Module Definition Form (MDF)

Module code: MOD011130	**Version:** 1 **Date Amended:** 17/Jun/2025

1. Module Title
Plant Propagation and Growth Innovations

2a. Module Leader
Wasantha Ruvini Ranasingha Hetti

2b. School
Writtle School of Agriculture, Animal and Environmental Sciences

2c. Faculty
Faculty of Science and Engineering

3a. Level
4

3b. Module Type
Standard (fine graded)

4a. Credits
30

4b. Study Hours
300

5. Restrictions

Type	Module Code	Module Name	Condition
Pre-requisites:	None		
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:	None		

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

In this module, you will dive into an exploration of various plant propagation techniques and learn how they are essential for successful and efficient horticultural production. You will gain in-depth knowledge and hands-on practical skills in producing high-quality ornamental and edible plants through a variety of methods, while integrating scientific manipulation with sustainability and market demands. The course will emphasise the importance of specialist horticultural equipment and advanced technologies, which support the effective growth of young plants across different horticultural environments.

You will evaluate the scientific principles behind plant establishment, focusing on environmental sustainability, ecological impacts, and protected systems. This module aims to foster an appreciation of the horticultural industry, address challenges faced by commercial propagation businesses, and ensure you gain familiarity with the selection and safe operation of horticultural equipment and facilities. This is your opportunity to learn how to balance innovation, sustainability, and production efficiency in real-world horticultural settings.

6b. Outline Content

Methods of plant propagation: Study the historical evolution and modern methods of plant propagation, including traditional techniques and contemporary approaches like micropropagation for both ornamental and edible plants, tailored to seasonal requirements.

Plant physiology related to propagation: Explore key physiological processes such as seed dormancy, germination, cell differentiation, and plant responses to environmental factors, and understand their impact on successful propagation.

Specialist propagation equipment and technologies: Learn to use a range of propagation equipment, from simple tools to specialist resources, and understand their role in achieving consistent and successful plant growth.

Laboratory techniques: Explore various laboratory techniques, including aseptic in vitro methods like micropropagation, and ex situ techniques such as hydroponics and aeroponics, to produce healthy propagation stock and propagules in controlled environments.

Enhancing propagation success rates: Investigate and apply chemical, biological and physical treatments to improve seed germination and rooting of vegetative material, based on the physiological needs of plants.

Plant production and market research: Develop skills for producing plants at optimal growth stages and conduct market research to support effective plant production and enterprise projects.

Techniques for plant establishment: Study methods for establishing plants in various environments, including open fields and protected systems, focusing on site preparation, material selection, planting, and post-planting care.

Crop Monitoring and Maintenance: Implement regular monitoring and evaluation of crop status, making data-driven recommendations for maintenance and management to ensure healthy growth and address any issues that arise.

6c. Key Texts/Literature

The reading list to support this module is available at: https://readinglists.aru.ac.uk/

6d. Specialist Learning Resources

None

7. Learning Outcomes (threshold standards)		
No.	**Type**	**On successful completion of this module the student will be expected to be able to:**
1	Knowledge and Understanding	Produce ornamental and edible plants using diverse propagation techniques, including a focus on scientific manipulation, sustainability, and market demands.
2	Knowledge and Understanding	Evaluate a range of scientific principles and technologies used to establish plants in various environments, emphasising sustainability, environmental impacts, and protected systems.
3	Knowledge and Understanding	Link crop physiology and environmental requirement, according to an individual crop's needs, and recommend sustainable, science-based actions for crop maintenance.
4	Intellectual, practical, affective and transferrable skills	Effectively use a range of specialist equipment and techniques for both plant propagation and to support young plant growth.

8a. Module Occurrence to which this MDF Refers				
Year	**Occurrence**	**Period**	**Location**	**Mode of Delivery**
2025/6	ZZF	Template For Face To Face Learning Delivery		Face to Face

8b. Learning Activities for the above Module Occurrence			
Learning Activities	**Hours**	**Learning Outcomes**	**Details of Duration, frequency and other comments**
Lectures	44	1-4	Formal two-hour blocks of classroom-based lectures scheduled once or twice a week to maximise engagement and learning.
Other teacher managed learning	28	1-4	Flexible, two -hour blocks, of tutor led practical sessions, relating to the demonstration and (student) acquisition of pertinent practical skills.
Student managed learning	228	1-4	Set reading, background reading, practicing skills, study assignments and Examination/tests. Completion of practical project work over both semesters.
TOTAL:	300		

9. Assessment for the above Module Occurrence					
Assessment No.	**Assessment Method**	**Learning Outcomes**	**Weighting (%)**	**Fine Grade or Pass/Fail**	**Qualifying Mark (%)**
010	Coursework	1,3	50 (%)	Fine Grade	30 (%)
1500 words report on developing a detailed cropping plan for a specific crop suitable for propagation, covering seasonality, life cycles, equipment, facility needs, growing requirements, schedule, marketing considerations, and budget.					
Assessment No.	**Assessment Method**	**Learning Outcomes**	**Weighting (%)**	**Fine Grade or Pass/Fail**	**Qualifying Mark (%)**
011	Coursework	2,4	50 (%)	Fine Grade	30 (%)
Assessment includes a 10-minute practical test, and a 1,500-word evaluation report.					

Assessment components for Element 011				
Component No.	**Assessment Title**	**Submission Method**	**Weighting (%)**	**Components needed for Mark Calculation?**
011/1	Practical Skills Test		50 (%)	All
011/2	Evaluation report		50 (%)	

In order to pass this module, students are required to achieve an overall mark of 40% (for modules at levels 3, 4, 5 and 6) or 50% (for modules at level 7*).

In addition, students are required to:
(a) achieve the qualifying mark for each element of fine graded assessment as specified above
(b) pass any pass/fail elements

[* the pass mark of 50% applies for all module occurrences from the academic year 2024/25 – see Section 3a of this MDF to check the level of the module and Section 8a of this MDF to check the academic year]