Certificate in Organic Horticulture

B.E.S.T. in Horticulture Limited

Bespoke **E**ducation and **S**pecialist **T**raining

Delivering fully-supported distance and blended courses in horticulture

Qualification Guide

Contents

The B.E.S.T. Certificate in Organic Horticulture

Introduction

This qualification is aimed at anyone who has an interest in organic horticulture. There are no formal entry requirements and it is suitable for a wide age range of learners. The modules have been designed to enable learners to acquire the knowledge and skills to implement facets of organic horticulture, and with the completion of the full qualification, to plan construct and maintain an organic garden.

The qualification is suitable for:

- those who wish to garden in an environmentally sound and sustainable manner
- allotment holders who wish to sustainably produce organic fruit and vegetables
- community and school gardeners who want to promote organic horticulture, and
- professionals who wish to develop their organic horticultural knowledge and skills, who may work in the heritage sector e.g. for English Heritage, The National Trust etc.

The flexible modular format makes it suitable for a variety of different delivery methods: face to face, blended and distance learning.

Structure of the Qualification

To achieve a B.E.S.T. Certificate in Organic Horticulture a learner must successfully achieve a minimum of eight modules. Three modules are compulsory, they are:

01 Principles which underpin sustainable horticulture practices
02 Planning an organic garden
03 Managing soil, growing media and maintaining fertility

A learner is free to choose any other five modules of study and may if they wish study additional modules. B.E.S.T. in Horticulture Limited offers three flexible routes of study:

- **face to face** - attendance at our Ryton Centre for tuition and assessment through observation and multiple choice questions

- **blended learning** - a combination of online learning and assessment at our Ryton Centre through observation and multiple choice questions

- **distance learning** - either distance e-learning or distance correspondence learning, with assessment via project work and multiple choice questions

Modules of Study

01 Principles which underpin sustainable horticulture practice

02 Planning an organic garden

03 Understanding the properties of soil and importance of soil biology

04 Managing soil, growing media and maintaining fertility

05 Importance of habitat provision and biodiversity

06 Planning year-round organic vegetable growing

07 Vegetable growing methods, harvesting, storage and seed saving

08 Growing annuals, biennials and herbaceous perennials sustainably

09 Choosing and maintaining trees and shrubs sustainably

10 Selecting and maintaining lawns and wildlife friendly alternatives

11 Prevention, identification and organic control of garden pests, diseases and disorders

12 Prevention, identification and organic control of garden weeds

Module 01

Principles which underpin sustainable horticultural practice

Module Significance

Organic gardening is an ethos where all aspects of horticulture are carried out in the most environmentally sustainable way. It requires the gardener to understand that all living things are interconnected in complex ways and that the planet's resources are finite.

Garden Organic's 'Principles of Organic Gardening' (The Natural Way to Grow) is a set of principles that provides a framework and information to help gardeners make the best choices. The Soil Association is an organisation responsible for certifying farms and organic gardens, but also provides information and guidance of benefit to gardeners.

This module introduces the principles which underpin sustainable horticultural practice.

Outcomes

1. Outline the principles of organic horticulture

2. Explain how to make ethical choices in respect of horticultural practice and the use of resources

Content

International Federation of Organic Agricultural Movements (IFOAM)
Advisory Committee on Organic Standards (ACOS)
The Principles of Organic Gardening (The Natural Way to Grow) – build and maintain soil health, encourage biodiversity, use resources responsibly, avoid using harmful chemicals, a healthy growing area, glossary and appendices
6 R's (sustainable, renewable) refuse, reduce, re-use, recycle

Total Learning Time

6 hours

Assessment

This unit will be assessed by a multiple choice test.

Resources

International Federation of Organic Agricultural Movements https://www.ifoam

The Soil Association www.soilassociation.org

Principles of Organic Gardening – on-line version available: www.gardenorganic.org.uk/principles

Dorling Kindersley 'Encyclopaedia of Organic Gardening'- ISBN: 0-7513-3381-6

Dorling Kindersley 'Grow Organic' – ISBN: 9781405330916

Royal Horticultural Society 'Organic Gardening' – ISBN: 978-1-8400-158-7

Outcome 1

Outline the principles of organic horticulture

Knowledge

The learner will be able to

1. outline the standards of commercial organic production as defined by the International Federation of Organic Agricultural Movements (IFOAM)

2. outline the Soil Association's standards as defined by the Advisory Committee on Organic Standards (ACOS).

3. describe how the Principles of Organic Gardening inform sustainable garden practice.

4. state the underlying principles of organic horticulture, which include:

   (a) practising suitable organic methods to build a healthy fertile soil
   (b) using organic matter to improve soil structure, fertility and moisture retention
   (c) using resources sustainably with minimal reliance on outside inputs
   (d) using practices which negate the need for non-organic fertilisers and harmful plant protection products
   (e) encouraging diversity of plants, wildlife and a balanced ecosystem
   (f) excluding the use of genetically modified organisms (GMOs)
   (g) ethical choices, sustainable sourcing, planning to minimise waste
   (h) managing waste on the principles of; reduce, re-use and recycle wherever possible

5. explain why organically raised plants should be better adapted to their environment and less susceptible to pests, diseases and disorders.

6. explain why it may take time to develop a healthy garden ecosystem allowing for a natural balance of parasites, predators, pests and a well-structured living soil.

7. state that all inputs (seeds, plants, compost etc.) should be from organic sources wherever possible and should have Soil Association (or equivalent European) certification, and comply with the Principles of Organic Gardening

8. explain why appropriate plant selection is particularly important in organic culture in respect of: plant health and resistance to pests, diseases and disorders. Right plant, right place.

Outcome 2

Explain the importance of making ethical choices in respect of horticultural practice and the use of resources

Knowledge

The learner will be able to

1. explain why the use of organic best practice and sustainable use of resources is fundamental to organic horticulture

2. state how the Principles of Organic Gardening give gardeners a framework to make ethical choices regarding practices and resources they use

3. state the practices and resources acceptable in organic horticulture

4. state which practices and products are not acceptable in organic gardening.

Module 02

Planning an Organic Garden

Module Significance

It is important to plan any garden so that it incorporates the features desired by the owners, but when establishing an organic garden there are a number of additional factors that should be considered. Essential facilities need to be planned for; these include: recycling, composting (including leaf mould and wormeries), water storage and liquid feed production. In order to establish a thriving ecosystem plant diversity and habitat creation are paramount and need to be carefully considered. The choice of hard landscaping materials should be made with care to mitigate the impact on the wider environment, reducing inputs by recycling what is already on site, or using recycled materials. Whilst the standard principles of good garden design are integral, a sympathetic approach that works with nature should be adopted by the organic gardener.

This module introduces planning an organic garden.

Outcomes

1. Describe the factors to consider when planning a garden to mitigate the effects of climate change

2. Plan an organic garden

Content

Use of ethically sourced inputs
Use of recycled materials or new materials chosen to have minimal environmental impact
Use of porous materials for hard landscaping surfaces to reduce localised flooding
Use of plants appropriate to local climate and environmental conditions
Planning to reduce the need for maintenance and inputs e.g. use of power tools and fossil fuels
Use of renewable energies for heating/lighting of garden structures and features
Inclusion of living boundaries to absorb CO^2 and to provide habitat
Reduce dependency on external inputs in favour of those produced on site. Garden design to include: site assessment, soil assessment, site plan to an appropriate scale, master plan. Landscaping elements - boundaries, siting of facilities e.g. compost, water storage, hand landscaping, pond/water features. Soft landscaping may include: hedges/living screens, lawns and lawn alternatives, plants; trees, shrubs, herbaceous, biennials, annuals, top fruit, soft fruit, vegetables
Provision of habitat for wildlife and beneficials

Total Learning Time

6 hours

Assessments

This unit will be assessed by a multiple choice test or assessment of a plan for an organic garden

Resources

Garden Organic Factsheets (available to members only)

Principles of Organic Gardening – on-line version available: www.gardenorganic.org.uk/principles

Dorling Kindersley 'Encyclopaedia of Organic Gardening'- ISBN: 0-7513-3381-6

Dorling Kindersley 'Grow Organic' – ISBN: 9781405330916

Royal Horticultural Society 'Organic Gardening' – ISBN: 978-1-8400-158-7

Aquamarine 'How to Create an Eco Garden: The Practical Guide to Greener, Planet-friendly Gardening' John Walker – ISBN 978-1-903141-89-2

The Wildlife Trusts Factsheets www.wildlifetrusts.org/wildlife-gardening/how-to-get-started

Outcome 1

Describe the factors to take into consideration when planning a garden to mitigate the effects of climate change

Knowledge

The learner will be able to

1. describe how to reduce the contribution to climate change when planning a garden:

    (a) reduced dependency on external inputs in favour of those produced on site.
    (b) use of recycled or reused materials where possible
    (c) avoid bringing in new materials, but if necessary ensure that preference is given to those which have least environmental impact
    (d) use of porous materials for hard landscaping surfaces to reduce localised flooding
    (e) use of plants appropriate to local climate and environmental conditions
    (f) planning to reduce the need for maintenance and inputs e.g. use of power tools and fossil fuels
    (g) use of renewable energies for heating/lighting of garden structures and features
    (h) Inclusion of living boundaries to absorb CO_2

2. state the meaning of biodiversity and explain its importance in an organic system.

3. describe the environmental consequences of the following:

    (a) use of non-sustainable resources
    (b) energy use and the greenhouse effect
    (c) poor waste management techniques
    (d) direct and indirect destruction of habitats
    (e) use of plant protection products (pesticides) and non-organic fertilisers
    (f) inappropriate collection of plants from the wild
    (g) introduction of potentially invasive species

4. describe how alternative sources of energy can be used in gardens

5. describe how to reduce water usage in the garden and state ways to collect and store waste/rain water.

Outcome 2

Plan and design an ornamental organic garden

Skills

The learner will be able to

1. carry out a site assessment
2. carry out a visual soil assessment
3. produce a site plan
4. produce a master plan to include (as appropriate): boundaries, siting of facilities e.g. compost, water storage, hard landscaping (includes all the horizontal and vertical elements e.g. paths, walls, fences, pergolas, garden buildings etc). Ponds/water features. Soft landscaping may include: hedges/living screens, lawns and lawn alternatives, trees, shrubs, herbaceous, biennials, annuals, top fruit, soft fruit, vegetables. Specific details of habitat creation for wildlife and beneficials

Module 03

Understanding the properties of soil and the importance of soil biology

Module Significance

Organic horticulture is dependent on healthy fertile soil. An examination of the soil horizons provides valuable information in respect to the soil's structure and drainage properties. It is important to establish the soil texture and pH, as this will influence the way in which the soil is cared for. The soil should be managed to protect and improve its structure, texture and fertility.

Soil is alive and it is essential to understand the role of the living organisms within it. The soil's health can be improved by the addition of bulky organic matter such as garden compost, leaf mould or farm yard manure. Green manures (cover crops) can be grown to protect, feed and improve the structure of the soil.

Adequate supplies of plant nutrients are essential to healthy plant growth. In organic cultivation external inputs are kept to a minimum, therefore a knowledge of nutrient cycling is essential and methods of conserving nutrients are important. The organic gardener should also be aware of the signs of nutrient deficiency and excess.

Cultivation should be kept to a minimum and carefully timed to avoid causing damage to the soil structure.

This module introduces the properties of soil and the importance of soil biology in an organic setting.

Outcomes

1. Assess the physical characteristics and pH of soil
2. Understand essential role of living organisms in the soil
3. Understand the role of plant nutrients and nutrient cycling

Content

Soil profiling
Soil texture testing
Soil pH testing
Soil organisms – flora, fauna, fungi and bacteria
Importance of organic matter in soil
Plant nutrients – major, minor and trace nutrients, deficiencies and excesses
Nutrient cycling – Carbon and nitrogen cycles

Total Learning Time

6 hours

Assessments

This unit will be assessed by carrying out practical activities and the completion of a multiple choice test.

Resources

Principles of Organic Gardening – on-line version available:
www.gardenorganic.org.uk/principles

Dorling Kindersley ‘Encyclopaedia of Organic Gardening’- ISBN: 0-7513-3381-6

Dorling Kindersley ‘Grow Organic’ – ISBN: 9781405330916

Royal Horticultural Society ‘Organic Gardening’ – ISBN: 978-1-8400-158-7

Garden Organic Factsheets (available to members only)

Outcome 1

Assess the physical characteristics and pH of soil.

Skills

The learner will be able to

1. examine a soil profile to assess the horizons and structure.
2. carry out a soil texture test
3. carry out a soil pH test

Knowledge

The learner will be able to

1. explain why knowledge of soil characteristics is important to the organic gardener
2. define the terms ‘soil profile’, ‘organic matter’, top-soil’. ‘sub-soil’ and ’parent material’
3. name the components of soil and their approximate proportions in a typical soil
4. define the term ‘soil structure’
5. explain how soil structure can be affected by primary and secondary cultivations
6. define the term ‘soil’ texture’
7. state the physical characteristics of sand, silt and clay soils
8. explain the impact of pH on soil health and plant growth.

Outcome 2

Understand essential role of living organisms in the soil

Knowledge

The learner will be able to

1. describe the importance of organic matter in soil

2. describe the role of soil flora, fauna, fungi and bacteria in soil health and nutrient availability

Outcome 3 Understand the role of plant nutrients and nutrient cycling

Knowledge

The learner will be able to

1. list the major, minor and trace nutrients required for plant growth
2. describe the symptoms of major nutrient deficiencies and excesses
3. describe the effects of pH on nutrient availability
4. outline the carbon and nitrogen cycles

Module 04

Managing soil, growing media and maintaining fertility

Module Significance

A healthy fertile soil is essential to good plant growth. The soil should be managed in ways that develop and protect its structure, enhance its fertility and provide optimum conditions for soil life.

The organic approach to soil care involves: minimising cultivation to conserve or improve the structure and avoid compaction, using inputs carefully, feeding the soil appropriately at the right times of the year and recognising the vital role of soil organisms. Green manures (cover crops) can be grown to protect and feed the soil, improve structure and in some instances provide a valuable habitat and contribute to weed and disease prevention and control.

This module introduces how to manage soil, growing media and maintain fertility.

Outcomes

1. Outline cultivation techniques and practices
2. Explain how to produce bulky organic materials
3. Explain how to produce organic liquid feeds
4. Selection and use of organic growing media
5. Manage and maintain soil for healthy plant growth

Content

Advantages and disadvantages of cultivation
Cultivation techniques– no-dig method(s), soil inversion (double digging, single digging), forking, consolidation, levelling, raking/final tilth production
Methods of compost production – composting (hot, cold), trench composting, wormeries, Bokashi,
Types of organic liquid feed – plant based liquid feeds, animal derived liquid feeds and compost ‘teas’, liquid from wormeries
Organic growing media – home produced e.g. garden compost, leaf mould and loam, bought in peat-free ,seed and potting composts

Types of bulky organic materials – composted bark, composted wood chips, municipal waste (green waste compost), garden compost, leaf mould, straw, hay, grass clippings, mushroom compost, farm yard manure, coffee grounds
Green manures – protection of soil structure, prevention of leaching, weed suppression, fertility building - nitrogen fixation, drawing up nutrients from subsoil, phytoremediation, habitat creation, weed, pest and disease prevention and control
Methods of managing and maintaining soil health – applying bulky organic matter, incorporating bulky organic matter, growing green manures, mulches, applying liquid feeds.

Total Learning Time

12 hours

Assessments

This module will be assessed by carrying out practical activities and a multiple choice test.

Resources

Principles of Organic Gardening – on-line version available:
www.gardenorganic.org.uk/principles

Dorling Kindersley 'Encyclopaedia of Organic Gardening'- ISBN: 0-7513-3381-6

Dorling Kindersley 'Grow Organic' – ISBN: 9781405330916

Royal Horticultural Society 'Organic Gardening' – ISBN: 978-1-8400-158-7

Garden Organic Factsheets (available to members only)
GS4 Managing your soil
GS3 Green manures
GG39 How to make compost
GG2 No dig gardening

Outcome 1

Outline cultivation techniques and practices

Practical activities

The learner will be able to

1. prepare a seedbed and sow a green manure.

Knowledge

The learner will be able to

1. state the advantages and disadvantages of cultivation

3. describe the following soil cultivation techniques:
   a) no-dig methods
   b) soil inversion (double digging)
   c) soil inversion (single digging)
   d) forking
   e) consolidation
   f) levelling
   g) raking/final tilth production

Outcome 2

Explain how to produce bulky organic materials

Practical activities

The learner will be able to

1. choose and prepare suitable materials for making garden compost

Knowledge

The learner will be able to

1. describe different methods of composting:
   (a) hot composting
   (b) cold composting
   (c) trench composting
   (d) production of leaf mould
   (e) worm composting
   (f) Bokashi (fermentation)

2. state the characteristics of the products produced by:
   (a) hot composting
   (b) cold composting
   (c) trench composting
   (d) production of leaf mould
   (e) worm composting
   (f) Bokashi(fermentation)

Outcome 3

Explain how produce organic liquid feeds

Practical activities

The learner will be able to

1. choose and prepare suitable materials for an organic liquid feed

Knowledge

The learner will be able to

2. describe different methods of producing:
    (a) plant based liquid feeds e.g. comfrey, nettle
    (b) animal derived liquid feeds e.g. steeped FYM
    (c) compost 'teas'
    (d) liquid from wormeries

3. state the characteristics of the products produced by:
    (a) plant based liquid feeds e.g. comfrey, nettle
    (b) animal derived liquid feeds e.g. steeped FYM
    (c) compost 'teas'
    (d) liquid from wormeries

Outcome 4

Selection and use of organic growing media

Practical activities

The learner will be able to

1. choose appropriate organic growing media for sowing seed, pricking out seedlings, potting off plants and potting on

Knowledge

The learner will be able to

1. state the characteristics of growing media:
   (a) garden compost
   (b) leaf mould
   (c) loam
   (d) organic, peat-free seed compost
   (e) organic, peat-free potting compost

Outcome 5

Manage and maintain soil for healthy plant growth

Practical activities

The learner will be able to

1. apply an appropriate amount of garden compost

2. apply a mulch at the appropriate depth to suppress weed growth, conserve moisture and feed the soil

3. apply a diluted organic liquid feed to plants in containers

Knowledge

The learner will be able to

1. name bulky organic materials acceptable in organic horticulture and state the recommended application rates for each

2. explain how nutrition can be maintained in organic systems

3. explain how soil water is conserved in organic horticulture

4. describe ways in which green manures can be effectively used in organic horticulture:
   (a) protection of soil structure
   (b) prevention of leaching
   (c) weed suppression
   (d) fertility building - nitrogen fixation
   (e) drawing up nutrients from the subsoil
   (f) phytoremediation
   (g) providing habitat
   (h) weed, pest and disease prevention and control

Module 05

Importance of habitat provision and biodiversity

Module Significance

Suitable habitat can be provided by leaving uncultivated areas, careful garden management or it can be 'man-made'. Man-made habitat may include: the appropriate choice of garden features, use of certain materials, suitable plant choices and the provision of varied elements that encourage a diversity of wildlife.

Organic gardeners strive for a balanced ecosystem which can only be achieved by providing suitable habitat; this in turn results in a diverse range of flora and fauna - biodiversity.

Biodiversity is important to the gardener because it means that the natural balance is struck, pest numbers are naturally controlled by predators and no single species becomes a significant pest. There will be also be an abundance of insects, ensuring crop pollination.

This module introduces the importance of habitat provision and biodiversity.

Outcomes

1. Describe how to enhance the habitat in an existing garden to improve biodiversity

2. Explain how to propagate a range of plants for habitat provision

3. Explain how to establish and maintain plants used for habitat provision

4. Explain how to establish and maintain a wildlife pond

Content

Natural habitat - natural topographical features, e.g. earth banks, uncultivated areas, native trees, shrubs, perennials, biennials and annuals
'Man-made' habitat - mini woodland, living boundaries, wildflower/meadow area, compost heaps, long grass, beetle banks, bird boxes, bug hotels, hedgehog shelters, log piles, leaf piles, bee boxes/tubes

Garden features - dry stone walls, bog garden, ponds/water features, gravel areas
Materials - wood, rock, stone gravel, corrugated iron
Plant selection - diversity (mixed planting), different forms of plants, inclusion of native species, plants as food sources
Propagation methods – seed, division and cuttings
Plant establishment and aftercare – planting/transplanting, watering, weeding, pruning, providing support and mulching

Total Learning Time

6 hours

Assessments

Practical activities

Sow one container of seed
Sow seed directly in the soil outdoors
Propagate plants by division
Propagate plants by cuttings

Knowledge - This module will be assessed by a multiple choice test

Resources

Principles of Organic Gardening – on-line version available:
www.gardenorganic.org.uk/principles

Dorling Kindersley 'Encyclopaedia of Organic Gardening'- ISBN: 0-7513-3381-6

Dorling Kindersley 'Grow Organic' – ISBN: 9781405330916

Royal Horticultural Society 'Organic Gardening' – ISBN: 978-1-8400-158-7

Garden Organic Factsheets (available to members only)
Wildlife gardening series: GG10 Nettles, GG12 Ladybirds, GG13 Lacewings, GG29 Setting up a pond, GG30 Creating a wildflower meadow, Flowers for the wildlife garden, GG42 Shrubs and climbers for the wildlife garden, GG43 trees for the wildlife garden, GG44 Attracting beneficial insects
GG33 Living willow structures
WC2 Mulches, weed prevention and control

Outcome 1

Describe how to enhance the habitat in an existing garden to improve biodiversity

Knowledge

The learner will be able to

1. describe how to enhance the habitat in an existing garden:
   (a) natural habitat
   (b) 'man-made' habitat
   (c) garden features
   (d) types of materials used
   (e) plant selection

Outcome 2

Explain how to propagate a range of plants for habitat provision

Practical activities

The learner will be able to:

1. sow seeds
2. divide plants
3. take cuttings

Knowledge

The learner will be able to

1. describe how to carry out the following operations using organic techniques:
   (a) seed sowing in containers
   (b) seed sowing in the soil (broadcast or in drills)
   (c) division
   (d) propagation from soft-tip cuttings
   (e) propagation from semi-ripe cuttings
   (f) propagation from hardwood cuttings

Outcome 3

Explain how to establish and maintain plants used for habitat provision

Knowledge

The learner will be able to

1. describe how to carry out the following operations using organic techniques:
   a) planting / transplanting
   b) watering
   c) weeding
   d) pruning
   e) providing support (if required)
   f) mulching

Outcome 4

Explain how to establish and maintain a wildlife pond

Knowledge

The learner will be able to

1. state the benefits of a wildlife pond

2. explain how to select plants to achieve a balanced pond ecosystem
   (a) oxygenators
   (b) marginals
   (c) floating plants
   (d) deep water aquatics

3. describe the essential design factors for wildlife ponds
   (a) suitable site
   (b) profile: beach area, marginal shelf, deep water
   (c) suitable size
   (d) no fish
   (e) avoidance of invasive species.

4. describe the maintenance activities required to maintain a wildlife pond
   (a) removing excess plant growth
   (b) dividing plants
   (e) removing fallen leaves
   (f) keeping an area free from ice

Module 6

Planning year-round organic vegetable growing

Module Significance

Careful planning can ensure a continuous supply of fresh organic vegetable throughout the year. By growing certain additional crops the 'hungry gap' can be lessened. Gardeners are able to choose varieties they grow for flavour, colour, disease resistance, cropping over a longer period and storing well.

Home produced organic vegetables have zero food miles attached to them, are free from pesticides, are fresh, nutritious and reduce impact on the environment.

This module introduces how to plan year-round organic vegetable growing.

Content

Choosing what to grow - varietal choice, succession, planning to fill the 'hungry gap', intercropping, under cropping, catch cropping, green manures, attractors, companion planting, sacrificial planting
Crop rotation - 3 year, 4 year, 12 year
Soil preparation - primary cultivation (if appropriate), weed control, incorporation of bulky organic matter/green manures
Facilities – greenhouse, propagator, cold frame, cloches
Materials – bulky organic matter, growing media, seed trays, pots
Maintenance planning – feeding, watering, weed control, pest prevention/control, disease prevention/control

Outcomes

1. Plan a productive organic vegetable garden to provide crops all year round.

Total Learning Time

6 hours

Assessments

Practical assessment - Evaluation of the plan

Knowledge - This unit will be assessed by a multiple choice test

Resources

Garden Organic Factsheets (available to members only)
GG19 Crop rotation
GS 6 Banishing gluts and gaps in the vegetable garden
GS3 Green manures
GS4 Managing your soil
GS5 Organic pest and disease control
GS2 Chemical free plot clearing
GG44 Attracting beneficial insects

Principles of Organic Gardening – on-line version available:
www.gardenorganic.org.uk/principles

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Outcome 1

Plan a productive organic vegetable garden to provide crops all year round

Practical activities

The learner will be able to

1. draw up a plan considering the following:

    (a) local conditions
    (b) crop rotation
    (c) choosing what to grow
    (d) soil preparation
    (e) facilities
    (f) materials
    (g) maintenance planning

Knowledge

The learner will be able to

1. state the factors to consider when laying out a site:

    (a) area for composting
    (b) areas for wildlife, habitat and shelter
    (c) provision of other facilities e.g. glass house, cold frames
    (d) paths and access to beds and other areas
    (e) access to stored water
    (f) aspect
    (g) orientation and layout
    (h) soil type and condition
    (i) current vegetation/weed cover

2. state the advantages and disadvantages of:

    (a) 3 year crop rotation
    (b) 4 year crop rotation
    (c) 12 year crop rotation (in commercial production)

3. describe how a 4 year crop rotation operates in respect of:

    a) use of green manures
    b) botanical family groups
    c) row spacing
    d) plant spacing
    e) maintenance of soil fertility

5. explain why a range of varieties are important to the organic gardener:

   a) certain varieties may be adapted to local conditions
   b) for interest, a range of colour, texture and flavour
   c) seasonal variation – early/late crops, succession of cropping,
   d) for pest, disease and disorder resistance
   e) genetic diversity and for future breeding

6. explain how sowing/planting can be adapted for:

   (a) intercropping
   (b) under cropping
   (c) catch cropping
   (d) companion planting: sacrificial, attracting / distracting

Module 07

Vegetable growing, harvesting, storage and seed saving

Module Significance

There are a number of different techniques to grow vegetables. Some crops lend themselves to particular growing methods; the skilled organic gardener selects the most appropriate method for each crop.

Harvesting at the correct time is important for freshness, taste and impacts on suitability for storage. Various methods can be used to store vegetables ensuring a year round supply of produce, thus avoiding a shortage during the 'hungry gap'.

It is feasible to collect, extract, process and store a wide range of vegetable seed to sow in subsequent years.

This module introduces vegetable growing, harvesting, storage and seed saving techniques.

Outcomes

1. Describe how to grow a range of vegetable crops
2. Describe how to harvest and store a range of crops
3. Explain the process of seed saving.

Content

Growing systems - in soil, in the open ground, in a controlled environments, protected environments, in raised beds, containers, various types of grow bags and soilless growing systems e.g. aquaculture and hydroponics.
Harvesting - method, timing
Storage - clamps outdoors, in sand outdoors, in sand indoors, racks/boxes and sacks indoors, freezing, drying, bottling, pickling and making preserves.
Seed saving - harvesting, processing, drying and storage methods; and the significance to food security and heritage.

Vegetable families –
Alliaceae e.g. onions, leeks, garlic,
Apiaceae e.g. carrots, parsnips, celeriac,
A**steraceae** e.g. lettuce, chicory, artichokes,
Brassicaceae e.g. cabbage, radish, pak choi,
Chenopodiaceae e.g. beetroot, swiss chard, spinach,
Cucurbitaceae e.g. pumpkin, cucumber, courgette,
Fabaceae e.g. peas, beans, fenugreek,
Solanaceae e.g. potatoes, tomatoes, peppers. of crops

Total Learning Time

6 hours

Assessments

This module will be assessed by carrying out practical activities and a multiple choice test.

Resources

Garden Organic Factsheets (available to members only)
GS1 Growing from seed
GG35 potting composts: making your own

Principles of Organic Gardening – on-line version available:
www.gardenorganic.org.uk/principles

Dorling Kindersley 'Encyclopaedia of Organic Gardening'- ISBN: 0-7513-3381-6

Dorling Kindersley 'Grow Organic' – ISBN: 9781405330916

Royal Horticultural Society 'Organic Gardening' – ISBN: 978-1-8400-158-7

HSL Seed saving guidelines – available on-line from Garden Organic website members' area.

Eco-Logic Books 'Back Garden Seed Saving: Keeping Our Vegetable Heritage Alive' Sue Stickland and Susanna Kendall - ISBN: 978-1899233151

Timber Press 'The Manual of Seed Saving: Harvesting, Storing and Sowing Techniques for Vegetables, Herbs and Fruits' Andrea Hestinger – ISBN: 978-1604693829

Seed Saver Pubns 'The Seed Garden: The Art and Practice of Seed Saving' Lee Buttala, Shanyn Siegel – ISBN: 978-0988474918

Seed Savers Exchange 'Seed to Seed: Seed Saving and Growing Techniques for Vegetable Gardeners' Second Edition, Suzanne Ashworth – ISBN: 978-1882424580

Outcome 1

Describe how to grow a range of vegetable crops

Practical activities

The learner will be able to

1. sow a range of vegetable seed at the correct depth and spacing (as applicable)
2. plant out a range of vegetable plants at the correct spacing

Knowledge

The learner will be able to

1. describe how to prepare a site for sowing, transplanting or planting out named vegetables

2. describe the growing requirements of named vegetables sown:

   a) in shallow drills in the open ground
   b) in deep drills in the open ground
   c) in groups in the open ground
   d) station sown in the open ground
   e) broadcast in seed trays
   f) singly in modules
   g) individually in 9cm pots
   h) in pairs in a 9cm pot

3. state the benefits and limitations of direct sowing for a range of vegetables

4. describe the growing requirements of named vegetables transplanted as seedlings

5. describe methods of protecting tender vegetables

6. describe how to support named vegetables

7. state the nutritional requirements of a range of named vegetables

8. describe the techniques of:

   (a) catch cropping
   (b) intercropping
   (c) under planting
   (d) successional sowing

   and how they can be used to maximise the productivity of an area of land.

9. Describe how the following methods can be used to advance and extend the productive season of a range named vegetables:

(a) fleece
(b) cloches
(c) cold frame
(d) propagator
(e) cold greenhouse or polytunnel
(f) heated greenhouse or polytunnel

Outcome 2

Describe how to harvest and store a range of crops

Knowledge

The learner will be able to

1. describe how to harvest named vegetables, including timing and appropriate method

2. describe how to store named vegetables using the following methods:

   (a) clamps outdoors
   (b) in sand outdoors
   (c) in sand indoors
   (d) racks/boxes and sacks indoors
   (e) freezing
   (f) drying
   (g) bottling, pickling and making preserves

Outcome 3

Explain the process of seed saving

Practical activities

The learner will be able to

1. harvest, process, dry and appropriately store a range of vegetable seeds

Knowledge

The learner will be able to

1. describe the importance of open-pollinated vegetable varieties:
   (a) in-breeders/out-breeders
   (b) avoidance of cross pollination
   (c) saving seed only from plants true to name/type - 'roguing'

2. describe the role of the Heritage Seed Library and other relevant organisations

3. explain why maintaining genetic diversity is important

Module 8

Growing annuals, biennials and herbaceous perennials sustainably

Module Significance

In an ornamental setting there is ample scope to garden in a sustainable way using organic practices. Ornamental plantings by their very nature tend to be diverse, providing valuable habitat and food.

There are a range of different methods that can be used to propagate annuals, biennials and herbaceous perennial plants using sustainable methods.

This module focuses on growing annuals, biennials and herbaceous perennial plants for their ornamental virtues.

Outcomes

1. Explain how ornamental schemes can be ecologically beneficial

2. Propagate and grow annuals, biennials and herbaceous perennials

Content

Selecting plants that provide habitat and food for wildlife throughout the year
Incorporating plants that have other benefits e.g. edibles
Adding to plant diversity
Choice of plant: resistance to pest, diseases and disorders, suitability to local environmental conditions
Making ethical decisions when sourcing plant materials e.g. seeds, bulbs, plants
Using the most sustainable growing media and other inputs e.g. seeds trays, pots, labels
Propagation: sowing in containers, directly in or on the ground, and the division of herbaceous perennials
Maintenance: weeding, mulching, watering (only when absolutely necessary), providing appropriate nutrition, providing support, dead-heading, lifting and replanting seedlings and young plants, managing seasonal maintenance to provide food and habitat

Total Learning Time

6 Hours

Assessment

This module will be assessed by carrying out practical activities and a multiple choice test.

Resources

Principles of Organic Gardening – on-line version available:
www.gardenorganic.org.uk/principles

GG40 Flowers for the wildlife garden

Dorling Kindersley 'Grow Organic' ISBN 9781405330916 Chapter 9 – herbaceous plants

Outcome 1

Explain how ornamental schemes can be ecologically beneficial

Knowledge

The learner will be able to:

1. Know a range of plants that provide:

   (a) habitat
   (b) food for wildlife over a long period of time
   (c) other benefits e.g. edibles
   (d) greater diversity

2. Know a range of plants that are:

   (a) resistant to pests, diseases and disorders
   (b) suitable to local environmental conditions

3. Explain how to make ethical decisions when sourcing plant materials e.g. seeds, bulbs and plants

4. Explain what factors to consider when choosing growing media and other inputs e.g. seeds trays, pots, labels

Outcome 2

Propagate and grow annuals, biennials and herbaceous perennials

Practical activities

The learner will be able to

1. Sow seeds:

   (a) in containers
   (b) directly in or on the ground

2. Divide and re-plant herbaceous perennials:

   (a) methods of division
   (b) preparation of propagules
   (c) site preparation for re-planting

3. Maintain plants in an organic situation:

   (a) weed
   (b) mulch
   (c) water
   (d) provide nutrition
   (e) provide support
   (f) deadhead
   (g) lift and replant seedlings and young plants
   (h) carry out seasonal maintenance to benefit wildlife

Module 09

Selecting, planting and maintaining trees and shrubs sustainably

Module Significance

Trees and woody shrubs play an important role in the structure and ecosystem of the garden.

By their very nature ornamental and fruiting trees and shrubs (including climbing plants) are longer lived plants, therefore careful consideration should be given to their selection. Thought should also be given to their siting, 'the right plant, right place'.

This module focuses on selecting, planting and maintaining trees and shrubs sustainably.

Outcomes

1. Select and grow ornamental trees and shrubs organically in the garden

2. Select and grow top and soft fruit organically in the garden

Content

Trees and woody shrubs: ornamental and fruiting types.
A range of trees and shrubs that provide: habitat, food for wildlife over a long period of time, that have other benefits e.g. edibles, greater diversity
Trees and shrubs that are: resistant to pests, diseases and disorders, suitable to local environmental conditions
Make ethical decisions when sourcing all types of tree and shrub: bare root, containerised, container grown
Planting: bareroot, ornamental or fruiting tree, container grown/containerised ornamental or fruiting tree, bareroot ornamental or fruiting shrub, container grown/containerised ornamental or fruiting shrub
Maintenance: weeding, mulching, watering (only when absolutely necessary), providing appropriate nutrition, providing support, training, deadheading, managing seasonal maintenance to provide food and habitat

Total Learning Time

12 hours

Assessments

This module will be assessed by carrying out practical activities and a multiple choice test

Resources

Principles of Organic Gardening – on-line version available:
www.gardenorganic.org.uk/principles

GG26 Planting fruit trees and bushes
GG42 Shrubs and climbers for the wildlife garden
GG43 Trees for the wildlife garden

Dorling Kindersley 'Grow Organic' ISBN 9781405330916 Chapter 8 Woody Plants

Outcome 1

Select and grow ornamental trees and shrubs organically in the garden

Skills

The learner will be able to

1. appropriately select plant material that is:

   (a) where possible, approved by the Soil Association
   (b) produced to the highest environmental standards
   (c) true to name, type and form
   (d) free from, pests, diseases and disorders

2. prepare a site for planting

3. plant:

   (a) bareroot **or** container grown/containerised ornamental tree
   (b) bareroot **or** container grown/containerised ornamental shrub
   (c) bareroot **or** container grown/containerised hedging

4. Carry out maintenance of an ornamental tree:

   (a) weeding
   (b) mulching
   (c) watering (only when absolutely necessary)
   (d) providing appropriate nutrition
   (e) checking and adjusting a tree tie(s)
   (f) training; removal of dead, diseased and damaged material, formative pruning, maintenance pruning specific to the type of tree and method of growing e.g. pleaching, pollarding, coppicing, crown thinning, crown lifting (target pruning)
   (g) managing seasonal maintenance to provide food and habitat
   (h) composting arisings

5. Carry out maintenance of an ornamental shrub:

   (a) weeding
   (b) mulching
   (c) watering (only when absolutely necessary)
   (d) providing appropriate nutrition
   (e) pruning/training; removal of dead, diseased and damaged material, formative pruning, maintenance pruning specific to the type of shrub:
      I. summer flowering
      II. spring flowering
      III. grown for ornamental stems
   (f) managing seasonal maintenance to provide food and habitat
   (g) composting arisings

6. Carry out maintenance of a hedge:

(a) weeding
(b) mulching
(c) watering (only when absolutely necessary)
(d) providing appropriate nutrition
(e) pruning/training; removal of dead, diseased and damaged material, formative pruning, maintenance pruning specific to **two** of the following types of hedge:
    I. mixed native
    II. deciduous
    III. large leaved evergreen
    IV. small leaved evergreen
(f) managing seasonal maintenance to provide food and habitat

Outcome 2

Select and grow top and soft fruit organically in the garden

Skills

The learner will be able to

1. appropriately select plant material that is:

    (a) where possible, approved by the Soil Association
    (b) produced to the highest environmental standards
    (c) true to name, type and form
    (d) free from pests, diseases and disorders

2. prepare a site for planting

3. plant:

    (a) bareroot **or** container grown/containerised fruit tree, **one** of the following:
        I. Apple
        II. Pear
        III. Plum (any type)
        IV. Cherry

    (b) bareroot **or** container grown/containerised bush/cane fruit, **one** bush fruit, **one** cane fruit from the following:
        I. Blackcurrant (bush)
        II. Red/Whitecurrant (bush)
        III. Gooseberry (bush)
        IV. Raspberry (autumn or summer fruiting) (cane)
        V. Blackberry (cane)
        VI. Hybrid berries (any type) (cane)
        VII. Blueberry (bush)

    (c) bareroot **or** container grown/containerised other soft fruit, **one** of the following:
        I. Strawberry
        II. Kiwi
        III. Cape Gooseberry *(Physalis)*
        IV. Vine (any type)

4. Carry out maintenance of **one** top fruiting tree:

    (a) weeding
    (b) mulching
    (c) watering (only when absolutely necessary)
    (d) providing appropriate nutrition
    (e) checking and adjusting a tree tie(s)

(f) training; removal of dead, diseased and damaged material, formative pruning, maintenance pruning specific to the type of tree and method of growing e.g. standard, bush types, espalier, cordon , fan trained, stepover.
(g) managing seasonal maintenance to provide food and habitat
(h) composting arisings

5. Carry out maintenance of **one** bush or cane fruit:

(a) weeding
(b) mulching
(c) watering (only when absolutely necessary)
(d) providing appropriate nutrition
(e) pruning/training; removal of dead, diseased and damaged material, formative pruning, maintenance pruning specific to the type of:
    I. bush
    II. cane
(f) managing seasonal maintenance to provide food and habitat
(g) composting arisings

6. Carry out maintenance of **another type** of soft fruit:

(a) weeding
(b) mulching
(c) watering (only when absolutely necessary)
(d) providing appropriate nutrition
(e) pruning/training; removal of dead, diseased and damaged material, formative pruning, maintenance pruning specific to the type selected.
(f) managing seasonal maintenance to provide food and habitat
(g) composting arisings

Module 10

Selecting and maintaining lawns and wildlife friendly alternatives

Module Significance

The lawn is an important feature of many gardens, having a variety of uses in a domestic situation, e.g. relaxation, sporting activities etc.

There are alternatives to grass species for a lawn, including: Chamomile, Thyme, Sedum, Clover(s), Self-Heal which can be grown on their own, in combination with each other or with grass. In an organic setting it is important to select the right type of plant depending on the use.

There are a number of different ways to manage a grass lawn, including: fine turf culture, tolerance of wildflower/weeds with minimal intervention.

Organic culture of grass lawns requires the gardener to create the right conditions for healthy grass growth and to carry out maintenance activities at the correct time of year. If these tasks are carried out, it is possible to have a healthy lawn, largely free of weeds, pests and diseases.

This module introduces the selection and maintenance of lawns and wildlife friendly alternatives.

Outcomes

1. Evaluate a range of plant species suitable for use in an organic lawn
2. Establish an organic lawn from seed
3. Carry out the maintenance of a grass lawn using practices acceptable in an organic situation

Content

Different species of plant suitable for:
1. organically managed fine turf grass,
2. a lawn with minimal intervention, where wildflower/weeds are tolerated,
3. a lawn comprising of non-grass specie(s),
4. wildflower meadow

Lawn establishment: primary cultivation, secondary cultivation, consolidation, producing a fine tilth, sown seed at the correct rate, raking in, providing protection and aftercare.
Maintenance as applicable to the lawn type: scarification, aeration, topdressing (sand, compost, leaf mould and loam), turf repair, mowing regimes, mowing heights for ecological benefits, weed control (if applicable), irrigation.

Total Learning Time

6 hours

Assessments

This module will be assessed by carrying out practical activities and a multiple choice test

Resources

Step by step booklet, The Organic Lawn
Dorling Kindersley ‘Grow Organic’ ISBN 9781405330916 Chapter 7 Lawns and lawn care

Outcome 1

Evaluate a range of plant species suitable for use in an organic lawn

Knowledge

The learner will be able to

1. compare grass species and grass alternatives for different types of lawn

Outcome 2

Establish an organic lawn from seed

Skills

The learner will be able to

1. prepare a site and sow an organic lawn from seed

Knowledge

The learner will be able to

1. describe the importance of nutrient and organic matter recycling, value of: clover, earthworms, soil bacteria and soil fungi in lawn establishment and wellbeing of an organic lawn

2. explain the importance of thorough preparation before sowing an organic lawn

Outcome 3

Carry out the maintenance of a grass lawns and wildlife friendly alternatives using practices acceptable in an organic situation

Skills

The learner will be able to

1. Carry out maintenance activities to an organic lawn which may include:
    (a) scarification
    (b) aeration
    (c) topdressing (sand, compost, leaf mould and loam)
    (d) turf repair
    (e) mowing
    (f) weed control (if applicable)
    (g) irrigation

Knowledge

The learner will be able to

1. State the appropriate timing for mowing (or similar activities) for a range of grass lawns and wildlife friendly alternatives

2. Explain the benefits and ecological importance of mowing at different heights

3. Describe in an organic setting, the prevention and control of:
    (a) weeds
    (b) pests
    (c) diseases
    (d) disorders
    (e) damage e.g. compaction

Module 11

Prevention, identification and organic control of garden pests, diseases and disorders

Module Significance

Encouraging a natural balanced ecosystem and harnessing processes that exist in nature is at the core of organic horticulture. In a balanced ecosystem there will be a healthy population of predators, so no creature should reach pest proportions. Diseases should not be as prevalent ,because by its very nature an organic system will have a greater diversity of plant species, which in turn reduces instances of disease and disease transmission. The organic gardener is more likely to choose plants that are naturally occurring or closely related to those that occur in nature, and to avoid intensively bred plants, which are generally more prone to disorders.

Prevention of pests, diseases and disorders should be the aim of organic gardeners. This is accomplished by sound horticultural practice, being observant and acting promptly when problems arise. Low levels of pests should be monitored and tolerated if damage is not significant. Control measures should only be implemented as a last resort and should fall within the Organic Gardening Guidelines.

Outcomes

1. Explain the principles that underpin the prevention of pests, diseases and disorders in an organic garden

2. Describe how to diagnose and control a range of pests, diseases and disorders of significance in an organic garden

Content

The importance of nurturing a healthy, balanced ecosystem in reducing instances of pest damage, disease and disorders.
The significance of healthy soil, crop rotation and plant nutrition
The importance of ‘right plant, right place’ (siting plants where they will grow best)
The role of naturally occurring predators and provision of habitat for them.

Plant species which attract predators or confuse pests; companion planting, distraction planting
Selection of cultivars to avoid specific problems
Identification of significant pests, diseases and disorders
Cultural control methods
Physical controls/barriers
The use of biological controls
Permitted plant protection materials

a range of pests:
Vertebrates: deer (one type), rabbits, squirrels (grey), pigeons (wood), rats (brown), mice (house), voles (field).
Invertebrates: snails (one type), slugs (grey field), aphids (black bean, rose and peach potato), gooseberry sawfly, caterpillars (small and large cabbage white), thrips (one type), spider mite (two spotted), sciarid fly, whitefly, carrot root fly
a range of diseases:
Bacterial: fireblight, sudden oak death, canker (apple and cherry)
Fungal: potato blight, powdery mildew, grey mould, scab (Apple and potato)
Viral: cucumber mosaic virus, common virus, tobacco mosaic virus, Pepino mosaic virus
common plant disorders:
fasciation, bolting, water stress (deficiency - wilting) and (excess - guttation and oedema), scorching, hail damage, effects of low light levels on one example
common nutrient deficiencies/excesses:
nitrogen, potassium, phosphorous, calcium, iron, magnesium, boron

Total Learning Time

6 hours

Assessments

This module will be assessed by carrying out practical activities and a multiple choice test

Resources

GG44 Attracting beneficial insects
GS5 Organic pest and disease control
GG19 Crop rotation
GS2 Chemical free plot clearing
B.E.S.T in Horticulture - Pest, disorder factsheets

Principles of Organic Gardening – on-line version available:
www.gardenorganic.org.uk/principles

Outcome 1

Explain the principles that underpin the prevention of pests, diseases and disorders in an organic garden

Knowledge

The learner will be able to

1. explain the importance of the following in a healthy garden ecosystem:
   (a) provision of habitat and food plants for beneficial creatures
   (b) the role of naturally occurring predators and parasites
   (c) plant choice, appropriate to soil and local conditions
   (d) practising crop rotation
   (e) maintaining soil health
   (f) using only healthy plant material
   (g) maintaining plant health to improve resistance to pests, diseases and disorders
   (h) employing companion planting/distraction planting techniques
   (i) regular observation and monitoring so that any problems are noticed early
   (j) appropriate choice of pest and disease resistant cultivars
   (k) provision of barriers to exclude pests and in some instances diseases
   (l) appropriate cultural methods to prevent pests, diseases and disorders
   (m) tolerance of low levels of pests, diseases and disorders

Outcome 2

Describe how to diagnose and control a range of pests, diseases and disorders of significance in an organic garden

Practical activities

The learner will be able to

1. Identify:
   (a) a range of pests
   (b) a range of diseases
   (c) common plant disorders
   (d) common nutrient deficiencies/excesses

Knowledge

The learner will be able to

1. Explain how to prevent:
   (a) a range of pests
   (b) a range of diseases
   (c) common plant disorders
   (d) common nutrient deficiencies/excesses,
   using appropriate natural, cultural, physical and permitted chemical methods,

2. Describe how to control:
   (a) a range of pests
   (b) a range of diseases
   (c) common plant disorders
   (d) common nutrient deficiencies/excesses,
   using appropriate natural, cultural, physical, biological and permitted chemical methods

Module 12

Prevention, identification, use and organic control of weeds

Module Significance

Weeds compete with cultivated plants for light, water and nutrients, and may also harbour pests and diseases. They can, however, be of benefit: providing soil cover to prevent erosion and leaching. Weeds give a useful indication of soil health and when the soil reaches a suitable temperature for sowing, provide food for pollinators and habitat for beneficial insects. In organic culture weeds that are not competing with cultivated plants may be tolerated in some instances.

The aim of organic gardeners should be to prevent the spread of more invasive weed species, control weeds when necessary, but allow them to grow where they may be of benefit. To accomplish this it is essential to be able to identify weeds correctly and have knowledge of their lifecycles, characteristics and uses.

There are a number of strategies available to the organic gardener to control weeds, without resorting to chemical herbicides. It is important to understand the various methods, when they should be used and their consequences.

This module is designed to equip the organic gardener with the knowledge and skills to manage weeds within The Principles of Organic Gardening.

Outcomes

1. Explain the methods that can be used to prevent weed growth in an organic garden

2. Identify a range of common weeds

3. Describe how weeds can be used by the gardener and the possible benefits to the garden ecosystem

4. Carry out a range of weed prevention and control methods in compliance with The Principles of Organic Gardening

Content

Prevention: inspecting new plants for weed contamination, removing flowering weeds before they set and distribute seed, use of cover crops, dense planting to effectively exclude weeds, covering the soil with weed supressing materials e.g. cardboard or weed suppression membrane, mulching.

Weed identification:

a range of perennials; *Calystegia sepium, Convolvulus arvensis, Taraxacum officinale, Rumex obtusifolia/crispa, Cirsium arvense, Aegopodium podagraria, Urtica dioica, Ranunculus repens, Elymus repens, Fallopia japonica* annuals: *Epilobium (broad leaved) Veronica persica, Gallium aparine,* and ephemerals: *Cardamine hirsuta, Poa annua, Senecio vulgare, Stellaria media*.

Stages of growth to include: seedling, immature plants, mature plants.
Use: as indicator plants, soil protection, medicinal, edible, providing habitat, providing food (pollen/nectar), mulch, compost ingredient, liquid feed.
Control: dense planting, smothering weeds, aspects of crop rotation, aspects of no-dig methods, mechanical cultivation, mowing, removal of deep rooted perennials by hand, hoeing, hand weeding, flame weeding, electro weeding, steam/hot water treatment.

Total Learning Time

6 hours

Assessments

This module will be assessed by carrying out practical activities and a multiple choice test

Resources

GS2 Chemical free plot clearing
WC 1,2 & 3

Earth-friendly Books 'Weeds: An Organic, Earth-friendly Guide to Their Identification, Use and Control' John Walker – ISBN:978-0993268342

Principles of Organic Gardening – on-line version available:
www.gardenorganic.org.uk/principles

Outcome 1

Explain the methods that can be used to prevent weed growth in an organic garden

Knowledge

The learner will be able to

1. Explain the methods that can be used to prevent weed growth:
   (a) inspecting new plants for weed contamination
   (b) removing flowering weeds plants before they set and distribute seed
   (c) use of cover crops
   (d) dense planting to effectively exclude weeds
   (e) covering the soil with weed supressing materials e.g. cardboard or weed suppression membrane
   (f) mulching

Outcome 2

Identify a range of common weeds

Practical activity

The learner will be able to

1. Classify weeds:
   (a) perennial
   (b) annual
   (c) ephemeral

2. Identify weeds at three stages of growth:
   (a) seedling
   (b) immature plant
   (c) mature plant

Knowledge

The learner will be able to

1. Define the term ‘weed’

2. Define the terms:
   (a) perennial
   (b) annual
   (c) ephemeral

Outcome 3

Describe how weeds can be used by the gardener and the possible benefits to the garden ecosystem

Knowledge

The learner will be able to

1. Explain when a 'weed' in situ becomes beneficial to the garden ecosystem

2. State the ecological benefits of weeds:
   (a) soil protection
   (b) edible (in respect of low carbon footprint)
   (c) providing habitat
   (d) providing food for wildlife
   (e) as a mulch
   (f) as a compost ingredient
   (g) as a liquid feed (rather than imported fertility)

3. State the uses of weeds:
   (a) as indicator plants
   (b) for soil protection
   (c) medicinal
   (d) edible
   (e) providing habitat
   (f) providing food for wildlife
   (g) as a mulch
   (h) as a compost ingredient
   (i) as a liquid feed

Outcome 4

Carry out a range of weed control methods in compliance with The Principles of Organic Gardening

Practical activities

The learner will be able to

1. Carry out weed control methods in compliance with organic guidelines:
   (a) mulching
   (b) hand weeding (to include deep rooted perennial weeds)
   (c) hoeing

Knowledge

The learner will be able to

1. Describe suitable methods for disposing of weeds:
   (a) composting
   (b) drying perennial weeds to kill them prior to composting
   (c) rotting perennial and seed-bearing weeds in water to kill them prior to composting/ making liquid feeds
   (d) using pulled/dead weeds to mulch soil