



Plant Production Systems General Course Year 12

Selected Unit 3 syllabus content for the

Externally set task 2023

This document is an extract from the *Plant Production Systems General Course Year 12 syllabus*, featuring all of the content for Unit 3. The content that has been highlighted in the document is the content on which the Externally set task (EST) for 2023 will be based.

All students enrolled in the course are required to complete an EST. The EST is an assessment task which is set by the Authority and distributed to schools for administering to students. The EST will be administered in schools during Term 2, 2023 under standard test conditions. The EST will take 50 minutes.

The EST will be marked by teachers in each school using a marking key provided by the Authority. The EST is included in the assessment table in the syllabus as a separate assessment type with a weighting of 15% for the pair of units.

Unit 3

Systems ecology

- impact of plant production systems on natural ecosystems, including:
 - the effects on soils
 - water quality
 - atmospheric
 - soil pollution
 - loss of biodiversity
- effects of pesticides on the environment

Plant structure and function

- structure and function of stems, roots, leaves, flowers, fruit, seeds
- response of plant growth to limiting factors:
 - temperature
 - water
 - gases
 - nutrients
- nutrient requirements throughout plant growth stages

Plant environment

- the environment of the shoot, including gaseous exchange and light absorption
- the environment of the root, including water absorption, macro- and micro-nutrients and oxygen
- function of micronutrients and symptoms of deficiencies
- soil textures and their nutrient and water holding capacity
- comparison of long-term climate records with current weather patterns

Plant health

- impact of pests and diseases on production systems
- life cycles of selected pests and diseases
- assessment of pest and disease risk
- biosecurity measures to reduce risk from pests and diseases
- factors influencing pest and disease control programs

Breeding and improvement

- aims of breeding and selection, including
 - profitability
 - market requirements
 - environmental conditions.

- sources of genetic variation
- selection criteria, including subjective and objective characteristics
- legal requirements of plant production, including plant variety rights (PVR)

Economics, finance and markets

- quantity and value of domestic plant products
- marketing options for plant products
- assessment of resources used in enterprises
- marginal costs and marginal returns and the application of the law of diminishing returns

Sustainable production

- maintaining and improving the quality of soil and water
- stewardship of natural and farming resources, including technologies
- complying with industry codes of practice

Investigating Plant Production

- develop hypotheses to test based on prior information
- design and conduct an investigation, considering aspects of experimental design, including variables and controls
- analyse and interpret data, including calculating means
- present data using appropriate methods
- draw conclusions based on experimental data and validate from other sources

Produce for purpose

- implement a calendar of operations for a selected plant enterprise