

# HORT 1007 PROTECTED CROPPING PLANT NUTRITION

**Credit Points** 10

**Legacy Code** 301277

**Coordinator** Michelle Mak ([https://directory.westernsydney.edu.au/search/name/Michelle Mak/](https://directory.westernsydney.edu.au/search/name/Michelle%20Mak/))

**Description** Plant nutrition is essential to plant health and defence, productivity and crop quality; this is especially so in the soilless environment employed by the protected cropping industry. This subject will focus on crop nutrient requirements, nutrient deficiencies and their symptoms, practical nutrient monitoring using hand-held technologies and the PRIVA system and correction techniques. This subject also explores soilless substrates and their influence on nutrient loads, nutrient-rich waste water recovery, reuse and environmentally sustainable disposal options. Western Sydney University is home to the state of the art National Vegetable and Protected Cropping Centre (NVPCC), this facility will be utilized in the on campus components of this course.

**School** Science

**Discipline** Horticulture

**Student Contribution Band** HECS Band 1 10cp

Check your HECS Band contribution amount via the Fees ([https://www.westernsydney.edu.au/currentstudents/current\\_students/fees/](https://www.westernsydney.edu.au/currentstudents/current_students/fees/)) page.

**Level** Undergraduate Level 1 subject

## Learning Outcomes

On successful completion of this subject, students should be able to:

1. Identify the essential elements needed for plant growth and their properties
2. Investigate the relationships between nutrient acidity, electrical conductivity, and plant nutrient requirements and availability in relation to their effect on crop growth and management at different growth stages
3. Explain plant nutrient deficiencies in commonly used substrates including symptoms, sampling techniques and management for correction
4. Illustrate effective waste water management and nutrient optimisation
5. Demonstrate a range of foundational academic skills including oral and written communication, an understanding of scientific method, professional document development, referencing, collaboration skills through group study and independent study skills.

## Subject Content

- Factors affecting plant growth, such as; essential elements required for plant nutrition and their properties in response to acid and base changes (pH) and electrical conductivity (EC)
- Plant nutrient requirements and uptake at different growth stages and their management
- Plant nutrient deficiencies, their symptoms, sampling and correction

- Substrates commonly used in protected cropping, their influence on water and nutrient and how these inputs can be recovered, recycled or disposed of in an environmentally sustainable way.
- Practical skills will include using hand-held monitoring technologies. Analytical skills will include choosing appropriate nutrient substitutions, calculating nutrient recipes and evaluating and utilising online tools to verify crop husbandry decision making.
- Demonstrate foundational academic skills such as; critical thinking, academic writing skills, oral and written communication, professional document development, avoiding plagiarism and correct referencing techniques, providing fair and constructive criticism.

## Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/Group Task
Portfolio	8 x 100 words or equivalent (800 words)	40	N	Individual
Case Study	1,000 words or equivalent	30	N	Group
Peer Review	100 words	10	N	Individual
Final Quiz	2 hours	20	N	Individual

Prescribed Texts

- Greenhouse horticulture Technology for optimal crop production, Cecilia Stanghellini, Bert Van 't Ooster and Ep Heuvelink, Published: 2019 Pages: 300 ISBN: 978-90-8686-329-7

Teaching Periods