

Contents of Module 7

<i>Introduction to Irrigation and Water Quality</i>	5
Irrigation	5
Water Quality	5
Nursery Water Supply	6
<i>Water Quality Factors</i>	8
Physical Water Quality Factors	8
Chemical Water Quality Factors	8
Biological Water Quality Factors	9
Direct and Indirect Effects of Water Quality	9
Direct Effects	9
Indirect Effects	10
<i>Managing and Improving Water Quality</i>	13
Monitoring Water Quality	13
Improving Water Quality	13
Improving Physical Water Quality	13
Sedimentation and Flocculation	13
Filtration	14
Improving Biological Water Quality	14
Chlorination	15
Hydrogen Peroxide	16
Ultra Violet (UV) Lamps	16
Covering Reservoirs	17
Improving Chemical Water Quality	17
Correcting the pH	17
Oxidation	19
Magnetic Treatment	19
Ionisation	19
Managing Water Quality	19
Salinity (High TDS)	19
Chlorides	23
Sampling and Monitoring Water Quality	23
<i>Water Samples and Tests</i>	26
Introduction	26
Sampling for Physical, Chemical and Biological Analysis	26
Simple Chemical Water Quality Tests	27
pH Testing	27
Electrical Conductivity (EC) Testing	28
Reporting on Water Quality Tests	28
Reference Standard	28
Units	29
Comparisons	29
Sampling for Pathogen Analysis	29
Preparing Equipment	30
Sampling Procedure	30

<i>The Irrigation System</i>	33
Introduction	33
Pumps	33
Filters	34
Pipes	35
Valves	35
Emitters	36
<i>Irrigation Application</i>	38
Pre-Start-Up Inspection	38
Assessing Water Availability	38
Checking and Cleaning Components	39
Pump	39
Filters	40
Valves	40
Reporting on the Pre-Start-Up Inspection	41
Priming Pumps	42
Starting Up and Shutting Down Pumps	42
Motor and Pump Working Characteristics	43
$Amps_{motor} = Amps_{normal}$	43
$Amps_{motor} > Amps_{normal}$	44
$Amps_{motor} < Amps_{normal}$	44
Opening and Closing Pressure Control Valves	44
Infield Valves	45
Regulating Infield Valve Pressure	45
Measuring Infield Filter Pressure	47
<i>Monitoring Irrigation</i>	49
Monitoring Irrigation Quality	49
Leaks	49
Drainage	49
Pressure	49
Emitter Delivery	50
Irrigation Scheduling	50
Monitoring Operational Parameters	52
<i>Irrigation Equipment Maintenance</i>	55
Flushing and Cleaning Filters	55
Pipeline Maintenance	56
Tool Maintenance	56
Reporting	57