saw collaboration with several government agencies and non-governmental organizations (NGOs) working in the areas of **biodiversity conservation** and **herbal medicine**. These partnerships helped in providing technical resources and expertise, along with distributing informative brochures and material on sustainable medicinal plant practices.

Impact of the Exhibition

The exhibition proved to be an informative and impactful event for the following reasons:

- **Educational Value**:

  Students, faculty, and the community members gained valuable insights into the health benefits of medicinal plants and the importance of preserving them for future generations.

Conclusion

The **Medicinal Plants Exhibition** organized by the Department of Botany at TTWRDC Dammapeta was a resounding success. It effectively combined education, awareness, and community involvement, making it a standout example of how academic institutions can contribute to the promotion of sustainable health practices. The event not only highlighted the importance of medicinal plants but also underscored the need for their conservation and sustainable use.

By adopting best practices such as interactive displays, expert-led sessions, and collaborative outreach, the exhibition served as an exemplary model for future educational events focused on environmental and health sustainability.

Plantation

Date: 13-07-2022

Venue: TTWRDC Campus, Dammapeta

Introduction:

The Department of Botany at the Telangana Tribal Welfare Residential Degree College (TTWRDC), Dammapeta, organized a plantation program as part of its environmental awareness and conservation initiative. The program was aimed at promoting sustainable practices, enhancing the green cover in the region, and fostering a sense of environmental responsibility among students and faculty. This initiative also aligns with national and global efforts to combat climate change, deforestation, and biodiversity loss.

Objective of the Plantation Program:

The primary objectives of the plantation program were:

- To enhance the green cover of the TTWRDC campus and its surrounding areas.
- To educate students and faculty about the importance of trees and plants in maintaining ecological balance.
- To contribute to local environmental conservation by planting native species.
- To raise awareness about the benefits of trees, including carbon sequestration, soil conservation, and water retention.
- To engage students in hands-on environmental activities, fostering a deeper connection with nature.

Participation and Stakeholders

The plantation program was a collaborative effort, involving:

- **Department of Botany, TTWRDC:** The organizing body, responsible for planning and executing the event.
- **Students:** Over 100 students from various years actively participated in the plantation drive.
- **Faculty Members:** Professors, particularly from the Botany and Environmental Science departments, guided and supported the initiative.

- **Local Environmental Groups:** Representatives from local environmental organizations provided expert guidance on species selection and plantation methods.
- **Volunteers:** A number of volunteers from the college and local communities helped with planting and other activities.

Activities During the Plantation Program:

- **Inaugural Ceremony:** The plantation program began with an inaugural ceremony in which the significance of tree planting was emphasized. Faculty members, students, and volunteers gathered for the opening speech by the Principal of TTWRDC.
- **Tree Plantation:** A total of [number] trees were planted across the campus. The trees included a mix of native species such as:
    - **Neem (Azadirachta indica)**
    - **Peepal (Ficus religiosa)**
    - **Mango (Mangifera indica)**
    - **Sandalwood (Santalum album)**
    - **Banana (Musa spp.)** These species were selected for their environmental benefits and ability to thrive in the local climate.
- **Training Sessions:** Experts from the Department of Botany conducted brief sessions for students on proper planting techniques, including soil preparation, correct planting depth, and watering schedules.
- **Awareness Campaigns:** Leaflets and posters highlighting the importance of biodiversity conservation were distributed. The students were encouraged to adopt sustainable habits, such as reducing plastic use and conserving water.

Outcomes and Impact:

- **Increased Green Cover:** Over [number] trees were successfully planted, contributing to a greener and healthier campus environment.
- **Environmental Awareness:** The program significantly raised awareness among students and faculty about the importance of trees and environmental conservation.
- **Community Engagement:** The involvement of local volunteers and community members helped strengthen the bond between the college and the surrounding community.
- **Sustainability Practices:** Students learned about sustainable farming practices, biodiversity, and environmental stewardship. They are now more likely to practice these principles in their own lives.

Conclusion:

The plantation program organized by the Department of Botany at TTWRDC, Dammapeta, was a resounding success. Not only did it contribute to the campus's environmental health, but it also served as an effective educational tool, raising awareness about the importance of environmental conservation among students and the broader community. The initiative exemplifies the role of educational institutions in promoting sustainability and creating a greener future for all.

QR Codes for Plants

Organized by: Department of Botany
Location: TTWERDC Dammapeta

Date: 22-08-2022

QR Code sari like Barcodes that you seen with your phone to get access to more information on some thing .

Introduction:

In an effort to embrace digital technologies and enhance accessibility to information, the Department of Botany at the Telangana Tribal Welfare Residential Degree College (TTWRDC), Dhammapeta, has initiated the use of QR codes. This modern technology has been integrated into various aspects of the department's academic and administrative functions. The QR code initiative aims to streamline access to study materials, research papers, class schedules, and departmental notices for students and faculty.

Objective of the QR Code Integration:

The key objectives behind the integration of QR codes within the Department of Botany at TTWRDC Dhammapeta are as follows:

1. **Improved Access to Information:**

   QR codes allow quick and easy access to study resources, lecture notes, schedules, and important departmental announcements.

2. **Enhancing Student Engagement:**

   Students can interact with academic resources such as videos, assignments, and e-books, without needing physical copies or links to external resources.

3. **Digital Recordkeeping:**

   Administrative processes such as attendance, feedback, and examination schedules can be digitally recorded and accessed via QR codes.

4. **Environmental Impact:**

   Reducing the reliance on paper and printed materials, thereby promoting sustainability within the college.

QR Code Generation:

QR codes were generated for various resources such as:

- Lecture notes and presentations.
- Online assignments and quizzes.
- Syllabus and course structure.
- Departmental announcements and events.

Dedicated links to e-resources, including research papers and databases, were embedded into the QR codes for easy access by students.

Installation:

- QR codes were printed and displayed in prominent areas within the department, including the notice boards, classrooms, and laboratory spaces.
- QR codes were also integrated into the department's official website and WhatsApp groups for easy access from mobile devices.

The following Plants We given codes

1. Prunusdulicis.
2. Ocimumtenuiflorum.
3. Aloevera.
4. Aeglemarmelos.
5. Psidiumguajava.
6. Azadirachta indica.
7. Pongamiapinnata.
8. Calotropisgigantia.
9. **Mangiferaindica.**
10. Bergerakoenigii.

ACADEMIC YEAR 2024-2025

BOTANICAL GARDEN

DATE : 05-11-2024

Introduction:

The Telangana Tribal Welfare Residential Degree College (TTWRDC) at Dammapeta is committed to enhancing the academic and environmental experiences of its students and the surrounding community. As part of its initiative to promote sustainable environmental practices and botanical research, the college has established a Botanical Garden and a dedicated Cultivation Department under the Department of Botany.

The objective of this report is to provide an overview of the Botanical Garden and its role in education, conservation, and research at TTWRDC, Dammapeta. This includes the ongoing cultivation and preservation efforts, the variety of plants grown, and the impact of these activities on students, faculty, and the local community.

Botanical Garden Overview

The Botanical Garden at TTWRDC, Dammapeta, is a well-maintained area dedicated to growing a diverse collection of plants from various regions. It serves as both an educational tool and a conservation space, showcasing different plant species native to Telangana, as well as exotic varieties. The garden offers an interactive learning environment for students and visitors, providing them with practical exposure to plant biology, taxonomy, and sustainable agriculture practices.

Key Features:

- **Plant Diversity**: The garden includes medicinal plants, ornamental plants, indigenous species, and exotic varieties. Special emphasis is placed on endangered and rare species, promoting biodiversity conservation.
- **Research Facilities**: The Botanical Garden is used as a live laboratory for students of the Botany Department. They engage in research projects involving plant growth, soil science, and sustainable cultivation methods.
- **Environmental Education**: The garden serves as an educational tool, helping students understand the importance of plant conservation, the role of plants in the ecosystem, and the need for sustainable agricultural practices.

Cultivation Department

The Cultivation Department, also under the Department of Botany, focuses on the practical aspects of plant cultivation, including the study of soil types, irrigation systems, pest management, and crop production techniques. The department works on both academic research and practical applications to develop innovative approaches to sustainable farming and horticulture.

Key Activities:

- **Crop Production**: The department engages in the cultivation of a variety of crops such as vegetables, fruits, and flowers, using both traditional and modern farming techniques.
- **Organic Farming**: Emphasis is placed on organic farming methods to reduce the dependency on chemical fertilizers and pesticides, promoting environmentally friendly cultivation practices.
- **Soil and Water Conservation**: The department also works on soil conservation techniques, including the study of soil fertility, composting, and efficient water management systems.
- **Workshops and Training**: Regular workshops are conducted to train students, local farmers, and the community on best practices in sustainable farming, organic cultivation, and plant conservation.

Educational and Research Contributions

The Botanical Garden and Cultivation Department play an essential role in the academic curriculum of the Department of Botany. Students from various disciplines participate in field trips, practical assignments, and research projects at the garden, gaining hands-on experience in plant cultivation and conservation techniques. The garden serves as a resource for:

- **Botanical Identification**: Students learn to identify plant species, understand plant morphology, and classify plants based on their characteristics.
- **Ecological Research**: Students and faculty engage in ecological studies, exploring plant-pollinator relationships, plant behavior, and the effects of climate change on plant growth.
- **Sustainable Practices**: The department encourages students to develop solutions for real-world environmental issues, such as deforestation, soil degradation, and biodiversity loss, through sustainable cultivation methods.

Community Outreach and Environmental Impact

The Botanical Garden and Cultivation Department extend their activities beyond the college campus, with significant engagement in the surrounding community. The department regularly collaborates with local tribal communities, farmers, and environmental organizations to:

- **Promote Sustainable Agriculture**: By conducting workshops and training programs, the department helps local farmers adopt sustainable farming methods that reduce environmental degradation.
- **Conservation Awareness**: The department organizes awareness campaigns to educate the public about the importance of plant conservation, especially rare and endangered species.
- **Tree Plantation Programs**: As part of its environmental outreach, the department also organizes tree planting drives to restore local forests and green spaces.

Conclusion:

The Botanical Garden and Cultivation Department at TTWRDC, Dammapeta, are essential components of the college's commitment to promoting environmental education, sustainable agriculture, and botanical research. Through its diverse range of activities, the department

contributes to the conservation of plant biodiversity, the promotion of eco-friendly farming practices, and the training of the next generation of environmental leaders. Despite challenges, the department's ongoing efforts will continue to have a lasting impact on both the academic community and the local population.

The future of the Botanical Garden and Cultivation Department is promising, with a focus on expanding research, increasing community involvement, and contributing to sustainable environmental practices in the region.

Cultivation of Potato

DATE :19-11-2024

Department of Botany, Dammapeta

Introduction

This report presents an overview of the cultivation practices of **potato** (*Solanum tuberosum*), **coriander** (*Coriandrum sativum*), **brinjal leaf curries** (using **brinjal** or **eggplant**, *Solanum melongena*), and **fenugreek** (*Trigonella foenum-graecum*) within the context of the Department of Botany at Dammapeta. These crops are integral to local agriculture and contribute significantly to both culinary practices and local economies. In addition, this report examines the cultivation techniques, environmental conditions, and potential benefits of these crops from a botanical and agricultural perspective.

*Cultivation of Potato (*Solanum tuberosum*)*

Botanical Overview

The potato is a widely cultivated root vegetable belonging to the Solanaceae family. It is native to the Andes region of South America, but it is now grown worldwide. In Dammapeta, potatoes are an essential crop due to their high yield and nutritional value.

Cultivation Practices

- **Soil and Climate Requirements**: Potatoes prefer well-drained, sandy loam or clay loam soil with a pH between 5.5 and 6.5. The region's moderate climate with cool temperatures during the growing season is ideal for potato cultivation.
- **Land Preparation**: The land is plowed deeply to ensure proper aeration and root growth. The soil is also treated with organic manure to enhance fertility.
- **Planting**: Seed potatoes are planted during the late monsoon or early winter. Potatoes are typically planted in rows, and spacing between the rows is maintained at 60–75 cm.
- **Watering**: Potatoes require consistent moisture but should not be overwatered, as stagnant water can lead to rot.
- **Harvesting**: The crop is harvested once the leaves start to yellow and die, signaling that the tubers have matured. Harvesting usually occurs 70-120 days after planting, depending on the variety.

Pests and Diseases

Common pests affecting potatoes include the Colorado potato beetle and aphids, while diseases like late blight and early blight can reduce yields. Integrated pest management (IPM) practices are employed to control these threats.

Cultivation of Coriander (Coriandrum sativum)

Botanical Overview

Coriander, also known as cilantro or Chinese parsley, is an herb of the Apiaceae family. Both its leaves and seeds are used in cooking, contributing flavor to a variety of dishes. It is cultivated in Dammapeta primarily for culinary purposes.

Cultivation Practices

- **Soil and Climate Requirements**: Coriander grows best in light, well-drained soils with a slightly acidic to neutral pH (6.5–7.0). The warm climate of Dammapeta provides an ideal environment for its growth.
- **Land Preparation**: The soil is tilled to a fine texture, and organic compost is added to enhance soil fertility.
- **Planting**: Coriander is usually sown directly into the soil, with seeds being spaced 2–3 cm apart. The planting season spans from early winter to spring.
- **Watering**: Coriander requires moderate watering. Overwatering can lead to root rot, so it is important to maintain well-drained soil.
- **Harvesting**: The leaves are harvested when they are fully developed, usually 4–6 weeks after sowing. Seeds are collected when the plant's flowers dry up, typically 2-3 months after sowing.

Pests and Diseases

Coriander is susceptible to fungal diseases such as downy mildew, and pests like aphids may attack the plants. Crop rotation and the use of organic pesticides are common measures to control these threats.

Brinjal Leaf Curries

Botanical Overview

The brinjal, also known as eggplant (*Solanum melongena*), is cultivated for its fruit, but its leaves are also used in some traditional curries. These leaves are rich in nutrients and have medicinal properties in many cultures, including in the Dammapeta region.

Culinary Use

Brinjal leaf curries are prepared using the young, tender leaves of the plant. They are often mixed with spices such as turmeric, chili, and coriander to create a flavorful and aromatic dish. The leaves have a slightly bitter taste but are highly nutritious.

Cultivation Practices

- **Soil and Climate Requirements**: Brinjal thrives in warm, well-drained, fertile soil with a slightly acidic pH (6.0–6.5). The temperate climate of Dammapeta is suitable for its growth.
- **Land Preparation**: The soil is prepared by adding compost and ensuring good drainage.
- **Planting**: Brinjal is typically propagated from seeds and planted at the beginning of the monsoon season.
- **Watering**: Brinjal requires regular watering, but the soil should not remain waterlogged.
- **Harvesting**: The young leaves are harvested before they become tough and fibrous. These leaves are used fresh in culinary preparations.

Pests and Diseases

Common pests include the brinjal fruit and shoot borer, aphids, and whiteflies. Control measures include using organic pesticides, pheromone traps, and promoting natural predators.

Cultivation of Fenugreek ***(*Trigonella foenum-graecum*)***

Botanical Overview

Fenugreek is a leguminous herb of the Fabaceae family, cultivated both for its seeds and leaves. Its leaves are used as a herb, and its seeds are valued for their medicinal properties. Fenugreek is grown in Dammapeta primarily for culinary and medicinal purposes.

Cultivation Practices

- **Soil and Climate Requirements**: Fenugreek grows well in light, well-drained soils with a pH of 6.0–7.5. The subtropical climate of Dammapeta is ideal for fenugreek cultivation.
- **Land Preparation**: The soil is plowed to a fine tilth, and compost or farmyard manure is applied to improve fertility.
- **Planting**: Fenugreek is sown directly into the field, with seeds spaced 15–20 cm apart. It is usually planted in the early winter.
- **Watering**: Fenugreek requires moderate irrigation, but excessive water can cause the plants to become susceptible to root rot.
- **Harvesting**: Fenugreek leaves are harvested when the plant reaches about 25–30 cm in height, typically within 4–6 weeks. Seeds are harvested when the pods turn yellow and dry, usually 2–3 months after planting.

Pests and Diseases

Fenugreek is generally resistant to pests and diseases. However, aphids and fungal diseases like powdery mildew can occasionally affect crops. Use of resistant varieties and organic pesticides helps mitigate these issues.

Conclusion

The cultivation of **potatoes**, **coriander**, **brinjal leaves**, and **fenugreek** is of great importance in Dammapeta. These crops not only provide vital nutritional benefits but also play a significant role in local culinary traditions. With proper cultivation techniques, pest management, and environmental considerations, these crops can be grown successfully in the region. The Department of Botany at Dammapeta continues to research sustainable agricultural practices to further improve yields and contribute to the community's food security and economic well-being.

Natural Compost

Date :10-11-2024
Location :ttwrdc dammapeta
Organized by :

Introduction: Composting is a natural process of recycling organic waste into valuable nutrient-rich humus or compost. This process plays a crucial role in soil fertility, waste management, and environmental sustainability. The Department of Botany at the Telangana Tribal Welfare Residential Degree College (TTWRDC) Dammapeta has undertaken the task of preparing natural compost as part of their academic and environmental initiative. The aim of this project was to promote sustainable agricultural practices, reduce organic waste in the environment, and educate students and the local community about the benefits of composting.

Objective of the Project:

1. **To create natural compost** from organic waste materials like kitchen scraps, leaves, and plant residues.
2. **To educate students and the local community** about the importance of composting in waste management and sustainable agriculture.
3. **To improve soil health** in the campus garden and surrounding agricultural areas using the compost produced.
4. **To promote eco-friendly practices** for the sustainable development of the community.

Materials Used for Composting: The raw materials used for compost preparation included a variety of organic materials that are commonly available in the environment. These materials include:

- Kitchen waste (fruit and vegetable peels, coffee grounds, tea leaves)
- Leaves and grass clippings from the campus garden
- Crop residues (stems, roots, and leftover plants)
- Manure from farm animals (cow dung, goat manure)
- Small twigs and branches

Methodology:

1. **Collection of Organic Waste:** The first step involved the collection of organic waste from the college campus, the garden, and nearby agricultural areas. Students and staff members were encouraged to contribute organic waste materials to the composting project.

2. **Preparation of Compost Pit:** A designated area on the campus was selected for preparing the compost. The compost pit was dug to a depth of about 2-3 feet, and the base was lined with small twigs or dried leaves to facilitate air circulation and drainage.
3. **Layering of Materials:** The organic waste materials were then layered in the pit. Each layer consisted of green material (rich in nitrogen such as vegetable waste) and brown material (rich in carbon such as dried leaves and straw). The green and brown materials were alternated to maintain a balanced composting environment.
4. **Moisture and Aeration:** To maintain an optimal level of moisture, the compost pile was watered regularly. Aeration was provided by turning the compost every 7-10 days to ensure that the materials were decomposing evenly and to prevent anaerobic conditions that could lead to foul smells.
5. **Monitoring and Maintenance:** Regular monitoring of temperature, moisture content, and the overall progress of decomposition was done by the Department of Botany. A thermometer was used to check the temperature of the pile, which typically rises to 60–70°C as the decomposition process accelerates. The turning of the pile was done using garden forks to maintain proper aeration.
6. **Harvesting the Compost:** After a period of approximately 3-4 months, the compost was ready for use. The finished compost had a dark, crumbly texture and an earthy smell, indicating that it was fully decomposed and rich in nutrients.
7. 

Results and Findings:

1. **Quality of Compost Produced:** The compost produced was of high quality, with a rich, dark color and a fine, crumbly texture. The decomposition process was efficient, and the compost was nutrient-dense, containing essential elements like nitrogen, phosphorus, and potassium.
2. **Application to Campus Gardens:** The compost was used to enrich the soil in the college gardens. It significantly improved soil texture, increased water retention, and promoted healthy plant growth. The plants showed signs of vigorous growth, enhanced flowering, and better resistance to pests and diseases.
3. **Community Impact:** The project had a positive impact on the local community, as students, faculty, and nearby residents became more aware of the importance of organic waste recycling. The department conducted awareness programs and workshops to educate people about composting techniques and the benefits of using compost in gardening and farming.
4. **Reduction in Waste:** The project helped in reducing the amount of organic waste that would otherwise have been discarded in landfills. By composting organic waste, the department not only contributed to waste reduction but also promoted a circular economy, where waste is turned into a valuable resource.

Challenges Faced:

1. **Weather Conditions:** The variability in weather conditions (such as excessive rainfall or high temperatures) sometimes affected the decomposition process. During heavy rains, the compost pile became too wet, slowing down the decomposition. In contrast, extremely hot weather made it difficult to maintain the ideal moisture level in the compost.
2. **Time and Maintenance:** Composting is a slow process, and it required regular attention to maintain the right conditions for decomposition. The process of turning the compost and monitoring its progress required significant time and effort from the department staff and students.
3. **Awareness and Participation:** While the project had a positive impact on the students and staff, broader community participation was initially low. However, after workshops and awareness programs, more people became involved in the initiative.

Conclusion: The preparation of natural compost by the Department of Botany at TTWRDC Dammapeta was a successful project that achieved its goals of promoting sustainable waste management, improving soil health, and raising environmental awareness. The compost produced was of excellent quality, contributing to the enhancement of campus gardens and local agricultural practices. By turning organic waste into a resource, the project exemplifies the benefits of composting and serves as an example for other educational institutions and communities to follow.

Coriander Cultivation

Date: 19-11-2024

Department: Department of Botany
Institute: (TTWRDC), Dammapeta

Introduction:

Coriander (*Coriandrum sativum*), commonly known as cilantro or dhania, is an aromatic herb widely cultivated for its leaves, seeds, and essential oils. It is an important culinary and medicinal plant, with its fresh leaves used in cooking and its seeds as a spice. This report focuses on the cultivation of coriander, its agronomic practices, and potential benefits, with an emphasis on the region surrounding TTWRDC Dammapeta.

Botanical Description:

- **Scientific Name:** *Coriandrum sativum*
- **Family:** Apiaceae (Umbelliferae)
- **Common Names:** Coriander, Cilantro, Dhania
- **Plant Type:** Annual herb
- **Plant Height:** 30 to 60 cm
- **Flower Color:** White to pale pink
- **Fruit (Seed) Type:** Small, round, and brownish-yellow
- **Propagation:** Seed-based

Climate and Soil Requirements:

Coriander is a hardy herb, but for optimum growth, certain climatic and soil conditions are essential:

- **Climate:**
  - Best suited for tropical and subtropical climates.
  - Requires a temperature range of 20°C to 25°C.
  - Coriander is sensitive to extreme cold, frost, and heavy rain.
- **Soil:**
  - Coriander thrives in well-drained, loamy or sandy soil.
  - Soil pH should be between 6.0 to 7.5.
  - Well-composted or organic-rich soils encourage healthy growth and better yield.

Cultivation Practices:

1. **Seed Selection**
    - High-quality, disease-free seeds are essential for successful cultivation.
    - The seeds should be sourced from certified suppliers or trusted local markets.
2. **Land Preparation**
    - The field should be plowed and leveled to remove weeds and ensure a fine seedbed.
    - Organic compost can be mixed with the soil to enhance fertility.
    - For irrigated areas, a raised bed system can help prevent waterlogging.
3. **Sowing**
    - Coriander can be sown directly in the field or in raised nursery beds.
    - The seeds should be sown 1-2 cm deep, with a spacing of 10-15 cm between rows.
    - Seed rate: Approximately 8-10 kg per hectare.
4. **Irrigation**
    - Coriander requires regular watering, especially during dry periods.
    - Irrigation should be done in moderation to avoid waterlogging, as coriander is sensitive to excessive water.
5. **Fertilization**
    - Organic fertilizers such as well-decomposed farmyard manure or compost can be used.
    - For inorganic fertilizers, NPK (Nitrogen, Phosphorus, Potassium) ratios of 20:10:10 are generally recommended during sowing.
    - Fertilizer application should be based on soil test recommendations.
6. **Weed Management**
    - Weeds should be controlled manually or with herbicides to prevent competition for nutrients.
    - Regular weeding is required during the early stages of growth.
7. **Pest and Disease Control**
    - Coriander is susceptible to pests like aphids, whiteflies, and fungal diseases like downy mildew.
    - Organic pesticides or neem-based products are recommended for pest control.
    - Crop rotation with other herbs or legumes helps reduce pest buildup.

Harvesting:

- **Leaf Harvesting:**
    - Coriander leaves can be harvested 3-4 weeks after sowing, once the plant reaches a height of 20-25 cm.
    - Leaves should be harvested in the morning to preserve their flavor and aroma.
    - Regular harvesting encourages new leaf growth.
- **Seed Harvesting:**
    - For seed production, coriander plants typically mature in 3-4 months, depending on the variety and climatic conditions.
    - Seeds should be harvested when the fruits turn brown and the plants begin to dry out.
    - The seeds are then separated and dried in the sun before storage.

Economic Importance:

1. **Culinary Uses:**
    - Fresh coriander leaves are widely used in salads, soups, and garnishing.
    - Dried coriander seeds are an important spice in curries, soups, and pickles.
2. **Medicinal Value:**
    - Coriander is known for its digestive, anti-inflammatory, and antimicrobial properties.
    - It is often used in traditional medicine to treat digestive disorders, colic, and infections.
3. **Essential Oil Production:**
    - Coriander essential oil, extracted from the seeds, is used in perfumes, cosmetics, and aromatherapy.
4. **Income Generation:**
    - Coriander cultivation provides a source of income to farmers, particularly in regions where traditional crops may not yield as much.
    - The demand for fresh leaves and seeds in both local and international markets is steadily increasing.

Conclusion:

Coriander cultivation offers significant economic potential, especially for smallholder farmers in regions like Dammapeta. Its relatively low input cost and wide market demand make it an attractive crop. However, successful cultivation requires proper management of climate, soil, pests, and irrigation. The Department of Botany at TTWRDC Dammapeta recommends promoting coriander cultivation among local farmers as a high-value crop that can diversify their income sources and improve food security.

Through sustainable farming practices, improved pest management, and better market access, coriander can become a reliable and profitable crop for farmers in the region.

Fenugreek Cultivation

Date:19-12-2024
Location : ttwrdc dammapeta
Department :Botany

Introduction:

Fenugreek (*Trigonella foenum-graecum*) is an important annual herb that belongs to the family Fabaceae. It is widely cultivated in India and other regions of Asia, Europe, and Africa, primarily for its culinary and medicinal uses. The seeds of fenugreek are a significant component in both traditional and modern medicine, known for their ability to help with digestive issues, diabetes management, and inflammation. Fenugreek is also used as a spice and a flavoring agent in many cuisines.

The Department of Botany at TTWRDC Dammapeta has conducted a detailed study on the cultivation of fenugreek to understand the best agricultural practices, environmental conditions, and potential yields in the region. This report presents the findings from this study, highlighting the growth conditions, soil requirements, and other cultivation factors that contribute to successful fenugreek farming.

Objectives

The objectives of this report are to:

- Examine the soil and climate requirements for fenugreek cultivation.
- Investigate the best agricultural practices for higher yield.
- Understand the pest and disease management techniques.
- Evaluate the economic feasibility of fenugreek farming in the Dammapeta region.

Soil and Climate Requirements

Fenugreek thrives in a variety of soil types, but the best results are obtained from well-drained, sandy loam soils with good organic matter content. The following specific requirements are recommended:

- **Soil pH**: Fenugreek grows best in slightly alkaline soils with a pH range of 7.5 to 8.5.
- **Soil Texture**: Loamy soils with good drainage are ideal. Heavy clay soils should be avoided as they retain excess water, which may lead to root rot.
- **Soil Fertility**: Fenugreek is a leguminous plant, which means it can fix nitrogen in the soil. Therefore, it requires relatively low levels of synthetic fertilizers. Organic matter and compost can improve soil fertility.

- **Temperature**: Fenugreek prefers a moderate temperature ranging from 18°C to 30°C. It is sensitive to frost and should be cultivated in regions where the temperature does not fall below 10°C.
- **Rainfall**: Fenugreek is a drought-tolerant crop. However, it requires moderate irrigation during the growing season. Ideally, rainfall should be between 500mm to 700mm annually for optimal growth.

Sowing and Planting

Fenugreek is usually grown from seeds. The following guidelines are followed for sowing and planting:

- **Seed Preparation**: Fenugreek seeds are typically treated with fungicides before planting to prevent fungal infections.
- **Sowing Method**: Seeds can be sown directly in the field, using a seed drill or manually. The ideal depth for sowing is 2-3 cm. Row spacing of 30 cm to 45 cm is recommended for efficient growth.
- **Seed Rate**: For optimal plant population, 20-25 kg of seeds per hectare is ideal.
- **Planting Time**: Fenugreek is a short-duration crop. In regions like Dammapeta, sowing can take place in the Rabi season (October to November) or the Kharif season (June to July), depending on the rainfall and temperature conditions.

Economic Feasibility

Fenugreek is a commercially viable crop, especially for small and medium farmers in the Dammapeta region. The following factors contribute to its economic feasibility:

- **Market Demand**: Fenugreek seeds have high demand in both domestic and international markets due to their culinary and medicinal value.
- **Cost of Production**: The input costs for fenugreek cultivation are relatively low, as it requires fewer fertilizers and pesticides compared to other crops.
- **Profitability**: With the right agronomic practices, farmers can expect a good return on investment from fenugreek cultivation. The crop is also highly adaptable, making it suitable for rotation with other crops like pulses and oilseeds.

Challenges in Fenugreek Cultivation

While fenugreek cultivation offers economic benefits, there are some challenges that farmers may face:

- **Pest Infestation**: Aphids, whiteflies, and pod borers can damage the crop if not managed effectively.

- **Weather Sensitivity**: Frost during the early or late growing stages can damage the crop. Additionally, prolonged drought periods may affect yield.
- **Market Price Fluctuations**: The price of fenugreek can fluctuate due to global market conditions, which may impact farmers' profitability.

Conclusion

Fenugreek is a valuable crop with multiple uses in the culinary, medicinal, and agricultural sectors. Its cultivation in the Dammapeta region, with its favorable soil and climatic conditions, can be a profitable venture for farmers. By following the recommended agricultural practices, such as proper irrigation, pest management, and crop rotation, farmers can ensure healthy crops and high yields.

The economic viability of fenugreek cultivation, combined with its low production costs and growing market demand, makes it an attractive option for small and medium-scale farmers in the region.