

**Authored by Graeme Smith  
Delivered by Michael O'Dea**

## **COMMERCIAL HYDROPONIC CROP PRODUCTION**

Module Title: **LOCATION, SITING & LAYOUT**  
Module Code: HRT519 (part only)  
Module Purpose: On completion of this module, participants will be able to assess a site for suitability for hydroponic growing, and design a basic site layout plan.

Module Content: **Location & Siting**  
Climate, Topography and Aspect  
Surrounding Site Vegetation  
Services Availability  
Land Zoning & Permits  
Security  
Proximity to Markets  
**Layout**  
Facility Requirements (packing shed, plant room, fertigation room, general office, etc)  
Relationship & Positioning of Structures

Module Title: **GREENHOUSE STRUCTURES & ENVIRONMENTAL MANAGEMENT**  
Module Code: HRT519 (part only!)  
Module Purpose: On completion of this module, participants will be able to identify basic greenhouse structure types and their application, and understand the principal factors affecting environmental management.

Module Content: **Greenhouse Types**  
Single-Span & Multi-Span Igloo  
Single-Span & Multi-Span Gable  
Skillion  
Sawtooth

Gothic Arch

Dutch Venlo

**Principal Factors Affecting Greenhouse Design  
Developments & Environmental Management**

Greenhouse Environment & Plant Microclimate

Shape, Height, Ventilation & Covering Materials

Managing the Greenhouse Environment

Module Title:

**WATER QUALITY, EC & PH**

Module Code:

HRT519 (part only)

Module Purpose:

On completion of this module, participants will be able to assess water quality, characteristics of different treatment systems and their application, and understand the principal factors involving EC & pH.

Module Content:

**Water Quality & Treatment Systems**

Aspects of Water Quality

Water Treatment Systems

**Principle Factors affecting EC & PH**

Conductivity of Nutrient Solutions

pH of Nutrient Solutions

Module Title:

**BASIC HYDROPONIC SYSTEMS**

Module Code:

HRT519 (part only)

Module Purpose:

On completion of this module, participants will be able to identify basic hydroponic system types and their application, and understand the principal factors affecting hydroponic systems.

Module Content:

**Systems Types**

Open Systems

Closed Systems

**Principal Factors affecting hydroponic systems**

Root Zone Environment

Oxygen

Temperature

Capital, Installation & Running Costs  
Maintenance Required  
Crop Changeover Management  
Hygiene  
General Management

- Module Title: **CROP VARIETIES, MEDIA TYPES & CHARACTERISTICS**
- Module Code: HRT519 (part only)
- Module Purpose: On completion of this module, participants will be able to assess crop varieties, media types, characteristics, and their application, and understand the principal factors affecting their selection.
- Module Content: **Commercial Crop Varieties**  
Flowers  
Vegetables  
**Principal Factors affecting media selection**  
Media Characteristics  
Media Types
- Module Title: **PLANT NUTRITION & NUTRIENT MANAGEMENT**
- Module Code: HRT519 (part only)
- Module Purpose: On completion of this module, participants will be able to assess plant nutrition, characteristics of different root-zone factors and their application, and understand the principal factors involving Nutrient Management (including basic formula calculations).
- Module Content: **Plant Nutrition**  
Root-Zone Factors & Solutions  
Water & Nutrient Uptake  
**Nutrient Management**  
Solutions for Closed & Open Systems

Irrigation Control Methods  
Basic Formulae Calculations

Module Title:	<b><u>COMMON PESTS, DISEASES, &amp; IPM</u></b> <b>Plant Health Module</b>
Module Code:	HRT519 (part only)
Module Purpose:	On completion of this module, participants will be able to identify and assess common pests and characteristics of different diseases, and understand the principal factors involving Integrated Pest Management Develop the ability to control pests and diseases in a sustainable manner. Deliver to the marketplace a high quality product blemish free with a good shelf life with zero or low minimum chemical residue
Module Content:	<b><u>Common Pests &amp; Weed Management</u></b> <b><u>Common Diseases</u></b> Fungi Bacteria Viruses Nematodes
Topic:	<b><u>QUALITY ASSURANCE,</u></b> <b><u>OH&amp;S, IT &amp; PRODUCTION PLAN</u></b>
Module Code:	HRT519 (part only)
Module Purpose:	On completion of this module, participants will be able to assess QA & OH&S programs, appreciate the management benefits of Information Technology and develop their own Production Plan
Module Content:	<b><u>Quality Assurance</u></b> SQF 2000 Quality Code <b><u>Occupational, Health &amp; Safety</u></b> Sample OH&S Policy <b><u>Information Technology</u></b> Sample IT Files

**Develop a Production Plan**

Production Scheduling Time-Line

Topic:

**HYDROPONIC WORKSHOP**  
**(Practical Demonstration)**

Module Code:

HRT519 (part only)

Module Purpose:

On completion of this module, participants will be able to put into practice some key crop management theory

Module Content:

**Nutrient Calculation & Preparation**  
**EC & pH Monitoring & Recording**  
**Basic Crop Management**  
**Environmental Management (via Control System)**