

HR922-10 Organic & Other Low Input Production Systems

22/23

Department

Life Sciences

Level

Taught Postgraduate Level

Module leader

Rosemary Collier

Credit value

10

Module duration

2 weeks

Assessment

100% coursework

Study location

University of Warwick main campus, Coventry

Description

Introductory description

There is considerable world-wide interest in organic and other low input production systems because of the perceived benefits that they provide in terms of food quality, food safety and reduced environmental impact when compared with 'conventional' production systems. Crop production within low input systems provides a 'challenge' to farmers and crop scientists alike in determining how to use their knowledge of the interactions between the soil and plants, and plant pests and pathogens, to grow crops with sufficient yield and quality.

[Module web page](#)

Module aims

The aim of this module is to provide an understanding of the production techniques employed within such systems. The module will focus on arable and horticultural crops but consideration will be given to livestock production within the context of a mixed farming system.

The module will:

- Describe organic and other low input systems and the ethos behind them.

- Provide historical background on their origins and development.
- Outline the requirements of organic certification schemes.
- Examine the methods used to build soil fertility within low input systems.
- Outline approaches used in the production of arable and horticultural crops within low input systems, including pest, disease and weed control in arable and horticultural crops.
- Consider the relative 'benefits' of organic and low input systems and the opportunities for development and expansion of low input and organic production systems in the future.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

1. Introduction to organic and other low input systems. What is a low input/organic production system? How does it differ from conventional production systems? Where is organic and low input agriculture practiced and why? What are the economic, social and environmental reasons for growing crops within low input systems? 2. Development of the organic movement. 100+ years ago, all production systems were 'organic' and 'low input'. Development of the organic movement in the UK and elsewhere. 3. Organic certification schemes. To be sold in supermarkets and many other retail outlets, organic food has to be 'certified'. The same is true of certain other low input 'Integrated Production' schemes. Description of the different certification schemes and how they are managed. 4. Soil management and fertility. Some of the approaches used to build and maintain soil fertility in organic production systems by the addition of manure or composts and by the cultivation of fertility building crops (e.g. legumes). 5. Cultural weed control. Techniques used to manage crop weeds without synthetic herbicides. 6. Agroforestry/polyculture. Cropping systems involving more than one plant species e.g. intercropping, undersowing, companion planting. 7. Cultural disease control. Control methods used to control plant diseases without synthetic fungicides. 8. Organic livestock production systems. Whilst the focus of this course is on arable and horticultural crops, livestock often have an important role to play in the maintenance of soil fertility – through the production of manure. The farm visit will provide an insight into organic livestock production systems (sheep, cattle, pigs, and poultry). 9. Organic arable systems. The production of arable crops under organic and other low input systems. 10. Organic horticulture. The production of horticultural crops under organic and low input systems.
2. Plant breeding and seed production. How do the varieties used for organic crops differ from conventional ones? What are the problems associated with the production of organic seed? 12. Other low input production systems. How do other low input systems differ from organic production? Are they viable practically and commercially? How are they regulated? 13. The benefits of low input production systems. What are the environmental, economic and social benefits of organic and other low input food? Are some of the claims made by organic producers true? What do consumers understand by 'organic' production? What are the future prospects for such systems?

Learning outcomes

By the end of the module, students should be able to:

- Understand the principles underlying organic and low input systems and have an appreciation of their history
- Understand the techniques that are used to maintain soil fertility without synthetic fertilisers and to grow marketable crops that are unaffected by pests and disease
- Evaluate critically the environmental and other 'benefits' of growing crops in low input versus conventional production systems

Indicative reading list

Lampkin N. H. (1990). Organic Farming. Farming Press; Ipswich.

Conford P (2001). The Origins of the Organic Movement. Floris Books; Edinburgh

Merrill MC (1983). Eco-Agriculture: A review of its history and philosophy. Biological Agriculture and Horticulture 1:181-210.

Hajek, A. (2003) Natural Enemies: An Introduction to Biological Control. Cambridge University Press.

Stewart Lockie [and others] (2006) Going organic: mobilizing networks for environmentally responsible food production. Cabi.

Julia Wright (2011) Sustainable agriculture and food security in an era of oil scarcity: lessons from Cuba. Earthscan.

Stephen Briggs (2008) Organic cereal and pulse production: a complete guide. Crowood.

Gareth Davies and Margi Lennartsson (2005) Organic vegetable production: a complete guide. Crowood.

Gareth Davies, Becky Turner and Bill Bond (2005) Weed management for organic farmers, growers and smallholders : a complete guide. Crowood.

Jules Pretty (2002) Agri-culture : reconnecting people, land, and nature. Earthscan Publications.

Jules Pretty (2007) The Earth only endures: on reconnecting with nature and our place in it. Earthscan.

[View reading list on Talis Aspire](#)

Subject specific skills

Knowledge and understanding of approaches used in the production of arable and horticultural crops within low input systems, including pest, disease and weed control in arable and horticultural crops.

Transferable skills

Critical evaluation and communication.

Study

Study time

Type	Required
Lectures	22 sessions of 1 hour (29%)
Seminars	2 sessions of 1 hour (3%)
External visits	1 session of 3 hours (4%)
Private study	48 hours (64%)
Total	75 hours

Private study description

Independent research

Costs

No further costs have been identified for this module.

Assessment

You do not need to pass all assessment components to pass the module.

Assessment group A4

	Weighting	Study time
Assessed Essay	100%	25 hours

Feedback on assessment

Written feedback through online platform. Face-to-face feedback on any assessment provided on request from the student.

Availability

Courses

This module is Core for:

- Year 1 of THRA-D4A1 Postgraduate Taught Environmental Bioscience in a Changing

Climate

- THRA-D4A3 Postgraduate Taught Food Security
 - Year 1 of D4A3 Food Security
 - Year 1 of D4A3 Food Security
- Year 1 of THRA-D4A2 Postgraduate Taught Sustainable Crop Production: Agronomy for the 21st Century

This module is Optional for:

- Year 1 of ULFA-C1A1 Undergraduate Biological Sciences (MBio)