



AQUAVET

INTRODUCING AQUAPONIC IN VET:
TOOLS, TEACHING UNITS AND TEACHER TRAINING

Result 10

Module guide for HYDROPONICS teaching material

Didactical Guideline

Introduction

Hydroponics, also called "soilless culture" is so named because it allows growing plants without soil. The introduction of hydroponics, it is now very widespread, especially in the Netherlands, Belgium, France, Spain and Italy.

Furthermore aspects such as the time saving and the idea of health benefits associated with horticultural products are the main reasons of the success of the ready-to-use produce. Even though in Italy and other Western European countries consumption of fruits and vegetables appears rather stable in the latest years, sales of fresh-cut produce still show a significant positive trend. Floating systems, in general, appear to be a good possibility, especially for fast growing crops, because of the fast and easy crop renewal.

Therefore hydroponics and use of floating system might play a role in the ecological, social and economic aspects of sustainable development.

To achieve this, there is a need to educate professionals in the field of hydroponics. Within this module, presentations and handout on introduction to hydroponics, substrates, soilless crops and floating mat are included. The goal is to give students the knowledge to be able to work with hydroponics.

Audience

VET students, VET teachers, VET schools and other institutions

Overview

This package contains the presentations for the lectures of the module "Hydroponic" as well as some work sheets with exercises. Below you will find a description of the units that are part of the lectures. The units and the corresponding presentations are divided into a basic and an advanced level. For each lecture learning outcomes are identified and teaching methods proposed. Each description mentions all the material that corresponds to the particular unit.

Overview of available material in R10

R10: Teaching material for HYDROPONICS	Languages			
	EN	DE	SL	IT
BASIC UNITS				
Basic Unit 1 presentation: Introduction to Hydroponics	✓	✓	✓	✓
Basic Unit 2 presentation: Substrates	✓	✓	✓	✓
Basic Unit 3 presentation: Soilless crops	✓	✓	✓	✓
Basic Unit 3 handout: Plant Monitoring Manual	✓	✓	✓	✓
Basic Unit 3 handout: Soilless crops	✓	✓	✓	✓
ADVANCED UNITS				
Advanced Unit 1 presentation: Tech-IA	✓			
Advanced Unit 1 handout: Tech-IA	✓			
SUPPLEMENTARY MATERIAL				
Supplementary presentation: Hydroponics Part 1	✓			
Supplementary presentation: Hydroponics Part 2	✓			

General objectives

Students will:

- know the vocabulary of hydroponic
- obtain and demonstrate technological knowledge and understanding of hydroponic systems
- be able to deal with all aspects of hydroponic production
- be able to install Tech-IA floating mat in a hydroponic system.

Basic Units and Objectives

Basic Unit 1:	Introduction to hydroponics
Learning Outcome	Students will <ul style="list-style-type: none"> • be able to understand what hydroponics is • know advantages and disadvantages of hydroponics • classify different hydroponics techniques
Teaching methods	Teacher-centred instruction
Teaching material	Presentation ‘Introduction to hydroponics’

Basic Unit 2:	Substrates
Learning Outcome	Students will <ul style="list-style-type: none"> • know what a substrate is • classify substrates • know different substrate features

Teaching methods	Teacher-centred instruction
Teaching material	Presentation ‘Substrates’

Basic Unit 3:	Soilless crops
Learning Outcome	Students will <ul style="list-style-type: none"> • be able recognize what a soilless crop needs • know different soilless crops • understand what should be monitored
Teaching methods	Teacher-centred instruction, handout
Teaching material	Presentation ‘Soilless crops’, handout ‘Plant Monitoring Manual’, handout ‘Soilless crops’

Advanced Units and Objectives

Advanced Unit 1:	Tech-IA
Learning Outcome	Students will <ul style="list-style-type: none"> • know what a Tech-IA floating mat is and how it works • see its application • be able to install Tech-IA floating mat in a hydroponic system
Teaching methods	Teacher-centred instruction, handout
Teaching material	Presentation ‘Tech-IA’, handout ‘Tech-IA’

Basic Units

Teaching Material Basic Unit 1

Presentation 1 – Hydroponic

Teaching Material Basic Unit 2

Presentation 2 – Substrates

Teaching Material Basic Unit 3

Presentation 3 – Soilless crops

Handout - Plant Monitoring Manual

Handout – Soilless crops

Advanced Units

Teaching Material Advanced Unit 1

Presentation 1 – Tech-IA

Handout – Tech-IA

Supplementary Material

Supplementary presentation 1 – Hydroponics Part 1

Supplementary presentation 2 – Hydroponics Part 2