

HR929-10 Cereal, Oilseed & Root Crop Agronomy

23/24

Department

Life Sciences

Level

Taught Postgraduate Level

Module leader

Rob Lillywhite

Credit value

10

Module duration

2 weeks

Assessment

100% coursework

Study location

University of Warwick main campus, Coventry

Description

Introductory description

The module examines the main components of production using the following categories:

- Principals of crop production
- Crop nutrition
- Identification of and protection against weeds, pests and diseases
- Precision agronomy and other innovations

[Module web page](#)

Module aims

The aim of the module is to provide an understanding of the agronomic principles of the main UK arable crops. Learning is mainly classroom based and is a mixture of fundamental, conceptual and applied approaches. Teaching is delivered by both Warwick academics and ADAS representatives.

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.

- Crop establishment: Methods of crop establishment including the type of soil cultivations employed, methods of drilling the seed, sowing date, choice of seed rate, seed dressings, pest control (slugs, birds, insects).
- Weed control: Methods of cultural and chemical control. Most appropriate timings and chemical groups for different weed species. Methods of predicting the level of weed seed dormancy. Strategies for minimising resistance to herbicides. Practical classes to demonstrate different weed species and field experiment visits to demonstrate the impact of different weed control strategies.
- Nutrition: Methods of estimating crop nutrition requirements. Methods for applying fertilisers and manures. Effects on the environment including nitrogen vulnerable zones. Field experiment visits to inspect fertiliser spreading machinery and to assess the effect of different fertiliser regimes on crop growth.
- Disease control: Methods of cultural and chemical control. Optimum timing, rates and chemical groups for different diseases. Strategies for minimising resistance to fungicides. Practical classes to demonstrate different weed species and field experiment visits to inspect machinery for spraying fungicides and to demonstrate the impact of different weed control strategies.
- Pest control: Methods of monitoring pests. Use of pest thresholds. Optimum timing and chemical groups for different pests. Impact on beneficial organisms. Practical pest identification tests. Use of equipment for monitoring pests.
- Growth regulation: Rationale behind the requirement to regulate growth and minimise lodging. Chemicals used and optimum timings. Field trials to demonstrate the effect of growth regulator chemicals.
- Experimental methods for evaluating the effects of agronomic practices and demonstration of large scale field experiments.

Learning outcomes

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

- To assess critically the best agronomic strategy for different crops grown in different environments.
- Analyse ways in which different agronomic methods may be used to minimise the environmental impact whilst maintaining or increasing profitability.
- To demonstrate knowledge of agronomic methods in use today and explain the rationale for their use in terms of effects on the crop, environment and profit.
- Communicate the range of agronomic practices used, explaining the choice of the most appropriate method for different situations. Be able to set up experiments to test agronomic practices.

Indicative reading list

- Hay, R K M & Walker, A J (1989) An Introduction to the Physiology of Crop Yield. Longman Scientific, Harlow.

- Wibberley, E J (1989) Cereal Husbandry. Farming Press, Ipswich.
- Halley, R J (1988) The Agricultural Notebook (Eighteenth Edition). Butterworths, London.
- Berry, P.M., Sterling, M., Spink, J.H. Baker, C.J., Sylvester-Bradley, R., Mooney, S., Tams, A., Ennos, A.R. (2004). Understanding and reducing lodging in cereals. Advances in Agronomy 84, 215-269.
- Spink, J.H., Berry, P.M., Theobald, C., Sparkes, D., Wade, A.P. and Roberts, A. (2004). Effects of location and management on the target drilling rate for winter wheat. Home-Grown Cereals Authority Research Project No. 361. HGCA, London, 161 pp.
- Berry, P.M. and Spink, J.H. (2009). 'Canopy Management' and late nitrogen applications to improve yield of oilseed rape. Home-Grown Cereals Authority Project Report No 447. HGCA, London, 212 pp.

[View reading list on Talis Aspire](#)

Subject specific skills

Analyse ways in which different agronomic methods may be used to minimise the environmental impact whilst maintaining or increasing profitability.

Transferable skills

Communicate the range of practices used, explaining the choice of the most appropriate method for different situations.

Study

Study time

Type	Required
Lectures	24 sessions of 1 hour (24%)
Practical classes	6 sessions of 1 hour (6%)
Fieldwork	(0%)
Private study	50 hours (50%)
Assessment	20 hours (20%)
Total	100 hours

Private study description

Independent research

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group A4

	Weighting	Study time	Eligible for self-certification
Poster, presentation and summary write-up	100%	20 hours	Yes (extension)
Poster presentation, oral defence and 1000-word summary of the poster topic.			

Feedback on assessment

- Write up. Feedback is provided by both the first and second marker and returned to the student in a structured way within 20 days of assessment date.
 - Poster. Feedback (and marks) are provided by two assessors and aggregated into the same structured format as for the essay.
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Availability

Courses

This module is Core for:

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