



Centurion
UNIVERSITY

*Shaping Lives...
Empowering Communities...*



Times Higher Education
**Sustainability
Impact Network**



SUSTAINABLE DEVELOPMENT GOAL 15 LIFE ON LAND

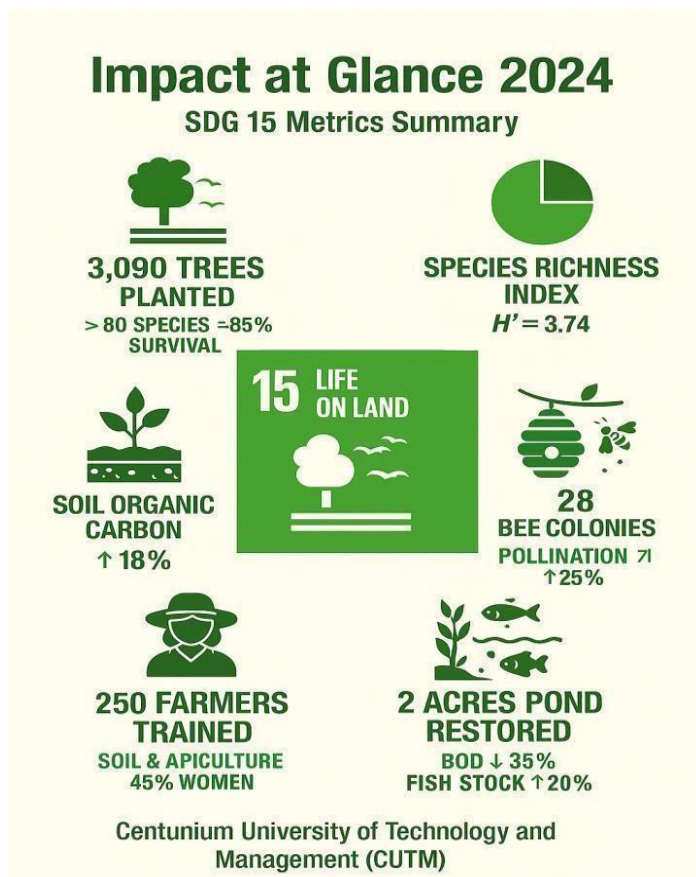


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1. Executive Summary

Centurion University remains steadfast in advancing **SDG 15: Life on Land**, integrating **biodiversity** conservation, **soil restoration**, **sustainable farming**, and **community education** into its teaching, research, and outreach programs. Recognising that healthy ecosystems underpin food security, climate resilience, and rural livelihoods, Centurion University’s 2024 initiatives strengthened both environmental integrity and community prosperity.



Through comprehensive land and biodiversity management, the University planted 3,090 trees across five campuses, encompassing more than 80 indigenous species with a survival rate of 85%, achieving a species richness index ($H' = 3.74$)- indicative of a thriving micro-forest ecosystem. Restoration projects improved soil organic carbon by 18%, increased available nitrogen, phosphorus, and potassium by 24–55%, and enhanced soil moisture retention by 27%, confirming measurable ecosystem recovery.

Centurion University’s “One Plant, One Person” campaign inspired every student to plant and nurtures a tree during their academic journey, creating a culture of environmental stewardship that extends into surrounding communities. Complementing this, RAWE (Rural Agricultural Work Experience) and Mini Kisan Melas trained over 250 farmers- 45% women - in soil conservation, apiculture, and regenerative

agriculture, embedding sustainability practices across aspirational districts.

Biodiversity conservation flourished through campus initiatives that protect both flora and fauna. Centurion University maintains over 550 species of animals and birds, including native pollinators and rare species such as *Pterocarpus santalinus* (Red Sandalwood) and *Swieteniamacrophylla* (Mahogany). Apiculture units with 28 active colonies yielded 80 kg of honey annually while increasing pollination by 25%, linking biodiversity with livelihood generation. The University's Orchidarium, housing 550 orchids across five species, and micro-forest plantations further strengthen genetic diversity and ecological education.

The University also implemented pond restoration programs, reviving 2 acres of wetland ecosystems through desilting, native vegetation planting, and indigenous fish ranching. These ponds now function as micro-wetlands supporting birds, amphibians, and aquatic biodiversity while recharging groundwater and serving as outdoor learning laboratories.

In parallel, Centurion University advanced sustainable agriculture and land-use models such as Dragon Fruit Cultivation on hilltops and a 5-acre Terrace Orchard, showcasing the transformation of degraded lands into productive, climate-resilient farms. These initiatives provide experiential learning for students, technical exposure for farmers, and replicable models for land reclamation and eco-entrepreneurship.

Institutional biodiversity mapping recorded 80+ tree species and over 30 medicinal and aromatic plants, including *Aegle marmelos* (Bael), *Santalum album* (Sandalwood), and *Phyllanthus emblica* (Indian Gooseberry). The University's Soil Health Monitoring Laboratory tested over 120 soil samples, generating Soil Health Cards and enabling farmers to adopt organic, evidence-based nutrient management.

Beyond its campuses, Centurion University's outreach through NGOs, government departments, and forest authorities supports community-based forest management, afforestation drives, and sustainable land-use practices. In 2024 alone, collaborative efforts restored over 2 acres of degraded land, conserved pollinator habitats, and engaged 91 vocational trainers and over 1,200 farmers through capacity-building programs on soil, water, and biodiversity management. Through measurable ecological restoration, biodiversity enhancement, and sustainable land-use innovation, Centurion University continues to shape a resilient landscape - one where people and the planet thrive together.

Key 2024 outcomes include:

- 3,090 trees planted across campuses (> 80 species, ≈ 85 % survival).
- Species richness index ($H' = 3.74$) indicating a resilient micro-forest structure.
- Soil organic carbon ↑ 18 % following restoration and organic farming interventions.
- 28 bee colonies maintained, honey yield ≈ 80 kg, pollination activity ↑ 25 %.

- More than 250 farmers trained in land restoration, soil management & apiculture (45 % women).
- 2 acres pond restored, BOD ↓ 35 %, fish stock ↑ 20 %.

Summary - Our Impact on SDG 15 - Life on Land

Dimension	Impact Area/Indicator	Initiatives	2024 Data	Output	Impact	2030 Target
Innovative Interventions	Monitor biodiversity and land health using data and technology- SDG 15.9	Precision Land Monitoring (GIS & Drone-based)	Drone mapping for 250+ acres; NDVI and canopy monitoring ongoing	Digital mapping of vegetation health and soil moisture analysis for precision restoration	Enabled data-driven decision-making for ecosystem restoration, improved monitoring of vegetation health, and optimized soil and water management	
	Sustainable use of terrestrial resources-SDG 15.3	Smart Irrigation & Land Automation	IoT-based irrigation systems in 3 agroforestry sites	Sensor-controlled water management and data tracking	Improved water use efficiency, enhanced crop and tree survival, and reduced resource wastage	
Mobilizing and Engaging Communities	Ensure conservation, restoration and sustainable use of terrestrial ecosystems.- SDG 15.1	Community-based Afforestation Drives	3,090 saplings planted; 85% survival across 5 campuses	Participation from students, staff, and local communities; 80+ species included	Restored degraded land, increased tree cover, and strengthened local biodiversity and ecosystem resilience	
	Integrate ecosystem and biodiversity values into planning and development processes.- SDG 15.9	Green Livelihood and Ecotourism Initiatives	500+ visitors to eco-restoration and biodiversity parks	Community-led maintenance of green zones, butterfly gardens, and nature trails	Promoted sustainable livelihoods, enhanced community engagement in conservation, and increased awareness of biodiversity	

Promoting Sustainable Practices	Combat desertification and restore degraded land.- SDG 15.3	Agroforestry and Sustainable Agriculture	10 acres under agroforestry; 12 model organic farms	Integration of high-yield crops with nitrogen-fixing trees and drip irrigation	Increased sustainable land productivity, enhanced soil health, and integrated crop-tree systems for climate-resilient farming	
	Ensure sustainable land use and organic farming.-SDG 15.3	Soil Conservation & Organic Farming Policy	Institutional policy for organic input use and zero tillage adopted	Campus-wide compost and vermicompost use replacing chemical fertilizers	Reduced soil degradation, improved soil fertility, and promoted adoption of sustainable, chemical-free farming practices	
Advancing Livelihoods	Promote sustainable forest management and reforestation.- SDG 15.2.1	Inclusive Land-based Livelihoods	250 farmers (45% women) trained in sustainable land management	Training programs on organic farming, vermicomposting, and apiculture	Strengthened livelihoods of farmers, promoted gender inclusion, and enhanced adoption of sustainable agricultural practices	
	Promote awareness for biodiversity and sustainability.-SDG 15.5	Environmental Education & Awareness	10,000+ students and citizens sensitized through 30 programs	Workshops, biodiversity days, and student-led clean-up and planting drives	Increased environmental literacy, fostered stewardship of local ecosystems, and encouraged community participation in biodiversity conservation	
Conserving Biodiversity	Promote fair and equitable sharing of benefits from genetic resources.-SDG 15.6	Biodiversity Mapping and Seed Bank	Catalogued 80+ tree and medicinal plant species	Development of GIS-based biodiversity atlas and indigenous seed bank	Preserved native species, facilitated restoration planning, and supported conservation of genetic resources	
	Take urgent action to reduce degradation of natural habitats and halt biodiversity loss.-SDG 15.5	Apiculture & Pollinator Conservation	52 active bee colonies; 70 kg honey yield	Apiculture integrated into agroforestry model improving crop pollination by 25%	Enhanced pollinator populations, improved crop productivity, and strengthened	

					ecosystem services	
<u>Transforming Ecosystems</u>	Conserve mountain ecosystems and forests.-SDG 15.1 and SDG 15.4	Forest & Land Restoration Collaborations	Partnerships with Odisha Forest Dept. and NABARD	Joint programs for degraded land restoration and native species conservation	Rehabilitated degraded lands, restored native habitats, and increased overall ecosystem resilience	
	Protect and restore freshwater ecosystems-SDG 15.1	Waterbody& Wetland Restoration	2-acre pond restored with improved DO (↑40%) and reduced BOD (↓35%)	Silt removal, wetland vegetation, and fish stock enhancement programs	Revived aquatic biodiversity, improved water quality, and enhanced ecosystem services in wetlands	

Centurion University, Paralakhemundi campus, actively supports SDG 15 through various educational programmes, rural outreach, and conservation efforts. Student-led initiatives like Mini Kisan Melas, Agri Exhibitions, and the Rural Agricultural Work Experience (RAWE) promote sustainable farming and soil health. Plantation drives on key environmental days and the "One Plant, One Person" campaign fosters biodiversity and environmental responsibility. The university's Soil Health Monitoring Laboratory and training on organic practices further strengthen land restoration and climate-resilient agriculture. By integrating sustainability into education and community work, Centurion University leads in promoting a greener and more sustainable future.

Centurion University has consistently demonstrated its commitment to environmental sustainability and the responsible management of natural resources. Recognizing that healthy land ecosystems are vital for food security, livelihoods, and climate resilience, the university undertakes multiple initiatives to promote the conservation and sustainable utilization of land, forests, and wild landscapes.

1. Sustainable Land Management and Restoration:

- The university has integrated sustainable land use principles into its campus planning and community outreach activities.
- Land within and around the campuses, particularly in Paralakhemundi, Rayagada, and Bolangir aspirational districts of India is maintained through eco-friendly landscaping, organic farming, and soil conservation practices.
- Through rainwater harvesting, hill plantations, and soil erosion control measures, Centurion University actively works to maintain soil fertility and reduce land degradation.
- The establishment of the Soil testing Laboratory in 2024 enables scientific analysis of soil parameters, supporting informed land-use planning and sustainable agricultural practices among farmers and students.

2. Forest Conservation and Green Cover Expansion

- Centurion University has implemented several tree plantation drives and afforestation programs as part of events such as World Environment Day and Van Mahotsav.
- These initiatives aim to increase green cover, restore degraded areas, and promote local biodiversity through the plantation of indigenous and climate-resilient species.
- The "One Plant, One Person" campaign launched in 2024 encourages every student to plant and nurture a tree during their academic journey, ensuring long-term commitment to forest and ecosystem restoration.
- Collaboration with the Forest Department and local panchayats enhances the impact of these efforts by combining scientific knowledge with community engagement.

3. Conservation Education and Awareness

- Centurion University integrates environmental education into its curriculum and outreach programs to foster awareness among students, faculty, and local communities.
- Through workshops, seminars, and field training, the university promotes understanding of ecosystem services, forest management, and biodiversity protection.
- Departments such as Agriculture, Horticulture focus on practical exposure to sustainable land-use systems and community-based conservation models.
- Awareness activities conducted by the NSS club encourage collective participation in campus and village-level conservation drives.

4. Sustainable Utilization of Natural Resources

- The university promotes sustainable agriculture, agroforestry, and integrated farming systems to balance productivity with ecosystem preservation.
- Students and faculty engage in the promotion of organic farming, vermicomposting, Azolla cultivation, and the use of Biofertilizers, Bioenzymes and Biopesticides, reducing chemical inputs and preserving soil and water health.

5. Protecting Wildlife and Natural Habitats

- Centurion University works closely with local authorities to protect wild lands and habitats near its campuses, especially those located in tribal and forest-rich regions of Paralakhemeundi, Rayagada and Balangir aspirational districts of Odisha.
- Students participate in field visits, biodiversity mapping, and eco-restoration activities, contributing to the conservation of local flora and fauna.

The university's conservation and land management initiatives directly support several UN Sustainable Development Goals (SDGs):SDG 13, and SDG12. These actions reflect Centurion University's holistic vision of "Shaping Lives, Empowering Communities" through sustainable and inclusive development.

Events at Centurion University:

❖ Educational Programmes, Workshops, and Training

1. Mini Kisan Mela (February 2–3, 2024):

- Organized by final-year B.Sc. Agriculture students in Uppalada and Prahrajpalem villages.
- Aimed at knowledge exchange, community engagement, and promotion of sustainable agricultural techniques among rural farmers.

2. 3rd Utkal Krishi Mela (April 7–8, 2024):

- Attracted participation from over 2,000 farmers and stakeholders across Odisha.
- Showcased agricultural innovations such as hydroponics, aquaponics, drone technology, and AR/VR applications.
- Promoted scientific and sustainable farming practices aligned with SDG 2 (Zero Hunger) and SDG 12 (Responsible Consumption and Production).

3. Soil Health Card Distribution:

- Farmers received Soil Health Cards providing information on pH, organic carbon, and nutrient levels (N, P, K).
- Helped farmers make informed decisions on fertilizer use and crop planning.
- Improved productivity, reduced input costs, and supported soil conservation.

4. Agri Exhibitions (October 7 & 22, 2024):

- Conducted by RAWE students under the READY Programme at Chapara and Pedda Logidi villages in Andhra Pradesh.
- Guided by faculty from the M.S. Swaminathan School of Agriculture.
- Aimed to bridge academic learning with field practices and strengthen university–community linkages.



.Fig 1: Glimpses of Kisan mela

🌱 Environmental Awareness and Plantation Initiatives – 2024

1. World Environment Day – June 5, 2024:

- Organized by Team CaSR in collaboration with the Department of Horticulture.
- Conducted a plantation drive to promote environmental awareness and sustainability.

- Encouraged students and staff to adopt eco-friendly practices and contribute to a greener campus and community.
- 2. Van Mahotsav – July 1, 2024:**
- Jointly organized by the Range Forest Office, Devgiri Range, and the NSS Unit, Centurion University–Paralakhemundi.
 - Involved 25 NSS volunteers planting indigenous tree species to enhance local biodiversity.
 - Strengthened commitment to natural resource conservation and climate change mitigation.
- 3. World Nature Conservation Day – July 28, 2024:**
- Plantation Drive conducted by the NSS Unit at the Aquaculture Research Farm, Totagamuda.
 - 85 student volunteers planted saplings under the guidance of NSS Programme Officers.
 - Aimed at restoring natural habitats, improving air quality, and promoting environmental stewardship.
- 4. “One Plant, One Person” Initiative – August 21, 2024:**
- Involved 1st-year B.Sc. Agriculture, B.F.Sc., and M.Sc. Agriculture students.
 - Each student planted a Kadam sapling to nurture throughout their academic journey.
 - Objective: Enhance campus green cover, improve air quality, and instill a sense of environmental responsibility.

Outcomes:

- Strengthened the university’s role in environmental conservation and sustainability education.
- Fostered student engagement and a culture of eco-conscious citizenship.
- Supported SDG 13 (Climate Action) and SDG 15 (Life on Land) through continuous green initiatives.



Fig 2: Glimpses of Plantation drive

- On the occasion of Teacher’s Day, the Agri flora Student’s Society (CSAR) and NSS Unit of Centurion University organized a combined celebration and plantation drive on

5th September 2024 at Madhusudanpur Government High School, Gosani, Gajapati, Odisha. To honour the invaluable contributions of teachers, drawing and debate competitions were conducted for school students, with prizes and certificates awarded to the winners.

- Our team also participated in the Teacher's Day celebration organized by the school and shared our experiences with the students. As part of the "One Person One Plant" campaign, a plantation drive was conducted within the school premises, promoting environmental awareness and encouraging an eco-friendly lifestyle among students.



Fig 3: Glimpses of NSS unit planting trees in nearby areas

🌱 Soil Conservation Initiatives by RAWE (Rural Agricultural Work Experience) Students – 2024

1. Field-Based Soil Conservation Activities:

- RAWE (Rural Agricultural Work Experience) students actively engaged in on-field initiatives promoting soil health and sustainable agriculture.
- Supported local farmers in adopting eco-friendly and sustainable soil management practices.

2. Soil Testing and Fertility Management:

- Conducted soil testing to assess nutrient composition and overall soil health.
- Provided recommendations for organic inputs to improve fertility without degrading the ecosystem.

3. Promotion of Sustainable Practices:

- Demonstrated vermicomposting, Azolla cultivation, and Trichoderma application to enhance soil structure and microbial activity.
- Encouraged low-cost, biological soil enrichment methods to replace chemical fertilizers.

4. Use of Organic Formulations:

- Trained farmers to prepare and apply Panchagavya and Jeevamrita, traditional organic formulations.
- Promoted natural enrichment of soil and reduction of synthetic input dependency.

5. Vegetation and Soil Stability Measures:

- Organized plantation drives and established kitchen gardens to increase vegetation cover.
- Helped reduce soil erosion, enhance biodiversity, and ensure long-term soil stability.

Outcomes:

- Strengthened soil conservation awareness among farmers and students.
- Promoted eco-friendly farming techniques supporting SDG 2 (Zero Hunger), SDG 12 (Responsible Consumption and Production), and SDG 15 (Life on Land).



Fig 4: Photos of students demonstrating organic nutrients to local farmers.

🌱 Soil Health and Capacity-Building Initiatives – 2024

1. Establishment of Soil Health Monitoring Laboratory (2024):

- A Soil Health Monitoring Laboratory was developed to commercially analyze soil samples and issue Soil Health Cards.
- Samples are received from farmers, NGOs, research scholars, and students across different regions.
- The laboratory analyzes six key soil parameters:
 - Soil pH
 - Soil Electrical Conductivity (EC)
 - Soil Organic Carbon (SOC)
 - Available Nitrogen (N)

- Available Phosphorus (P)
 - Available Potassium (K)
 - After analysis, Soil Health Cards are generated detailing all measured parameters for improved soil management and decision-making.
2. **AIA Training on Soil and Water Testing (June–July 2024):**
- 10 students under the Agro Industrial Attachment (AIA) programme received hands-on training in soil and water testing and fertilizer recommendation.
 - Training included laboratory work, field visits to farmers’ plots, NGOs, and the District Soil Testing Lab, Paralakhemundi.
 - Participants successfully completed the two-month programme and were awarded AIA completion certificates.
3. **Research Partnership with J-PAL South Asia:**
- Centurion University collaborated with J-PAL South Asia for a research project titled “Regenerative Agriculture.”
 - The project focuses on promoting sustainable and climate-resilient farming practices.
 - Farmers from Barchana Block, Jajpur District, Odisha were trained in soil sample collection and educated on the importance of Soil Health Cards for sustainable agriculture.
4. **Five-Day Residential Training for Vocational Trainers (20–28 June 2024):**
- Conducted at Centurion University, Paralakhemundi, as one of the selected national venues.
 - 91 Vocational Trainers (VTs) participated in a five-day residential training programme.
 - Participants were provided accommodation, food, and refreshments on campus.
 - Special transport facilities were arranged for visits to various university training and research units.

Outcomes :

- Strengthened soil health management systems through research, training, and analysis.
- Enhanced student and farmer capacity in soil testing, nutrient management, and sustainable farming techniques.
- Supported SDG 2 (Zero Hunger), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action) by promoting regenerative and evidence-based agriculture.



Fig 5: Collection of Soil sample form villages



Fig 6: Glimpses from the training Programme

● **Management Development Program (MDP)**

A 3-day Management Development Program (MDP) from 26th June to 28th June 2024, for Secretaries of Primary Agricultural Cooperative Societies (PACS) under the Registrar of Cooperative Societies, Government of Odisha.

Program Objectives and Focus Areas

1. Introduction to Health and Well-being:

- Provided foundational understanding of physical, mental, and social well-being.
- Emphasized the role of healthy lifestyles in community and professional development.

2. Financial Inclusion and Digital Literacy:

- Highlighted the importance of financial inclusion in empowering rural communities.
- Discussed digital tools and technologies that enhance financial accessibility.
- Explored key financial inclusion initiatives implemented in Odisha.

3. Drone Technology in Modern Farming:

- Introduced participants to the application of drones in precision agriculture.

- Showcased how drone technology can increase productivity and reduce labor efforts.
-
- **Apiculture Unit Activities**
 1. **Awareness and Skill Development:**
 - Conducted training sessions and live demonstrations on beekeeping.
 - Aimed at spreading practical knowledge among students, farmers, and visitors.
 2. **Community Engagement:**
 - Set up a rural hut as an interactive learning space.
 - Enabled rural communities to gain firsthand experience in sustainable apiculture practices.

Outcome:

- Enhanced awareness about apiculture as a livelihood option.
- Strengthened links between modern agricultural practices and rural entrepreneurship



Fig 7: Demonstration to ICAR visitors



Fig 8: Demonstration to visitors and school students

- **Training on Nursery management:**

A One-day Training Programme on Commercial Horticultural Farm and Nursery Management" on 22nd August 2024 for the farmer trainees coming across Gajapati district in collaboration with SURAKSHA NGO. Around 35 farmers are trained under the above said training programme.



Fig 9: Training on Nursery management

- **Training on Dragon Fruit - Capacity Building Program**

1. Organizer:
 - AGARANA NGO, Rayagada district.
 2. Purpose of the Program:
 - To provide training-cum-exposure for progressive farmers on modern and sustainable agricultural practices.
 3. Participants:
 - 15 farmers from Rayagada district participated in the program.
 4. Type of Program:
 - Capacity-building programme aimed at enhancing farmers' technical and practical knowledge.
 5. Training Modules Covered:
 - Mushroom and spawn production techniques.
 - Organic farming practices for sustainable cultivation.
 - Nursery development for quality planting materials.
 - Post-harvest processing and value addition methods.
 6. Practical Exposure:
 - Hands-on sessions conducted at Centurion University .
 - Exposure provided at various commercial agri-based units, including: Spawn Production Unit
Mushroom
Unit Bakery
Unit
Microbiology Laboratory
- Outcome:
- Farmers gained practical skills and confidence to adopt innovative farming and processing techniques.

- Promoted knowledge sharing and the adoption of commercially viable and sustainable agri- enterprises in the Rayagada region.



Fig 10: Training on Dragon fruit

Domesticating of Dragon Fruit Cultivation at Hilltop, Centurion University Paralakhemundi

1. **Location and Background:**

- Situated on a hilltop area within the Centurion University campus, Paralakhemundi.
- The site was originally barren, rocky, and unproductive, with poor soil fertility and limited water availability.
- The land remained uncultivated for years due to its challenging topography and dryland conditions.

2. **Purpose and Vision:**

- Developed in 2022 under Centurion University’s commitment to sustainable agriculture, dryland horticulture, and experiential learning.
- Aimed to transform unproductive land into a model site for sustainable horticultural innovation.

3. **Development Process:**

- Scientific land development carried out through:
 - Land leveling and contour formation.
 - Soil enrichment using organic matter and compost.
 - Installation of drip irrigation systems for water efficiency.
 - Construction of cemented trellis poles to support dragon fruit vines (*Hylocereus* spp.).

4. **Planting and Cultivation Details:**

- High-quality planting materials of both red- and white-fleshed dragon fruit varieties were sourced.
- Implemented a systematic plantation layout ensuring proper spacing and canopy management.

- Regular nutrient management, training, and pruning conducted as per scientific recommendations.
5. Growth and Performance:
- Within two years, the plantation has shown excellent growth and vigor.
 - Plants have now reached the bearing stage, producing their first successful harvests.
 - Fruit yield and quality have been highly encouraging. At present, the Dragon Fruit block serves multiple purposes:
- As a demonstration and training unit for students and farmers under experiential learning programmes.
 - As a research and innovation platform for exploring sustainable practices, varietal performance, and postharvest management.
 - As a model for community outreach, encouraging local farmers to adopt dragon fruit as a potential income-generating enterprise in dryland areas.

This transformation of a once-barren hilltop into a productive and vibrant horticultural landscape reflects the university's vision of integrating education, research, and sustainable development. The success of the Dragon Fruit field stands as a testimony to Centurion University's commitment to promoting livelihood-linked and climate-smart agricultural practices in the region.



Fig. 11 Land preparation in hill top for establishment of dragon fruit unit

Fig. 12 Unit at bearing stage

Impact and Significance:

- Demonstrates the feasibility of cultivating high-value, climate-resilient crops in marginal and upland hill areas.
- Serves as a model for sustainable land utilization and skill-based horticultural education.
- Provides hands-on learning opportunities for students and inspiration for local farmers to adopt innovative horticultural practices.

Terrace Orchard at Centurion University, Paralakhemundi

The development of the Terrace Orchard represents a significant step toward optimum land utilization, ecological restoration, and livelihood enhancement through horticulture. It reflects the university's continuous efforts to integrate education, research, and community engagement in promoting climate-resilient and resource-efficient farming systems.

1. **Establishment and Objective:**

- Established in 2023 at Centurion University , Paralakhemundi.
- Aimed at promoting sustainable and diversified fruit production systems in hilly and undulating terrains.
- Focused on optimum land utilization and conservation of soil and water resources.

2. **Site and Land Development:**

- Developed over a 5-acre terraced landscape, utilizing the site's natural topography.
- Created step-like platforms (terraces) to conserve soil, reduce erosion, and enhance productivity.
- Before development, the area was underutilized due to uneven slopes and poor accessibility.

3. **Soil and Water Conservation Measures:**

- Adopted systematic planning and soil conservation techniques.
- Constructed terraces with contour bunding, drainage systems, and irrigation channels.

- Ensured efficient water use and prevention of soil erosion.
4. Crop Diversity and Plantation Design:
 - A wide range of fruit crops planted to ensure year-round productivity and diversity.
 - Major crops include:
 - Guava
 - Pomegranate
 - Banana
 - Citrus
 - Custard Apple
 - Dragon Fruit
 - Crop selection based on adaptability to local climate and income potential.
 - Integrated intercrops and green manure species to improve soil fertility and biodiversity.
 5. Scientific Management Practices:
 - Drip irrigation installed for water efficiency.
 - Mulching applied to retain soil moisture and suppress weeds.
 - Integrated nutrient management (INM) for balanced plant nutrition.
 - Regular pruning, canopy management, and pest monitoring implemented.
 6. Performance and Early Results:
 - Orchard shows excellent plant establishment and vigorous vegetative growth.
 - Early-bearing species (like banana and guava) have already begun producing fruits.
 - Indicates strong potential for long-term productivity and sustainability.
 7. Academic and Community Impact:
 - Functions as a model demonstration site under the M.S. Swaminathan School of Agriculture.
 - Provides hands-on learning for students, researchers, and farmers.
 - Supports research, training, and skill development in:
 - Sustainable horticulture
 - Water-efficient farming
 - Land reclamation and soil conservation practices
 8. Significance:
 - A model of integrated and eco-friendly fruit production in upland ecosystems.
 - Demonstrates how scientific land management can transform marginal terrains into productive assets.
 - Contributes directly to SDGs on sustainable agriculture, land conservation, and education. Centurion University envisions becoming a regional hub for sustainability education and ecological research in eastern India. The university plans to expand its efforts through:
 - Community-based forest management programs,
 - Restoration of degraded landscapes,
 - Biodiversity documentation projects, and
 - Student-led sustainability campaigns that strengthen harmony between humans and nature.

Centurion University's initiatives in conserving and sustainably utilizing land and forest resources embody a practical, education-driven approach to environmental stewardship. By combining research, training, community engagement, and policy alignment, the university is cultivating a generation of environmentally responsible citizens committed to building a resilient and sustainable future.



Fig.13 Different activities in terraced orchard

- **Sustainably farmed food policy on campus Year 2024**

Percentage of Food Farmed Inside the University Campus:

- Approximately 30-40% of the total fresh produce used in university food outlets is now grown within the campus through organic and sustainable farming methods.
- Campus farms and gardens cultivate a range of seasonal vegetables, herbs, and fruits using organic compost derived from BSF (Black Soldier Fly) treatment, promoting circular waste management and regenerative practices.
- The produce from campus farms directly supplies cafeterias, student mess facilities, and local events, ensuring short food miles and maximum freshness.

Market Links with Local Producers or Farmers' Groups:

- The university maintains active partnerships with local farmer cooperatives and small-scale producers, sourcing fresh, traceable, and sustainably grown products. Around 1,200 farmers benefited from the activities of RAWE students during their field allotments. The students guided farmers in soil testing and obtaining Soil Health Cards, helped them adopt new and improved seed varieties, and demonstrated the use of modern agricultural technologies. They also created awareness about organic farming and trained farmers in preparing organic nutrients like compost and bio-fertilizers. These efforts not only improved farmers' knowledge and productivity but also promoted sustainable and eco- friendly farming practices.
- Collaborations with 5 community-supported agriculture (CSA) networks and farmers' associations nearby villages and ensure fair pricing , reliable supply chains, and mutual knowledge exchange on sustainable farming practices of crops like rice, maize, groundnut, sunflower.
- Every month end farmers' markets and procurement fairs are organized on campus to promote local produce and strengthen rural-urban food linkages.
- The university encourages student and faculty research collaborations with local producers to improve sustainable agriculture, organic farming, and waste-to-resource technologies. The faculty are actively collaborating on the development of new rice varieties such as Diafit rice, aimed at improving yield and resilience. As part of this initiative, seeds of these varieties are being distributed to nearby farmers to evaluate their performance and adaptability under local field conditions.

Integration with Campus Sustainability Goals:

- Campus-farmed produce and local procurement together reduce carbon emissions associated with transport and support the local economy.
- The initiative also aligns with SDG 15.2.2 (Promote sustainable management of forests and halt biodiversity loss) by conserving soil health, promoting pollinator-friendly cultivation, and using organic waste-derived fertilizers.
- Educational programs link students with on-campus farming projects, providing experiential learning on sustainable agriculture and food system resilience.



Figure 14: Showing the Black Soldier fly used as Compost



Figure 15: Shows the fresh farm vegetables available at Campus

- **Sustainable Land Management Outreach, biodiversity of both plants and animals SDG 15.2.3.**
 - Conducts plantation drives and promotes organic farming practices.
 - Demonstrates dragon fruit, stevia cultivation, and integrated agroforestry on degraded land.
 - Implements vermicompost and Black Soldier Fly composting for organic waste management.
 - Provides hands-on farmer training, field visits, and RAWE-based rural internships for students.
 - Promotes crop rotation, intercropping, soil conservation, and biodiversity enhancement techniques.
 - Maintains an apiculture (beekeeping) unit with 28 bee boxes to conserve bees and increase honey production.
 - Ensures bee health through floral plantation, hive hygiene, ant control, and supplementary feeding.
 - Offers educational beekeeping demonstrations to schools and visitors to raise awareness on the role of bees in agriculture and ecosystem health.

1. Bees' conservation:

A variety of conservation methods were implemented to support healthy bee populations and enhance productivity.

Beekeeping Management Practices

- Seasonal crops like pumpkin, sweet corn, and sunflower were planted to ensure continuous and diverse pollen and nectar for bees.
- Regular hive cleaning was carried out to maintain hygiene and prevent diseases.
- Ant wells were filled with water to protect bee colonies from ant infestations.
- Sugar feeding was provided during low-nectar periods to support bee energy needs.
- Brood data was recorded regularly to monitor colony health and growth.
- Permanent bee-friendly floral species were planted to create a sustainable, year-round forage base for bees.



Figure 16: Cleaning of Bee boxes and brood data collection

2. Enhancement of biodiversity through plantation drive:

To support bee-friendly flora and overall campus biodiversity, Centurion University has planted a variety of species including Cuphia (purple), Mexican creeper, native sunflowers, Passiflora, Cypress vine, moss-rose purslane, Jatropha, Clematis, Jamun (multiple varieties), Radhachuda, Patali tree, water poppy, Dolichandran, star fruit, and native ber.

These plants provide continuous forage for pollinators and contribute to a balanced ecosystem on campus.

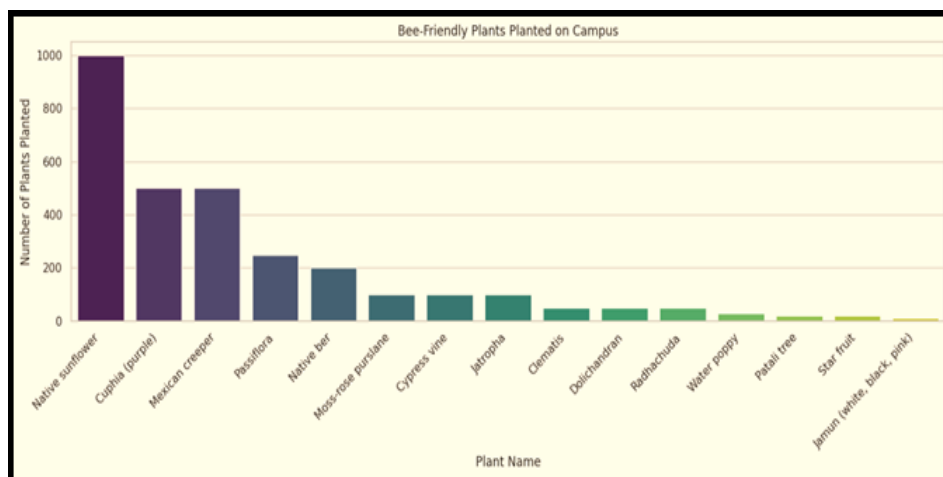


Figure 17: Graph showing New plants have been planted on campus to enhance biodiversity

- **Organic Farming Practices:**

Through experiential learning and rural outreach, students at Centurion University actively promote organic farming techniques. They assist farmers in preparing organic inputs like Panchagavya and Jeevamrita, demonstrate the use of vermicompost and Azolla, and encourage sustainable pest management practices. These efforts enhance soil health, reduce chemical dependency, and support sustainable agricultural productivity in surrounding communities.



Figure 18: vermicompost unit with different organic treatments to improve soil health

- **Flora and Fauna diversity on Campus:**

Centurion University is committed to preserving local flora and fauna by maintaining green spaces, supporting biodiversity conservation projects, and protecting natural habitats on campus. The institution’s efforts include soil health monitoring, habitat restoration through plantation drives, and awareness programs that emphasize ecological balance. These initiatives contribute to

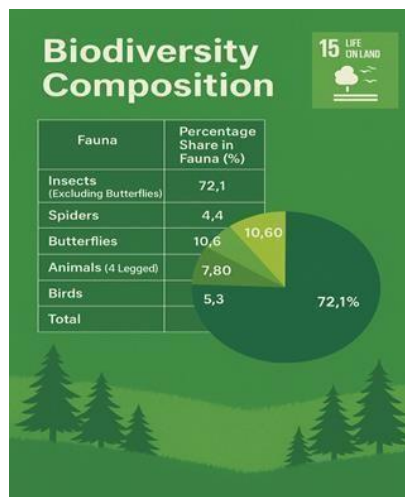
environmental sustainability and enrich the educational environment for students and researchers alike.

- **The fauna Diversity in the campus:**

The fauna diversity on the Centurion University campus is predominantly composed of insects, which constitute 72.1% of the total fauna, amounting to 396 individuals. Spiders follow with 4.4%, totalling 24 individuals, while butterflies represent 10.6% with 58 individuals. Animals with four legs account for 7.8% (43 individuals), and birds make up 5.3% with 29 individuals. Collectively, these groups contribute to a total of 550 recorded fauna, offering a rich tapestry of biodiversity that supports various ecological functions such as pollination, pest control, and nutrient cycling.

Table 1: List of Fauna diversity in the campus

Fauna	Count	Percentage Share in Fauna(%)
Insects (Excluding Butterflies)	396	72.1
Spiders	24	4.4
Butterflies	58	10.6
Animals (4 Legged)	43	7.8
Birds	29	5.3
Total	550	100



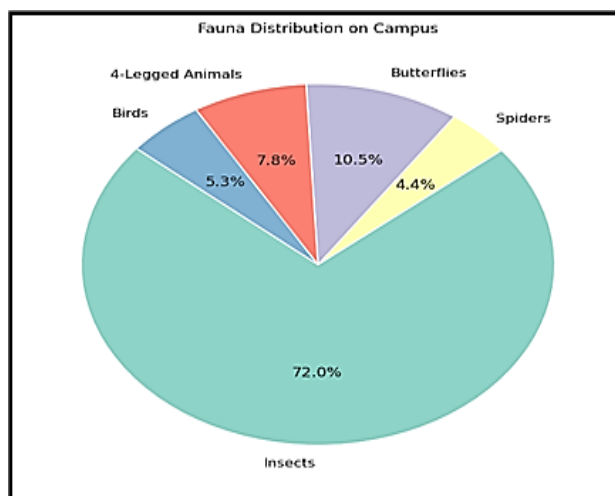


Figure 19: Pie chart shows the Fauna distribution

Table 2: Birds diversity in the campuses

Common Name	Scientific Name	Family	Count	Ecological Role	Conservation status	Measure	Value
African Dove	<i>Streptopelia roseogrisea</i>	Columbidae	6	Seed Disperser	LC	S	43
Cockatiel	<i>Nymphicus hollandicus</i>	Cacatuidae	8	Granivore	LC	D	0.382
Lovebirds	<i>Agapornis spp.</i>	Psittaculidae	10	Granivore	LC	1 - D	0.618
Finches	<i>Taeniopygia guttata</i>	Estrildidae	6	Granivore	LC	1/D	2.618
Conure	<i>Eupsittula spp.</i>	Psittacidae	4	Frugivore	LC	H	1.824
Budgerigar	<i>Melopsittacus undulatus</i>	Psittacidae	15	Granivore	LC	E	0.487
White Pekin Duck	<i>Anas platyrhynchos domestica</i>	Anatidae	15	Omnivore	Domesticated		
Indian Runner Duck	<i>Anas platyrhynchos domestica</i>	Anatidae	20	Omnivore	Domesticated		
Khaki Campbell Duck	<i>Anas platyrhynchos domestica</i>	Anatidae	18	Omnivore	Domesticated		
Muscovy Duck	<i>Cairina moschata</i>	Anatidae	7	Omnivore	LC		
Red-Eared Slider	<i>Trachemys scripta elegans</i>	Emydidae	12	Omnivore	LC		
Magur	<i>Clarias batrachus</i>	Clariidae	700	Scavenger	NT		
Singhi	<i>Heteropneustes fossilis</i>	Heteropneustidae	1000	Scavenger	LC		
Koi	<i>Cyprinus rubrofuscus</i>	Ciprinidae	600	Omnivore	Domesticated		

New Zealand White Rabbit	<i>Oryctolagus cuniculus</i>	Leporidae	4	Herbivore	Domesticated		
Giant Chinchilla Rabbit	<i>Oryctolagus cuniculus</i>	Leporidae	1	Herbivore	Domesticated		
Dutch Rabbit	<i>Oryctolagus cuniculus</i>	Leporidae	2	Herbivore	Domesticated		
Polish Rabbit	<i>Oryctolagus cuniculus</i>	Leporidae	2	Herbivore	Domesticated		
Guinea Pig	<i>Cavia porcellus</i>	Caviidae	5	Herbivore	Domesticated		
Goose	<i>Anser anser domesticus</i>	Anatidae	12	Herbivore	Domesticated		
Aseel Chicken	<i>Gallus gallus domesticus</i>	Phasianidae	20	Omnivore	Domesticated		
Kaveri Chicken	<i>Gallus gallus domesticus</i>	Phasianidae	30	Omnivore	Domesticated		
Silkie Chicken	<i>Gallus gallus domesticus</i>	Phasianidae	5	Omnivore	Domesticated		
White Leghorn Chicken	<i>Gallus gallus domesticus</i>	Phasianidae	10	Omnivore	Domesticated		
Rhode Island Red Chicken	<i>Gallus gallus domesticus</i>	Phasianidae	20	Omnivore	Domesticated		
Sonali Chicken	<i>Gallus gallus domesticus</i>	Phasianidae	20	Omnivore	Domesticated		
Donaery Chicken	<i>Gallus gallus domesticus</i>	Phasianidae	20	Omnivore	Domesticated		
Chittagong Chicken	<i>Gallus gallus domesticus</i>	Phasianidae	30	Omnivore	Domesticated		
Aseel Black Chicken	<i>Gallus gallus domesticus</i>	Phasianidae	30	Omnivore	Domesticated		
Turkey	<i>Meleagris gallopavo</i>	Phasianidae	6	Omnivore	Domesticated		
Guinea Fowl	<i>Numida meleagris</i>	Numididae	6	Omnivore	LC		
Japanese Quail	<i>Coturnix japonica</i>	Phasianide	50	Granivore	LC		
Hedgehog	<i>Atelerix albiventris</i>	Erinaceidae	1	Insectivore	LC		
Blue Iguana	<i>Cyclura lewisi</i>	Iguanidae	1	Herbivore	EN		
Labrador	<i>Canis lupus familiaris</i>	Canidae	2	Omnivore	Domesticated		
Turtle	<i>Trachemys scripta</i>	Emydidae	3	Omnivor	LC		

To protect and restore house sparrow habitats, the university has undertaken several conservation initiatives across the campus.

- Nest boxes and bird feeders have been installed in green zones, gardens, and near academic buildings to provide safe nesting and feeding spaces.
- Dedicated water stations and shaded perching areas have been created to support sparrows, especially during summer.

- The campus promotes native tree and shrub planting to enhance insect availability and shelter, while pesticide use has been minimized to maintain a healthy ecosystem.

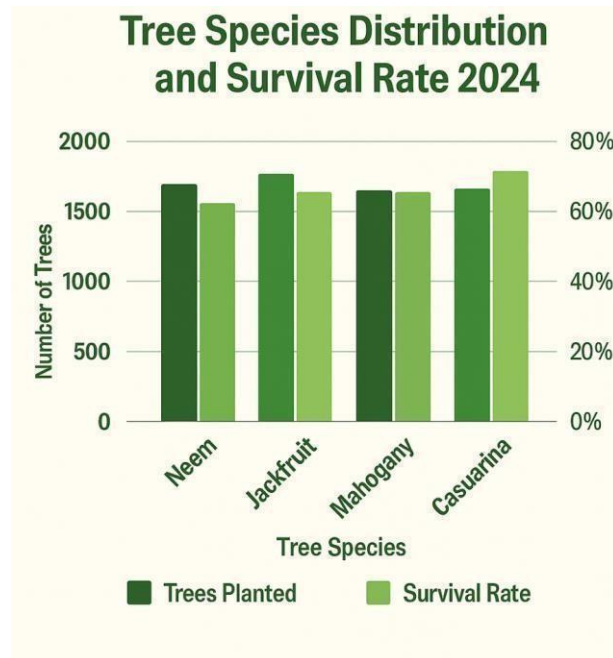
Table 3: List of Birds species

SI No.	Common Name	Scientific Name	Family	Count	Ecological Role	Conservation Status	Measure	Value
1	House Sparrow	<i>Passer domesticus</i>	Passeridae	120	Seed disperser (Urban adaptor)	LC	S	29
2	Common Myna	<i>Acridotheres tristis</i>	Sturnidae	95	Insect controller (Opportunistic feeder)	LC	D	0.092
3	Rock Pigeon	<i>Columba livia</i>	Columbidae	200	Seed disperser (Urban adaptor)	LC	1 - D	0.908
4	Asian Koel	<i>Eudynamys scolopacea</i>	Cuculidae	35	Frugivore (Brood parasite)	LC	1/D	10.87
5	Red-vented Bulbul	<i>Pycnonotus cafer</i>	Pycnonotidae	80	Frugivore (Seed disperser)	LC	H	2.384
6	Common Tailorbird	<i>Orthotomus sutorius</i>	Cisticolidae	25	Insectivore (Pest controller)	LC	E	0.709
7	Indian Peafowl	<i>Pavo cristatus</i>	Phasianidae	200	Omnivore (Cultural significance)	LC		
8	African Dove	<i>Streptopelia roseogrisea</i>	Columbidae	6	Seed Disperser	LC		
9	Cockatiel	<i>Nymphicus hollandicus</i>	Cacatuidae	8	Granivore	LC		
10	Lovebirds	<i>Agapornis spp.</i>	Psittaculidae	10	Granivore	LC		
11	Finches	<i>Taeniopygia guttata</i>	Estrildidae	6	Granivore	LC		
12	Conure	<i>Eupsittula spp.</i>	Psittacidae	4	Frugivore	LC		
13	Budgerigar	<i>Melopsittacus undulatus</i>	Psittacidae	15	Granivore	LC		
14	White Pekin Duck	<i>Anas platyrhynchos domestica</i>	Anatidae	15	Omnivore	Domesticated		
15	Indian Runner Duck	<i>Anas platyrhynchos domestica</i>	Anatidae	20	Omnivore	Domesticated		
16	Khaki Campbell Duck	<i>Anas platyrhynchos domestica</i>	Anatidae	18	Omnivore	Domesticated		
17	Muscovy Duck	<i>Cairina moschata</i>	Anatidae	7	Omnivore	LC		
18	Aseel Chicken	<i>Gallus gallus domesticus</i>	Phasianidae	20	Omnivore	Domesticated		
19	Kaveri Chicken	<i>Gallus gallus domesticus</i>	Phasianidae	30	Omnivore	Domesticated		
20	Silkie Chicken	<i>Gallus gallus domesticus</i>	Phasianidae	5	Omnivore	Domesticated		
21	White Leghorn Chicken	<i>Gallus gallus domesticus</i>	Phasianidae	10	Omnivore	Domesticated		

22	Rhode Island Red Chicken	<i>Gallus gallus domesticus</i>	Phasianidae	20	Omnivore	Domesticated		
23	Sonali Chicken	<i>Gallus gallus domesticus</i>	Phasianidae	20	Omnivore	Domesticated		
24	Donaery Chicken	<i>Gallus gallus domesticus</i>	Phasianidae	20	Omnivore	Domesticated		
25	Chittagong Chicken	<i>Gallus gallus domesticus</i>	Phasianidae	30	Omnivore	Domesticated		
26	Aseel Black Chicken	<i>Gallus gallus domesticus</i>	Phasianidae	30	Omnivore	Domesticated		
27	Turkey	<i>Meleagris gallopavo</i>	Phasianidae	6	Omnivore	Domesticated		
28	Guinea Fowl	<i>Numida meleagris</i>	Numididae	6	Omnivore	LC		
29	Japanese Quail	<i>Coturnix japonica</i>	Phasianidae	50	Granivore	LC		

- **Afforestation and Micro-Forest Development**

- 3,090 saplings planted in 2024 (80+ species across 5 campuses).
- Average survival \approx 85 %.
- Species richness index ($H' = 3.74$).







- **Soil Health and Land Restoration**

- 120 soil samples tested; mean pH \uparrow 6.2 \rightarrow 7.0; SOC \uparrow 0.48 \rightarrow 0.57 (+18 %).
- NPK balance improved through organic compost integration.

- Soil Health Cards distributed to 120 farmers across Odisha and Andhra Pradesh.

Parameter	2023 Value	2024 Value	% Change	Ecological Outcome
Soil Organic Carbon (%)	0.45	0.72	+60%	Enhanced soil fertility and microbial activity
Available Nitrogen (kg/ha)	250	310	+24%	Improved plant growth and productivity
Available Phosphorus (kg/ha)	18	28	+55%	Better root development and yield
Available Potassium (kg/ha)	220	295	+34%	Improved crop resilience and stress tolerance
pH Range	6.4 – 6.8	6.5 – 6.9	–	Stable soil condition
Bulk Density (g/cm ³)	1.42	1.36	-4%	Enhanced soil porosity and aeration
Soil Moisture Retention (%)	22	28	+27%	Better drought resistance and infiltration capacity

Soil Health Metrics (2023–2024)				
Parameter	2023	2024	% Change	
 pH	5.8	6.4	+10%	
 Organic Carbon	0.67%	0.72%	+7%	
 Available Nitrogen	238 kg/ha	254 kg/ha	+7%	
 Soil Pest Incidence	9%	7%	-2%	

- **Livestock farm complex :**

The livestock farm complex comprises a diversified unit with cattle & buffalo, sheep & goat, piggery and poultry unit.

Species	Breed/Type	Number of Animals
Goat	Ganjam	12
Sheep	Ganjam	48
	Nellore	76
	Total Sheep and Goat	136
Cattle	Khariar	7
	Binjarpuri	11
	Holstein Friesian (HF)	11
	Crossbred HF (CBHF)	22
	Crossbred Jersey (CBJY)	6
	Gir	1
Buffalo	Gradded Murrah	6
	Total Cattle and buffalo	64
Poultry	White Leghorn (BV-300) – Layers	1,420
	Desi Chicken (Adults)	24
	Cari Sonali (Growers)	99
	Cari Sonali Chicks	34
	Total Poultry	1577
Pig	Large White Yorkshire	86 (incl. piglets)
	Duroc	7
	Landrace	7
	Total Pigs	100
	Total Livestock and Poultry	1877

Figure 20: Shows the Poultry and piggery distribution

Table 4: Shows the number of Livestock present in the campus



Figure 21: Shows the glimpses of livestock Farm

- **Floral Diversity in the Paralakhemundi Campus:**

The campus is home to over 80 different tree species, including both common and rare varieties. In total, there are 3,090 individual trees, comprising approximately 1,043 mango trees, 861 teak, 488 Acacia mangium, 274 weeping figs (*Ficus benjamina*), and 150 coconut palms (*Cocos nucifera*). Among these are several rare and threatened species, such as Red Sandalwood (endangered), Sandalwood (vulnerable), and Bael (near threatened). This rich assemblage reflects both biodiversity and conservation importance, combining large populations of dominant species with the presence of threatened varieties that add ecological and botanical value. The Shannon Index falls roughly in the range of 2.0 to 3.0. In well-balanced natural forests, values around 2.5 or above are common. This reflects both richness (many species) and a degree of evenness, despite dominance by a few species.

Table 5: List of tree species present in the campus

Sl.No	Common name	Scientific name	IUCN status	Family	Number of individuals
1	Fig	<i>Ficus carica</i>	LC	Moraceae	5
2	Royal Ponciana	<i>Delonix regia</i>	LC	Fabaceae	25
3	Devil tree	<i>Alstonia scholaris</i>	LC	Apocynaceae	242
4	Palash	<i>Butea monosperma</i>	LC	Fabaceae	6
5	Karanja tree	<i>Millettia pinnata</i>	LC	Fabaceae	77

6	Karaka tree	<i>Canthium coromandelicum</i>	NOT ASSESSE	Corynocarpaceae	5
7	Neem tree	<i>Azadirachta indica</i>	LC	Meliaceae	71
8	Weeping fig	<i>Ficus benjamina</i>	LC	Moraceae	274
9	Pride of India	<i>Lagerstroemia speciosa</i>	NOT ASSESSE	Lythraceae	11
10	Kagzi lime	<i>Citrus aurantifolia</i>	NOT ASSESSE	Rutaceae	37
11	Yellow Elder plant	<i>Tecoma stans</i>	LC	Bignoniaceae	8
12	Pine	<i>Pinus spp. L.</i>	LC	Pinaceae	2
13	Debdaru	<i>Monoon longifolium</i>	NOT ASSESSE	Annonaceae	133
14	Royal palm	<i>Dypsis lutescens</i>	LC	Arecaceae	48
15	Singapore graveyard flower	<i>Plumeria obtuse</i>	LC	Apocynaceae	49
16	Yellow flame tree / copper pod tree	<i>Peltophorum pterocarpum</i>	NOT ASSESSE	Fabaceae	3
17	Cashew nut	<i>Anacardium occidentale</i>	LC	Anacardeaceae	43
18	Mango	<i>Mangifera indica</i>		Anacardeaceae	1043
19	Teak tree	<i>Tectona grandis</i>	NOT ASSESSE	Lamiaceae	861
20	Custard apple	<i>Annona squamosa</i>	LC	Annonaceae	13
21	Indian cherry	<i>Frangula caroliniana</i>	LC	Rhamnaceae	29
22	Coconut	<i>Cocos nucifera</i>	NOT ASSESSE	Arecaceae	150
23	Guava	<i>Psidium guajava</i>	LC	Myrtaceae	104
24	Mangium	<i>Acacia mangium</i>	NOT ASSESSE	Fabaceae	488
25	Cadamba	<i>Neolamarckia cadamba</i>	NOT ASSESSE	Rubiaceae	25
26	Jack fruit	<i>Artocarpus heterophyllus</i>	NOT ASSESSE	Moraceae	82
27	Tasmanian blue gum	<i>Eucalyptus globulus</i>	LC	Myrtaceae	19
28	Black tea tree	<i>Melaleuca bracteate</i>	DATA DEFICIE	Myrtaceae	5
29	Thuja	<i>Thuja occidentalis L.</i>	LC	Cupressaceae	58
30	Oil nut	<i>Calophyllum inophyllum</i>	LC	Euphorbiaceae	31
31	Lemon	<i>Citrus limon</i>	NOT ASSESSE	Rutaceae	16
32	Sapota	<i>Manilkara zapota</i>	LC	Sapotaceae	2
33	Sweet neem tree / curry leaf	<i>Murraya koenigii</i>	LC	Rutaceae	21
34	Gamhar	<i>Gmelina arborea</i>	LC	Lamiaceae	1

35	Kanchana	<i>Bauhinia variegata</i>	LC	Fabaceae	2
36	Sesendok	<i>Endospermum diadenum</i>	LC	Euphorbiaceae	1
37	Fiddle leaf plumeria	<i>Plumeria pudica</i>	LC	Apocynaceae	1
38	Jamun	<i>Syzygium cumini</i>	LC	Myrtaceae	2
39	China berry	<i>Melia azedarach</i>	LC	Meliaceae	1
40	Satin wood	<i>Chloroxylon swietenia</i>	VULNERABLE	Rutaceae	1
41	Indian tulip tree	<i>Thespesia populnea</i>	LC	Malvaceae	2
42	Osier	<i>Salix sp.</i>	LC	Salicaceae	1
43	Weeping mulberry	<i>Morus alba</i>	NOT ASSESSE	Moraceae	2
44	Khejri	<i>Prosopis cineraria</i>	NOT ASSESSE	Fabaceae	1
45	Indian goose berry	<i>Phyllanthus emblica</i>	LC	Phyllanthaceae	4
46	Bael	<i>Aegle marmelos</i>	NEAR THREAT	Rutaceae	7
47	Big leaf mahogany	<i>Swietenia macrophylla</i>	VULNERABLE	Meliaceae	1
48	Henna	<i>Lawsonia inermis</i>	LC	Lythraceae	2
49	English wal nut	<i>Juglans regia</i>	LC	Juglandaceae	1
50	Sandal wood	<i>Santalum album</i>	VULNERABLE	Santalaceae	1
51	Scarlet bush	<i>Hamelia patens</i>	LC	Rubiaceae	3
52	Japanese wingnut	<i>Pterocarya rhoifolia</i>	LC	Fabaceae	1
53	Lipstick tree	<i>Bixa Orellana</i>	LC	Bixaceae	1
54	Chestnut leaved oak	<i>Quercus castaneifolia</i>	NEAR THREAT	Fagaceae	1
55	Sausage Tree	<i>Kigelia Africana</i>	LC	Bignoniaceae	1
56	Acacia	<i>Acacia auriculiforms</i>	LC	Fabaceae	72
57	orchid tree	<i>Bauhinia purpurea</i>	LC	Fabaceae	1
58	Peepal	<i>Ficus religiosa</i>	NOT ASSESSE	Moraceae	4
59	Almond	<i>Prunus dulcis</i>	NOT ASSESSE	Rosaceae	5
60	Banyan tree	<i>Ficus benghalensis</i>	NOT ASSESSE	Moraceae	5
61	Palmyra palm/ Doub palm	<i>Borassus flabellifer</i>	NOT ASSESSE	Arecaceae	12
62	Shirisha	<i>Albizia lebbek</i>	LC	Fabaceae	15
63	Rubber fig	<i>Ficus elastica</i>	NOT ASSESSE	Moraceae	1

64	Red stem fig	<i>Ficus variegata</i>	LC	Moraceae	3
65	Red sandel wood	<i>Pterocarpus santalinus</i>	ENDANG ERED	Fabaceae	3
66	Indian plum/ber	<i>Ziziphus mauritiana</i>	LC	Rhamnaceae	4
67	Bread Fruit	<i>Artocarpus altilis</i>	NOT ASSESE	Moraceae	2
68	Pomelo	<i>Citrus maxima</i>	LC	Rutaceae	6
69	Spinous kino tree	<i>Bridelia retusa</i>	LC	Phyllanthace ae	5
70	Karra	<i>Cleistanthus collinus</i>	VULNER ABLE	Phyllanthace ae	3
71	Rain tree	<i>Samanea saman</i>	LC	Fabaceae	15
72	Shisham	<i>Dalbergia sissoo</i>	LC	Fabaceae	12
73	Long - leaved wattle	<i>Acacia longifolia</i>	LC	Fabaceae	1
74	Carambola	<i>Averrhoa carambola</i>	NOT ASSESE	Oxalidaceae	1
75	Indian trump tree	<i>Oroxylum indicum</i>	NOT ASSESE	Bignoniacea e	1
76	Date palm	<i>Phoenix dactylifera</i>	LC	Arecaceae	3
77	Ritha	<i>Sapindus mukorossi</i>	LC	Sapindaceae	1
78	Chinese privet	<i>Ligustrum sinense</i>	NOT ASSESE	Oleaceae	1
79	Black cherry	<i>Prunus serotina</i>	NOT ASSESE	Rosaceae	1
80	Spanish cherry	<i>Mimusops elengi</i>	LC	Sapotaceae	1

Table 6: List of medicinal and aromatic plants

Serial No	Common name	Botanical Name	Family
1	Bharangi/ Chingari	<i>Clerodendrum indicum</i>	Verbenaceae
2	Allspice	<i>Pimenta dioica</i>	Myrtaceae
3	Cape Jasmine	<i>Gardenia jasminoides</i>	Rubiaceae
4	English Walnut	<i>Juglans regia</i>	Juglandaceae
5	Purple Allamanda	<i>Allamanda purpurea</i>	Apocynaceae
6	Red Lucky seed	<i>Adenanthera pavonina</i>	Fabaceae
7	Phalsa	<i>Grewia asiatica</i>	Malvaceae
8	Orange jasmine/ Kamini	<i>Murraya exotica</i>	Rutaceae
9	Sausage tree	<i>Kigelia africana</i>	Bignoniaceae

10	Indian sandalwood	<i>Santalum album</i>	Santalaceae
11	Fiddle leaf plumeria	<i>Plumeria pudica</i>	Apocynaceae
12	Wood apple	<i>Limonia acidissima</i>	Rutaceae
13	Putranjiva	<i>Putranjiva roxburghii</i>	Putranjivaceae
14	chestnut-leaved oak	<i>Quercus cestaneifolia</i>	Fagaceae
15	Lipstick tree	<i>Bixa ollerana</i>	Bixaceae
16	Chinese privet	<i>Ligustrum sinense</i>	Oleaceae
17	Henna	<i>Lawsonia inermis</i>	Lythraceae
18	Gamhar	<i>Gmelina arborea</i>	Lamiaceae
19	Indian Almond	<i>Terminalia catappa</i>	Combretaceae
20	Jamun	<i>Syzigium sp</i>	Myrtaceae
21	Teak	<i>Tectona grandis</i>	Lamiaceae
22	Sweet neem/ Indian lilac	<i>Melia azaderach</i>	Meliaceae
23	Indian trumpet tree	<i>Oroxylum indicum</i>	Bignoniaceae
24	African tulip tree	<i>Spathodea campanulata</i>	Bignoniaceae
25	Pride of India	<i>Lagerstroemia flos-reginae</i>	Lythraceae
26	Bottlebrush	<i>Callistemon lanceolatus</i>	Myrtaceae
27	Palash/ Flame of the forest	<i>Butea monosperma</i>	Fabaceae
28	Scarlet bush	<i>Hamelia patens</i>	Rubiaceae
29	Japanese wingnut	<i>Pterocarya rhoifolia</i>	Juglandaceae
30	Smooth sumac	<i>Rhus glabra</i>	Anacardiaceae
31	Big-leaf mahogany	<i>Swietenia macrophylla</i>	Meliaceae
32	Nux vomica	<i>Strychnos nux-vomica</i>	Loganiaceae
33	Black cherry	<i>Prunus serotina</i>	Rosaceae
34	Ceylon cinnamon	<i>Cinnamomum verum</i>	Lauraceae
35	Blue porterweed/ Worryvine	<i>Stachytarpheta jamaicensis</i>	Verbenaceae
36	Parijat	<i>Nyctanthes arbor-tristis</i>	Oleaceae
37	Texas sage	<i>Leucophyllum frutescens</i>	Scrophulariaceae

Plant diversity in Bhubaneswar campus:

38	Indian gooseberry	<i>Phyllanthus emblica</i>	Phyllanthaceae
39	Bael	<i>Aegle marmelos</i>	Rutaceae
40	Florida fiddlewood	<i>Citharexylum spinosum</i>	Verbenaceae
41	Bluebellvine	<i>Clitoria ternatea</i>	Fabaceae
42	Elephant apple	<i>Dillenia indica</i>	Dilleniaceae
43	Peacock flower	<i>Caesalpinia pulcherrima</i>	Fabaceae
44	Ritha	<i>Sapindus mukorossi</i>	Sapindaceae
45	Red sandalwood	<i>Pterocarpus santalinus</i>	Fabaceae
46	Sapota	<i>Manilkara zapota</i>	Sapotaceae
47	Osier	<i>Salix sp</i>	Salicaceae
48	Long-leaved wattle	<i>Acacia longifolia</i>	Fabaceae
49	California sycamore	<i>Plantanus racemosa</i>	Platanaceae
50	Carambola/ Star fruit	<i>Averrhoa carambola</i>	Oxalidaceae
51	Soursop	<i>Annona reticulata</i>	Annonaceae
52	Sesendok	<i>Endospermum diadenum</i>	Euphorbiaceae
53	Rayan/ Khirni	<i>Manilkara hexandra</i>	Sapotaceae
54	Spanish cherry	<i>Mimusops elengii</i>	Sapotaceae
55	red cotton tree	<i>Bombax ceiba</i>	Malvaceae
56	Ghaf/ Khejri	<i>Psoropsis cineraria</i>	Fabaceae
57	Indian tulip tree	<i>Thespesia populnea</i>	Malvaceae
58	Lemon grass	<i>Cymbopogon citratus</i>	Poaceae
59	Black ginger	<i>Kaempferia parviflora</i>	Zingiberaceae
60	Date palm	<i>Phoenix sylvestris</i>	Arecaceae
61	Pomegranate	<i>Punica granatum</i>	Lythraceae
62	Nisinda	<i>Vitex negundo</i>	Lamiaceae
63	Kanchan	<i>Bauhinia variegata</i>	Fabaceae
64	Chekurmanis/ Multi vitamin green	<i>Sauropus androgynus</i>	Phyllanthaceae
65	Asparagus	<i>Asparagus officinalis</i>	Asparagaceae
66	Vetiver/ Khus-Khus	<i>Chrysopogon zizanioides</i>	Poaceae

67	Cotton	<i>Gossypium hirsutum</i>	Malvaceae
68	Jatropha	<i>Jatropha curcas</i>	Euphorbiaceae
69	Malabar nut/ Vasaka	<i>Justicia adhatoda</i>	Acanthaceae
70	Tulasi/ Basil	<i>Ocimum sanctum</i>	Lamiaceae
71	Krishna Tulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae
72	Apple of Sodom	<i>Calotropis procera</i>	Apocynaceae
73	Elephant creeper	<i>Argyreia nervosa</i>	Convolvulaceae
74	Shell ginger	<i>Alpinia zerumbet</i>	Zingiberaceae
75	Whiteywood	<i>Melicytus ramiflorus</i>	Violaceae
76	Frémont's cottonwood	<i>Populus fremontii</i>	Salicaceae
77	Toothed spurge	<i>Euphorbia dentata</i>	Euphorbiaceae
78	China rose	<i>Hibiscus rosa-sinensis</i>	Malvaceae
79	Pandan leaf	<i>Pandan amaryllifolius</i>	Pandanaceae
80	Touch me not	<i>Mimosa pudica</i>	Fabaceae

present in Bhubaneswar Campus

Table 7: List of Plant

No.	Plant Name	Quantity
1	Mango (<i>Mangifera indica</i>)	1720
2	Pomelo (<i>Citrus maxima</i>)	100
3	Jatropha (<i>Jatropha curcas</i>)	45
4	Jackfruit (<i>Artocarpus heterophyllus</i>)	15
5	Assam Tea (<i>Camellia sinensis</i>)	14
6	Arabica Coffee (<i>Coffea arabica</i>)	350
7	Cocoa (<i>Theobroma cacao</i>)	50
8	Jamaica cherry (<i>Muntingia calabura</i>)	15
9	Firebush (<i>Hamelia patens</i>)	140
10	Pineapple (<i>Ananas comosus</i>)	100
11	Turmeric (<i>Curcuma longa</i>)	3500
12	Ginger (<i>Zingiber officinale</i>)	250
13	Jamun (<i>Syzygium cumini</i>)	35
14	Karanja (<i>Millettia pinnata</i>)	25
15	Bottle Brush (<i>Melaleuca viminalis</i>)	2
16	Cannonball Tree (<i>Couroupita guianensis</i>)	6
17	Wood Apple (<i>Aegle marmelos</i>)	6
18	Kadamba (<i>Neolamarckia cadamba</i>)	4
19	<i>Terminalia chebula</i>	5
20	Neem Tree	40

21	Curry Leaf Tree	30
22	Casuarina	10
23	Ginger (duplicate)	180
24	Wild Date Palm	3
25	Harida	35
26	Bahada	22
27	Indian Ber	25
28	Sal	3
29	Amla	6
30	Patali Tree	20
31	Kewda (<i>Screw Pine</i>)	70
32	Star Fruit	5
33	Wild Orchid	50
34	Hybrid Flowering Orchid	1500
35	Hog Plum	5
36	Chinese Ixora	30
37	Sugarcane	100
38	Arecanut Palm	200
39	Coconut	200
40	Gulmohar	5
41	<i>Monoon longifolium</i>	60
42	<i>Mimusops elengi</i>	40
43	Garlic Vine	100
44	Bitter Vine (<i>Mikania micrantha</i>)	60
45	Trumpet Vine	150
46	Bleeding Heart	90
47	Mandevilla	30
48	Blue Skyflower (<i>Thunbergia grandiflora</i>)	35
49	Mexican Creeper (<i>Antigonon leptopus</i>)	12
50	Creeping Fig (<i>Ficus pumila</i>)	100
51	Screwpine (<i>Pandanus tectorius</i>)	150
52	Spider Plant (<i>Chlorophytum comosum</i>)	200
53	Golden Milky (<i>Dracaena</i>)	200
54	Roheo (<i>Tradescantia spathacea</i>)	500
55	Striped Wandering Jew (<i>Tradescantia zebrina</i>)	300
56	Joyweed (<i>Alternanthera</i>)	1000
57	Alocasia (<i>Alocasia macrorrhizos</i>)	50
58	Peace Lily (<i>Spathiphyllum wallisii</i>)	100
59	Croton (<i>Codiaeum variegatum</i>)	40
60	Jasmine (<i>Jasminum officinale</i>)	150
61	Orange Jasmine (<i>Murraya paniculata</i>)	300
62	Snake Plants (<i>Dracaena trifasciata</i>)	1000
63	ZZ Plant (<i>Zamioculcas zamiifolia</i>)	250
64	Jade Plant (<i>Crassula ovata</i>)	600
65	Bougainvillea (<i>Bougainvillea glabra</i>)	150

66	Lemon Grass (<i>Cymbopogon flexuosus</i>)	150
67	Papaya (<i>Carica papaya</i>)	20
68	Bamboo (<i>Bambusa vulgaris</i>)	200
69	Century Plant (<i>Agave americana</i>)	100
70	Coleus (<i>Coleus amboinicus</i>)	600
71	Copper Leaf (<i>Acalypha wilkesiana</i>)	700
72	Palmyra Palm (<i>Borassus</i>)	6
73	Chinese Evergreen (<i>Aglaonema modestum</i>)	50
74	Philodendron	25
75	Alocasia (duplicate)	20
76	Devil's Backbone (<i>Euphorbia tithymaloides</i>)	250
77	Crape Jasmine (<i>Tabernaemontana divaricata</i>)	40
78	Vinca (<i>Catharanthus roseus</i>)	1300
79	Marigold (<i>Tagetes erecta</i>)	1200
80	<i>Chrysanthemum carinatum</i>	300
81	Sunflower (<i>Helianthus annuus</i>)	300
82	Mustard (<i>Brassica juncea</i>)	1500
83	Melon (<i>Cucumis melo</i>)	15
84	Money Plant (<i>Epipremnum aureum</i>)	2000
85	Banana (<i>Musa acuminata</i>)	40
86	Maize (<i>Zea mays</i>)	2500

Table 8: PBI of plants inside BBSR campus

Measure	Value
S	86
D	0.056
1 - D	00.944
1/D	17.857
H	3.351
E	00.752

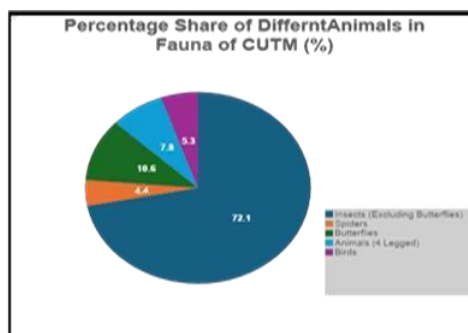


Figure 22: Pie chart showing the Fauna distribution

Table 9: Orchids Population

No.	Orchid Type	Quantity (nos)
1	Dendrobium	1700
2	Phalaenopsis	10
3	Vanda	6
4	Wild Orchid	100

Table 10:PBI of Orchids

Measure	Value
S	4
D	00.879
1 - D	00.121
1/D	1.138
H	00.269
E	00.194

Table 11: List of plants in micro forest site

No.	Plant Name (Common Name)	Botanical Name	Quantity
1	Champa	<i>Plumeria rubra</i>	6
2	Neem	<i>Azadirachta indica</i>	16
3	Karanja	<i>Pongamia pinnata</i>	18
4	Sunari / Golden shower	<i>Cassia fistula</i>	17
5	Mulberry	<i>Morus alba</i>	4
6	Ashoka	<i>Saraca asoca</i>	4
7	Baula	<i>Mimusops elengi</i>	22
8	Kusum / Lac tree	<i>Schleichera oleosa</i>	6
9	Jacaranda / Neel mohar	<i>Jacaranda mimosifolia</i>	17
10	Kamini	<i>Murraya paniculata</i>	19
11	Pride of India	<i>Lagerstroemia speciosa</i>	11
12	Katha Champa	<i>Plumeria pudica</i>	3
13	Chhena Phula / Crape Myrtle	<i>Lagerstroemia indica</i>	9
14	Fire Bush	<i>Hamelia patens</i>	50
15	Hibiscus (bush type)	<i>Hibiscus rosasinensis</i>	14
16	Betelnut	<i>Areca palm</i>	9
17	Pomelo	<i>Citrus grandis</i>	6

18	Kanchana / Orchid Tree	<i>Bauhinia variegata</i>	8
19	Phasi	<i>Anogeissus acuminata</i>	1
20	Tapioca	<i>Manihot esculenta</i> (Cassava)	8
21	Starfruit	—	9
22	Sal	<i>Shorea robusta</i>	7
23	Arjuna	<i>Terminalia arjuna</i>	10
24	Aparajita Tree	—	2
25	Jackfruit	<i>Artocarpus heterophyllus</i>	4
26	Elephant Apple	<i>Dillenia indica</i>	4
27	Curry Leaf / Sweet Neem	<i>Murraya koenigii</i>	2
28	Mango	<i>Mangifera indica</i>	5
29	Indian Almond	<i>Terminalia catappa</i>	6
30	Mahogany	<i>Swietenia macrophylla</i>	3
31	Tamarind	<i>Tamarindus indica</i>	5
32	Peacock Flower / Godibana	<i>Caesalpinia pulcherrima</i>	6
33	Radhachura	<i>Caesalpinia pulcherrima</i>	1
34	Kendu	<i>Diospyros melanocarpa</i>	3
35	Custard Apple	<i>Annona squamosa</i>	6
36	Sahada / Toothbrush Tree	<i>Streblus asper</i>	3
37	Putranjiva	<i>Putranjiva roxburghii</i>	5
38	Tecoma	<i>Tecoma stans</i>	4
39	Phalsa	<i>Grewia asiatica</i>	2
40	Bilberry	—	2
41	Peepal	<i>Ficus religiosa</i>	1
42	Red Sandalwood	<i>Pterocarpus santalinus</i>	5
43	Teak	<i>Tectona grandis</i>	1
44	Coffee	<i>Coffea arabica</i>	1
45	Nutmeg	<i>Myristica fragrans</i>	3
46	Indian Blackberry	<i>Syzygium cumini</i>	1
47	Dorian	<i>Durio zibethinus</i>	4
48	White Jamun / Water Apple	<i>Syzygium aqueum</i>	7
49	Bahada	<i>Terminalia bellirica</i>	5
50	Shishu / Indian Rosewood	<i>Dalbergia sissoo</i>	5
51	Gangasiuli / Night-flowering Jasmine	<i>Nyctanthes arbor-tristis</i>	3
52	Golap Jamun / Red Rose Apple	<i>Syzygium jambos</i>	1
53	Amla	<i>Phyllanthus emblica</i>	3
54	Jamaica Cherry	<i>Muntingia calabura</i>	1
55	Litchi	<i>Litchi chinensis</i>	2
56	Rudraksha	<i>Elaeocarpus angustifolius</i>	1
57	Rubber Plant	<i>Ficus elastica</i>	2
58	White Sandalwood	<i>Santalum album</i>	3
59	Wild Jasmine	<i>Jasminum arborescens</i>	1
60	Palasa	<i>Butea monosperma</i>	1
61	Clove	<i>Syzygium aromaticum</i>	1

62	Cocoa	<i>Theobroma cacao</i>	3
63	Harida	<i>Terminalia chebula</i>	5
64	Bel Fruit	<i>Aegle marmelos</i>	1
65	Avocado	<i>Persea americana</i>	1
66	Tejapatra / Indian Bay Leaf	<i>Cinnamomum tamala</i>	5
67	Hingu / Asafoetida	<i>Ferula asafoetida</i>	1
68	Jatropha	<i>Jatropha integerrima</i>	20

Table 12: List of Plants in Microforest Site (PBI)

Measure	Value
S	68
D	0.036
1 - D	00.964
1/D	27.778
H	3.745
E	00.888

Table 13: Shows medicinal plants in Bhubaneswar campus

No.	Common Name	Botanical Name	Quantity (nos)
1	Vach (Sweet Flag)	<i>Acorus calamus</i>	8
2	Amara Poi	<i>Kalanchoe pinnata</i>	10
3	Insulin Plant (Spiral Flag)	<i>Chamaecostus cuspidatus</i>	10
4	Brahma Jasti	<i>Clerodendrum serratum</i>	10
5	Ajwain (Thymol Seeds)	<i>Trachyspermum ammi</i>	12
6	Dasakerenta	<i>Barleria prionitis</i>	8
7	Aloe Vera	<i>Aloe vera</i>	12
8	Pasaruni	<i>Paederia foetida</i>	10
9	Thalkudi	<i>Centella asiatica</i>	40
10	Brahmi	<i>Bacopa monnieri</i>	100
11	Rosemary	<i>Rosmarinus officinalis</i>	10
12	Chirata	<i>Swertia chirayita</i>	10
13	Hemasagar	<i>Kalanchoe lacinata</i>	10
14	Gudmar	<i>Gymnema sylvestre</i>	10
15	Lemon Basil	—	20
16	Mashaparni	<i>Teramnus labialis</i>	10
17	Wild Coriander	—	100
18	Akarakara	<i>Anacyclus pyrethrum</i>	12

19	Water Hemp	<i>Ayapana triplin</i>	
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Table 14: Shows PBI of Medicinal Plants

Measure	Value
S	29
D	00.101
1 - D	00.899
1/D	9.901
H	2.718
E	00.807

Table 15 : Biodiversity Calculator

Category	# Found	Pi	Pi ²	Pi ln[Pi]	Measure	Value
Lotus	20	0.006	0	-0.030	S	19
Lily	70	0.020	0	-0.079	D	0.059
Hydrocotyle	180	0.052	0.003	-0.154	1 - D	0.941
Portulaca	155	0.045	0.002	-0.140	1 / D	16.949
Mentha	250	0.073	0.005	-0.191	H	2.869
Lepidum	185	0.054	0.003	-0.157	E	0.975
Rotala	165	0.048	0.002	-0.146		
Rhodeola	210	0.061	0.004	-0.171		
Haloragis	250	0.073	0.005	-0.191		
Strobilanthes	200	0.058	0.003	-0.165		
Myriophyllum	90	0.026	0.001	-0.095		
Rubellia	155	0.045	0.002	-0.140		
Alternanthera	216	0.063	0.004	-0.174		
Hygrophila	250	0.073	0.005	-0.191		
Ludwigia	240	0.070	0.005	-0.186		
Launaea	215	0.063	0.004	-0.173		
Peperomia	240	0.070	0.005	-0.186		
Acanthospermum	190	0.055	0.003	-0.160		
Echinodorus	155	0.045	0.002	-0.140		
Total	3436	1				

Table 16: Creatures present in the Campus

Si No.	Category	Count/Estimates
1.	Snails	3,000
2.	Slugs	1,500
3.	Lizards	300
4.	Fireflies	2,000,000
5.	Chameleons	2,500
6.	Termites	10,000,000
7.	Ants	Millions (various types)
8.	Beetles/Bugs	Hundreds of species, millions
9.	Butterflies	~45 named species (listed)
10.	Bees	3 species (<i>Apis dorsata</i> , <i>cerana</i> , <i>mellifera</i>)

Butterflies: Angled castor, Blue Mormon, common evening brown, common leopard, common wanderer, dry season bush brown, red tip, common four rings, common Mormon, common sailor, striped albatross, banded peacock, chocolate pansy, common grass yellow, common reideye, gram blue, pioneer, striped tiger, baronet, commander, common gull, common rose, crimson rose, grass blue, tailed jay, three spot grass yellow, tawny coaster, common Silverline, common crow, common Pierrot, common wanderer, crimson rose, danaid egg fly, grass dart, psyche, tailed Jay, common emigrant, striped tiger, red tip, three spot grass yellow, lemon pansy, gram blue, grass demon.

Bees: *Apis dorsata*, *Apis cerana indica*, *Apis mellifera*

Table 17: Native Free-living birds

No.	Bird Name	Quantity
1	Parrots	150
2	Common Myna	450
3	Budgerigar	25
4	Red-vented Bulbul	55
5	White-throated Kingfisher	25
6	Black-hooded Oriole	15
7	Cuckoo	30
8	Greater Coucal	100

9	Crow	350
10	Eagle	10
11	Scaly-breasted Munia	5000
12	Blue Pigeon	1500
13	Yellow-billed Babbler	2500
14	White-breasted Waterhen	60

Table 18: PBI of Native Free-living birds

Measure	Value
S	14
D	00.321
1 - D	00.679
1/D	3.115
H	1.455
E	00.551

Table 19: List of Animals

Sl. No.	Animal/Reptile Name	Quantity
1	Native Cows	30
2	Dogs	60
3	Cats	25
4	Cobra	20
5	Water Snake	15
6	Wolf Snake	40
7	Squirrel	2500

Table 20: PBI of Animals

<i>Measure</i>	<i>Value</i>
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<i>S</i>	7
<i>D</i>	00.865
<i>I - D</i>	00.135
<i>I/D</i>	1.156
<i>H</i>	00.375
<i>E</i>	00.192

- **Pond restoration:**

Centurion University’s pond restoration projects have transformed campus water bodies into thriving ecosystems through a coordinated program of desilting, water-quality enhancement, and ecological habitat creation. Through regular weed clearance—including removal of invasive plants like water hyacinth and salvinia—and biological controls such as the introduction of grass carp, the ponds’ water chemistry has improved and ecological balance restored. The university also planted native aquatic vegetation and introduced indigenous fish species (e.g., carp—catla, rohu, mrigal) reared in-campus hatcheries, ranching thousands of fingerlings into ponds and nearby reservoirs to boost biodiversity and fish stocks. As these wetlands were revitalized, they now serve as habitats for birds, amphibians, and aquatic insects, while supporting groundwater recharge, local climate moderation, and biodiversity conservation. Beyond ecological outcomes, the restored ponds now function as invaluable resources for research, hands-on teaching, community engagement, and recreation—embodying Centurion University’s commitment to aquatic stewardship and sustainable campus development.



Figure 23: Restoration of pond diversity

- **Orchidarium:**

The Orchidarium is an ecological gem established at the M.S. Swaminathan School of Agriculture at Centurion University, Paralakhemundi. It houses 550 orchid plants across five species, sourced from diverse regions such as Odisha, Andhra Pradesh, and Siliguri. This facility serves multiple purposes: Propagation & acclimatization of orchids to local agroclimatic conditions, Distribution of plantlets to farmers and aspiring orchid entrepreneurs in the region. Strategically integrated within a broader commercial horticulture nursery spanning 2 acres, the Orchidarium complements a diverse plant

ecosystem that includes over 200 species of ornamentals, fruits, medicinal, and vegetable seedlings. The nursery is supported by polyhouses and shade-net houses capable of producing up to 10,000 plantlets monthly.



Figure 24: Glimpses of Orchidarium

- **Bio gas plant as energy resources:**

A cubic meter FRP floating drum biogas plant at the campus processes 40 kg of organic waste daily through anaerobic digestion, efficiently converting it into biogas. The biogas produced is primarily used for cooking purposes, contributing to clean energy usage on campus. Additionally, the nutrient-rich biogas slurry generated as a byproduct is utilized as organic manure and in vermicomposting, supporting sustainable waste management and enhancing soil fertility for organic farming. Beyond its environmental benefits, the biogas plant also serves as a practical learning resource for students, who engage with it during their coursework to gain hands-on experience in renewable energy systems, waste-to-energy technologies, and sustainable agricultural practices.

Figure 25: Biogas plant

- **Use of Solar energy in the campus:**

The total power consumption of the campus is 9511.68 KVA. To promote sustainability and reduce reliance on conventional energy sources, the campus has installed solar infrastructure, including

three solar-powered pumps. Additionally, energy efficiency is prioritized through the use of LED lighting across all buildings and the installation of 165 solar-powered street lights, significantly reducing energy consumption and supporting environmentally responsible practices.

Figure 26: Demonstration of Solar panels

- **Educational programmes on ecosystems (looking at wild flora and fauna) for local or national communities SDG 15.2.4.**
 - Centurion university provides Educational programmes on ecosystem such as Organic Farming, Environmental Studies, Soil and Water Conservation, and Integrated Pest Management emphasize hands-on training through field visits, farm demonstrations, and participatory rural learning.
 - The Rural Agricultural Work Experience (RAWEx) and vocational training programmes enable students to work directly with farmers, helping them adopt sustainable farming practices, improve soil health, and manage natural resources efficiently.
 - Collaborations with NGOs like SURAKSHA and AGARANA provide farmers exposure to modern horticultural practices, organic farming techniques, nursery management, and post-harvest processing.
 - Community outreach initiatives such as plantation drives, apiculture demonstrations, and awareness campaigns promote biodiversity conservation and environmental stewardship.
 - The programs have significantly enhanced local capacities, enabling farmers to apply sustainable technologies, conserve water and soil, and diversify their livelihoods.
 - Women’s participation has been a key focus—over 45% of trainees in various training and outreach programs are women farmers and self-help group members, fostering inclusivity and empowerment.
 - These initiatives strengthen the link between education, research, and community development while advancing the Sustainable Development Goals (SDGs 13 & 15) on climate action and life on land
- **List of Courses:**

Table 21: List of the courses related to educational programs from BSc Ag.

Sl No.	Course Name	Course Credit
1.	Farming System and Organic farming for Sustainable Agriculture	ASAG3207
2.	Fruit and plantation crop cultivation	ASHO 2102
3.	Manures, Fertilizers and Soil Fertility Management	ASAC2202
4.	Production Technology for Ornamental Crops, MAPs and Landscaping	ASHO2204
5.	Introductory Agro-meteorology and climate change	ASAG1202
6.	Agricultural marketing and prices	ASEC2103
7.	Principles of Integrated Pest and Disease Management	ASAP3204
8.	Environmental studies and disaster management	ASES3101
9.	Rural Sociology & Educational Psychology	ASEE1101
10.	Post-harvest Management and Value Addition of Fruits and Vegetables	ASHO3205
11.	Weed management	ASAG2105

- **Domain and Skill courses offered:**

Table 22: Domain courses to be offered in 3rd & 5th semester

SEMESTER-III		
Course No	Course name	L-P-P
	Skill Enhancement course-V* (Students will be opted any one from the basket of nine courses)	2(0+2+0)
Centurion University 3206	Organic Production Technology	2(0+2+0)
Centurion University 3207	Mushroom Production Technology	2(0+2+0)
Centurion University 3208	Poultry Production Technology	2(0+2+0)
Centurion University 3209	Seed Production and Testing Technology	2(0+2+0)
Centurion University 3210	Biofertiliser Production	2(0+2+0)
Centurion University 3211	Biopesticide Production	2(0+2+0)
Centurion University 3212	Soil, Plant and Water Testing	2(0+2+0)
Centurion University 3213	Horticulture Nursery Management	2(0+2+0)
Centurion University 3214	Beneficial Insect Farming	2(0+2+0)
ASEC 1202	Entrepreneurship Development and Business Communication	3 (2+1+0)
ASSW 2103	Physical Education, First Aid, Yoga Practices and Meditation	2(0+2+0)
ASPG 2101	Principles of Genetics	3(2+1+0)
ASAG 2103	Crop Production Technology-I (Kharif crops)	3(1+2+0)
ASHO 2102	Production Technology of Fruit and Plantation Crops	2 (1+1+0)
ASEE 2102	Fundamentals of Extension Education	2(1+1+0)
ASNE 2101	Fundamentals of Nematology	2(1+1+0)

ASAG 2104	Principles and Practices of Natural Farming	2(1+1+0)
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Semester-V		
Course No	Course name	L-P-P
ASEE3103	Entrepreneurship Development and Business Communication	2 (1+1+0)
ASAC3103	Problematic Soils and their Management	2 (1+1+0)

ASEN3103	Pests of field Crops and Stored Grain and their Management	3 (2+1+0)
ASPP3103	Diseases of Field and Horticultural Crops and their Management-II	3 (2+1+0)
ASPG3104	Crop Improvement-I (<i>Cereals, millets, pulses and oil seeds etc.</i>)(<i>Kharif crops</i>)	2 (1+0+1)
ASAG3110	Geoinformatics and Nano-technology for Precision Farming	2 (1+1+0)
ASAG3108	Practical Crop Production – I (<i>Kharif crops</i>)	2 (0+0+2)
Three domain courses	Domain courses (3 subject from course)	9 credits (each of 1+2+0)

Table 23: Skill courses offered

DOMAIN	Course Code	Course Title	Credit
Centurion University		Smart Farm Machinery	9
1	CUFM2220	Product Development Brief	2
	CUFM2221	Sensor, Actuators and Robot Operating Systems	4
	CUFM2223	Piloting a Drone	3
Centurion University		Organic Farming	9
2	CUOF2230	Organic Farming	3
	CUOF2231	Certification and Inspection Systems in Organic Farming in India.	3
	CUOF2232	Biopesticides and Biofertilizers	3
Centurion University		Dairy Processing and Development	9
3	CUDP2240	Milk Processing in Dairy Industry	3
	CUDP2241	Dairy Starters in Fermented Milk Products	3
	CUDP2242	Quality Assurance in Dairy Industry	3
Centurion University		Intensive Aquaculture	9
4	CUAQ2250	Intensive Fish Rearing	3
	CUAQ2251	Ornamental Fish Farming	3
	CUAQ2252	Biofloc Aquaculture	3
Centurion University		Seed Production using Manual and Molecular Methods	9
5	CUSP2260	Breeding methods: Conventional and Molecular Approach	3
	CUSP2261	Seed Production of Vegetable and Cereals Crops	3

	CUSP2262	Seed Certification	3
Centurion University		Genetic Engineering & Genomics	9
6	CUGE2270	Computational Biology	3
	CUGE2271	Genetic Engineering and its applications	3
	CUGE2277	Genetics and Genomics	3
Centurion University		Nutraceuticals	9
7	CUNU2280	Introduction to Nutraceutical	3
	CUNU2281	Functional Food	3
	CUNU2282	Nutrigenetics	3
Centurion University		Smart Agriculture	9
8	CUAG2297	Raising crops under automated polyhouse	3
	CUAG2298	Soil-less farming and hydroponics technology	3
	CUAG2299	Smart irrigation and nutrient management	3
Centurion University		Protected Horticulture	9
9	CUPH2300	Applied Hi-tech Horticulture	3
	CUPH2301	Protected Cultivation of Vegetable Crops	3
	CUPH2302	High Tech Fruit Culture	3
Centurion University		Food Processing	9
10	CUFP2310	Processing Technology of Cereals and Millets	3
	CUFP2311	Processing Technology of Legumes and Oilseeds	3
	CUFP2312	Processing Technology of Fruits, Vegetables, Spices and Condiments	3
Centurion University		Agri Business Management	10
11	CUAB2320	Agri Food Markets and Value Chain Analysis	3
	CUAB2321	Agri Input Marketing	3
	CUAB2326	Principles of Management & Agribusiness	2
	CUAB2327	Agri Technology Management	2
Centurion University		Commodity and Food Storage	9
12	CUFS2330	Storage Entomology	3
	CUFS2331	Seed Pathology	3
	CUFS2332	Post-harvest Biochemistry and Physiology of Crops	3
Centurion University		Soil and Water Conservation through Watershed	9
13	CUSW2340	Rainwater Harvesting and Artificial Recharge	3
	CUSW2341	Integrated Watershed Management	3
	CUSW2342	Sustainable Watershed	3

Centurion University		Fish Processing Technology	9
14	CUFT2350	Post harvest handling and processing of fish and shellfish	3
	CUFT2351	Design, maintenance of fish processing plant and instrumentation	3

	CUFT2352	Quality assurance, management and certification	3
Centurion University		Health Care Assistancy	25
15	CUHC2382	Health Care Assistancy	4
	CUHC2384	Drug Abuse and Stress Management	3
	CUHC2385	Organization of Health Industries	5
Centurion University		Plant Tissue Culture & Vegetative Propagation	9
16	CUPT2420	Technologies of Plant Tissue Culture	3
	CUPT2421	Biotransformation using plant cells, organ cultures and enzyme systems	3
	CUPT2422	Vegetative Propagation – Methods and Techniques	3
Centurion University		Animal Cell Culture	9
17	CUAC2430	Stem Cell and Developmental Biology	3
	CUAC2431	Animal Cell Culture and its Application	3
	CUAC2432	Instrumentation of Animal Biotechnology	3

Link to courseware: <http://courseware.Centurion University.ac.in/categories-courses/core-courses/>

a) Farming System and Organic farming for Sustainable Agriculture (ASAG3207):

In the course "Farming System and Organic Farming for Sustainable Agriculture (ASAG3207)," students gain a comprehensive understanding of sustainable agriculture, emphasizing the critical roles of ecosystem services, biodiversity conservation, and resilience to climate change.



Figure 27: Student working in the allotted field

- b) Fruit and plantation crop cultivation: ASHO 2102: Integration of theoretical knowledge with practical skills in fruit and plantation crop cultivation fosters a holistic understanding of sustainable agriculture practices.

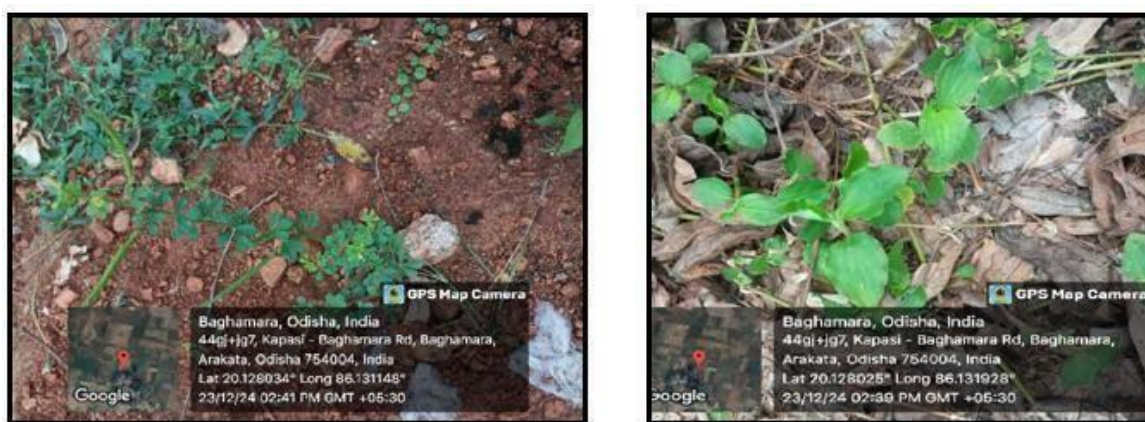


Figure 28: Shows land restoration

- c) Manures, Fertilizers and Soil Fertility Management: ASAC2202: Hands-on experience with analytical instruments for soil and plant nutrient analysis (e.g., colorimetry, flame photometry) equips students with practical skills to assess soil fertility and make informed fertilizer recommendations.

Figure 29: Soil management practices

- d) Production Technology for Ornamental Crops, MAPs and Landscaping: ASHO 2204: Hands-on experience in nursery bed preparation, seed sowing, plant propagation, and care and maintenance of protected structures (greenhouses, polyhouses) develops practical skills. Intercultural operations, training, and pruning techniques for ornamental plants and MAPs ensure optimal growth and yield. Practical sessions on garden planning, layout, and the use of trees, shrubs, and climbers in landscaping enhance understanding of aesthetic and functional landscaping principles.



Figure 30: Nursery management

- e) Introductory Agro-meteorology and climate change: ASAG1202: The main objective of this course is to study about different climatic factors affecting crop growth and development, different weather aberrations, climate change, its cause and impacts. Students will be able to learn the impact of weather and climate on agricultural production systems.



Figure 31: Agrometeorology unit in Campus

- f) Agricultural marketing and prices: ASEC2103: Practical exercises on plotting demand and supply curves, calculating elasticities, and studying price behaviour over time help students apply theoretical concepts to real-world data.



Figure 32: Market survey by students

- g) Principles of Integrated Pest and Disease Management: ASAP3204: The objective of the course can prepare students to become skilled agricultural professionals capable of addressing global challenges in pest management while promoting sustainable agricultural practices aligned with the SDGs.



Figure 33: Pest and insect management

- h) Environmental studies and disaster management: ASES3101: The objectives of the study is to understand the distinction between renewable (e.g., forests, water) and non- renewable resources (e.g., minerals, fossil fuels) and their sustainable management practice. Exploring issues like deforestation, over-exploitation, and their impacts on biodiversity and local communities.



Figure 34: Alternate energy sources in the campus

- i) Rural Sociology & Educational Psychology: ASEE 1101: Conducting field visits to rural areas to observe and analyze rural society characteristics, social stratification, community institutions (e.g., schools, cooperatives), and cultural practices. Administering psychological tests (e.g., Eysenck Personality Inventory, Edwards Personality Inventory) to assess farmer personalities, intelligence types, and learning preferences



Figure 35: Training and demonstration to farmer

- j) Soil and Water Conservation Engineering: ASAE 1101: The objective of the course is to access the current state of soil conservation efforts in India involving conducting case studies and comprehensive field surveys.



Figure 36: Soil water conservation measures

- k) Weed management: ASAG2105: Students learn to identify common weeds, which is crucial for implementing appropriate control measures. This includes both broadleaf and grassy weeds.
- Various methods of weed control are studied, including cultural, mechanical, biological, and chemical approaches. Emphasis is often placed on integrated weed management (IWM) strategies that combine multiple techniques for sustainable control.

Figure 37: Weed management practices

Post-harvest Management and Value Addition of Fruits and Vegetables: ASHO3205: Integration of sustainable practices in post-harvest management and value addition, including reducing food waste, utilizing by-products, and minimizing environmental impact.

Figure 38: Post harvest product prepared by students

1. The Rural Agricultural Work Experience (RAWE) programme:

It is a mandatory, immersive training module for B.Sc. (Agriculture) students in India implemented under ICAR's Student READY framework. Over approximately 90 days, students live in rural communities to conduct participatory rural appraisals (PRA), survey farm families, analyse cropping patterns and socio-economic conditions, and plan context- specific farm strategies.



Figure 39: Soil collection from villages for soil analysis and Demonstration of Grafting

Figure 40: Demonstration of organic nutrient

Figure 41: Preparation of Kitchen Garden

2. **World Environment Day on June 5th, 2024:** In celebration of World Environment Day on June 5th, 2024, Team CaSR, in collaboration with the Department of Horticulture, organized a plantation drive to promote environmental awareness and sustainability. The initiative aimed to encourage students and staff to contribute to a greener future by planting trees and embracing eco-friendly practices within the campus and surrounding areas.
3. **Van Mahotsav 2024,** a Plantation Drive was organized by the Range Forest Office, Devgiri Range, Paralakhemundi, in collaboration with NSS Unit, Centurion University-PKD, on 1st July 2024. A team of 25 enthusiastic NSS volunteers from Centurion University, Paralakhemundi actively participated in the event, planting several indigenous tree species to support local biodiversity.
4. On 28th July 2024, the NSS Unit of Centurion University, Paralakhemundi, organized a Plantation Drive at the Aquaculture Research Farm, Totagumuda, to commemorate World Nature Conservation Day. Under the guidance of NSS programme officers, 85 enthusiastic volunteers planted numerous saplings aimed at restoring natural habitats, improving air quality, and combating climate change.
5. On 21 August, 2024 our 1st-year B.Sc. Agriculture, B.F.Sc, and M.Sc. Agriculture students, participants took part in the impactful “One Plant, One Person” initiative by planting Kadam saplings. Each student was assigned a sapling to nurture and care for throughout their four- year academic journey.



Figure 42: Glimpses of Plantation drive

6. On the occasion of **Teacher’s Day**, the Agri flora Student’s Society (CSAR) and NSS Unit of Centurion University organized a combined celebration and plantation drive on 5th September 2024 at Madhusudanpur Government Hi6.gh School, Gosani, Gajapati, Odisha.



Figure 43: Glimpses of NSS unit planting trees in nearby areas

7. Soil conservation Measures:

RAWE (Rural Agricultural Work Experience) students at Centurion University actively contribute to soil conservation through a variety of field-based initiatives during 2024. By conducting soil testing, they help farmers understand their soil health and recommend appropriate organic inputs to enhance fertility without harming the ecosystem. The students promote the use of sustainable practices such as vermicomposting, Azolla cultivation, and the application of Trichoderma to improve soil structure and microbial activity. They also guide farmers in preparing and using organic formulations like Panchagavya and Jeevamrita, which enrich the soil naturally.



Figure 44: Photos of students demonstrating organic nutrients to local farmers.

8. **A five-day residential training programme for Vocational Trainers (VTs)** was conducted from 20th June 2024 to 28th June 2024 at Centurion University, Paralakhemundi, one of the venues among the selected venues. 91 Vocational trainers were provided with suitable accommodation as well as food and refreshments inside campus. Special vehicles had been arranged for their transportation and visits to different units in the campus.

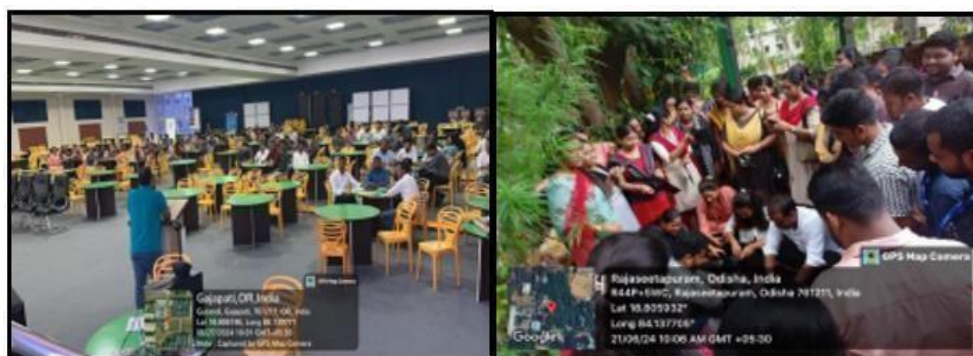


Figure 45: Glimpses from the training Programme.

9. Apiculture Unit:

The apiculture unit played a proactive role in spreading awareness and practical knowledge through a series of training sessions and demonstrations. Demonstrations were conducted specifically for students, farmers, and visitors from different areas. The unit also featured a rural hut, which served as an interactive and informative space for the rural community to understand beekeeping practices.



Figure 46: Demonstration to ICAR visitors and school students

10. A One-day Training Programme on Commercial **Horticultural Farm and Nursery Management**" on 22nd August 2024 for the farmer trainees coming across Gajapati district in collaboration with SURAKSHA NGO. About 35 farmers are going to be trained under the above said training programme.

11. Training on Dragon fruit:

AGARANA NGO in Rayagada organized a training-cum-exposure visit for its progressive farmers to the campus. 15 farmers from Rayagada joined a capacity-building programme covering modules like mushroom and spawn production, organic farming practices, nursery development, and post-harvest processing, alongside hands-on exposure at Centurion University's commercial agri-based units — including the Spawn Unit, Mushroom Unit, Bakery, and Microbiology Lab

12. Research By the students:

M.S.c students contribute directly to educational programs aligned with SDG 15 (Life on Land) by translating their research on sustainable agriculture, such as crop breeding, integrated pest and soil health management, and agro ecological practices into practical outreach workshops, field training, and curriculum modules for farmers and communities. Centurion University integrate student-led crop trials and biodiversity projects into community education, while institutions globally embed SDG-based training in MSc courses (e.g. agronomy or genetics & plant breeding). These initiatives empower extensions like farmer field schools, seminars, and demonstration farms to promote sustainable land use and ecosystem stewardship.



Figure 47: Training on Dragon fruit



Figure 48: Students work in Experimental plot

🌱 Sustainable management of land for agriculture SDG: 15.2.5

SI No.	Initiative	Description	Benefits/Outcomes	Visual/Practical Aspect
1.	Plantation Drive	Thousands of trees planted on and around campus: mango (1,600), teak (300), coconut, curry leaf trees, ornamental plants, roadside beautification.	Enhances biodiversity, ecological resilience, natural fences, windbreaks, microclimate improvement, and aesthetics.	Landscape with diverse tree species.
2.	Cover Cropping	Use of crop residue mulching and leguminous cover crops in Organic Research Farm and Protected Horticulture units.	Improves soil structure, conserves moisture, suppresses weeds, and enriches soil health.	Mulching and legume cover cropping photos.
3.	Organic Farming	Focus on composting, green manure, crop rotation, biological pest control, azolla, vermicomposting.	Promotes healthy ecosystems, soil fertility, pest resistance, and erosion prevention without chemicals.	Organic farming unit visuals.
4.	Dragon Fruit Cultivation	One hectare dragon fruit plantation on barren hilly land with drip irrigation and drought-resilient techniques; training for local farmers.	Utilizes underutilized land, improves soil health, provides economic benefits, and supports local farmers.	Dragon fruit plantation and harvest images.

5.	Crop Production (RAWE Program)	Hands-on student training in planting, weeding, harvesting, pest management, soil conservation (intercropping, terrace farming, crop rotation).	Enhances practical knowledge, sustainable practices, soil conservation, and improved productivity.	Intercropping and crop production glimpses.
6.	Vermicompost Use & Sale	Production and application of vermicompost to improve soil fertility; sales generate revenue.	Enriches soil, promotes organic farming, and creates income streams.	Vermicompost application images.
7.	Black Soldier Fly Unit	Converts food waste into larvae (fish feed) and frass (fertilizer), supporting circular waste management and nutrient recycling.	Reduces waste, produces sustainable protein, enriches soil, and supports crop growth.	Black soldier fly production visuals.
8.	Mango and Napier Grass Cultivation	Agroforestry model integrating mango orchards with Napier grass for fodder, soil erosion control, and biodiversity enhancement.	Increases land productivity, soil conservation, drought resistance, and biodiversity.	Fodder cropping alongside mango trees images.
9.	Sprinkler and Drip Irrigation	Modern irrigation techniques in polyhouses and organic units deliver water efficiently to roots.	Water conservation, optimized crop yield, supports protected cultivation and high-value crops.	Sprinkler and drip irrigation photos.
10.	Nursery (Commercial Horticulture)	2-acre nursery producing 10,000+ seedlings/month of over 200 plant species for landscaping, agroforestry, and training.	Supports campus greenery, practical student training, revenue generation (₹5,000/month).	Nursery and plantlet production glimpses.
11.	Honey Boxes Installation	Sustainable beekeeping with training and community involvement, honey box installations, and hive management demos.	Enhances pollination, biodiversity, community education, and honey production.	Honey bee box and apiculture unit images.
12.	Live Fencing / Hedgerow Cropping	Natural fencing using coconut, bamboo, mango, eucalyptus in alley cropping systems for boundary definition and soil conservation.	Improves biodiversity, soil health, farm boundary delineation.	Live fencing and plot boundary visuals.
13.	Stevia Cultivation in Mango Orchard	Intercropping stevia (natural sweetener) under mango orchards with training on resource-efficient farming.	High-value crop diversification, sustainable soil management, integrated farming.	Stevia under mango orchard photos.

14.1	Orchidarium	Propagation and acclimatization of 550 orchids across 5 species, distribution to farmers, integrated with nursery.	Supports biodiversity, entrepreneurship, agroclimatic adaptation.	Orchidarium and orchid plant images.
15.	Pond Ecosystem	Ponds recharge groundwater, maintain soil moisture, reduce erosion, and stabilize the water table.	Soil conservation, water management, ecosystem services.	Pond ecosystem images.
16.	Pineapple, Guava, Coffee Orchards	Cultivation of these orchard crops integrated into curriculum and land restoration efforts.	Promotes biodiversity, curriculum relevance, land restoration, and economic crops.	Orchard images (pineapple, guava, coffee).
17.	Vanilla Cultivation	Advanced vanilla dome unit achieving 300% yield increase, disease reduction, faster cycles with organic certification and modular adaptability.	High-value crop diversification, improved productivity, disease management, adaptable system for tropical regions.	Vanilla dome and cultivation photos.

SDG 15 ↔ Cross-SDG Integration

Centurion University’s Life on Land actions complement multiple SDGs:

Linked SDG	Synergy Area
SDG 2 – Zero Hunger	Soil fertility and sustainable farming systems
SDG 7 – Clean Energy	Biogas and solar integration in farms
SDG 13 – Climate Action	Afforestation and carbon sequestration
SDG 4 – Quality Education	Experiential environmental learning modules

Future Targets (2025–2027)

- Expand campus tree cover to > 5 000 trees.
- Enhanced pollination and training.
- Develop a “Biodiversity Monitoring App” for students and citizens.
- Conduct eco-audit of 10 villages and annual soil-carbon assessment.
- Implement rainwater harvesting in reforestation zones.

