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INTRODUCTION

The BASIS Certificate in Crop Protection was established in 1978 to provide training and certification for sellers of agrochemicals and those giving advice on their use. In 1985 the Food and Environment Act (FEPA) made certification a statutory obligation for pesticide sellers. Since this time BASIS have developed other courses for the agricultural and associated industries: FACTS, Plant Protection Award, BETA Conservation Management and Soil and Water Management. The Advanced BASIS Modules were developed to provide the in-depth knowledge on current developments in specialised areas. The modules are referred to various agricultural topics, i.e. Advanced Cereals, Field Vegetables, Grassland and Forage Crops, Sugar Beet, and others.

The BASIS Certificate in Advanced Plant Nutrition – Waste to Land, is aimed at advisers who are involved in the recycling of organic materials to agricultural land (e.g. producers of compost and anaerobic digestate).

Food wastes, effluent treatment sludge and other liquids are recycled to agricultural land which provides agricultural benefit through the addition of treatments. This module will examine the different types of non-livestock organic manures and wastes, their nutrient value and their practical application to land. As with all materials applied in an agricultural or horticultural setting, candidates will be expected to have an awareness of environmental issues and quality standards and protocols.

EXAMINATION GUIDELINES

The examination paper contains 10 short answer questions of which candidates are required to answer 6. The time allowed is 2 hours 40 Minutes and the pass mark is 70%, break down below:

3 out of 5 Short Answer Questions (80 Minutes)

15 Minute break

3 out of 5 Short Answer Questions (80 Minutes)

In addition there will be a separate viva discussion of approximately 30 minutes per candidate, this will be carried out online using Microsoft Teams.

WHISTLE BLOWING POLICY

BASIS Registration Ltd is committed to the highest standards of openness and accountability. Therefore, we expect employees, candidates and others who work with BASIS who have serious concerns about any aspect of our work to voice those concerns.

To this effect BASIS has a Whistle Blowing Policy. This procedure is designed to allow concerns of a public interest kind within BASIS to be raised, investigated and where appropriate, acted upon. Complaints may be made by or about any member of staff, candidates or those contracted to provide services to BASIS.

To view the full Whistle Blowing Policy go to

<http://www.basis-reg.co.uk/documents/BASIS-whistle-blowing-policy.pdf>

DYSLEXIA POLICY

BASIS Registration Ltd allows students diagnosed with Dyslexia to request special examination arrangements. Proof of dyslexia is required a **minimum of 4 weeks** before the exam date so that BASIS can provide special examination arrangements if required.

For a full copy of our Dyslexia Policy please go to:

<https://basis-reg.co.uk/documents/Dyslexia-Policy.pdf>

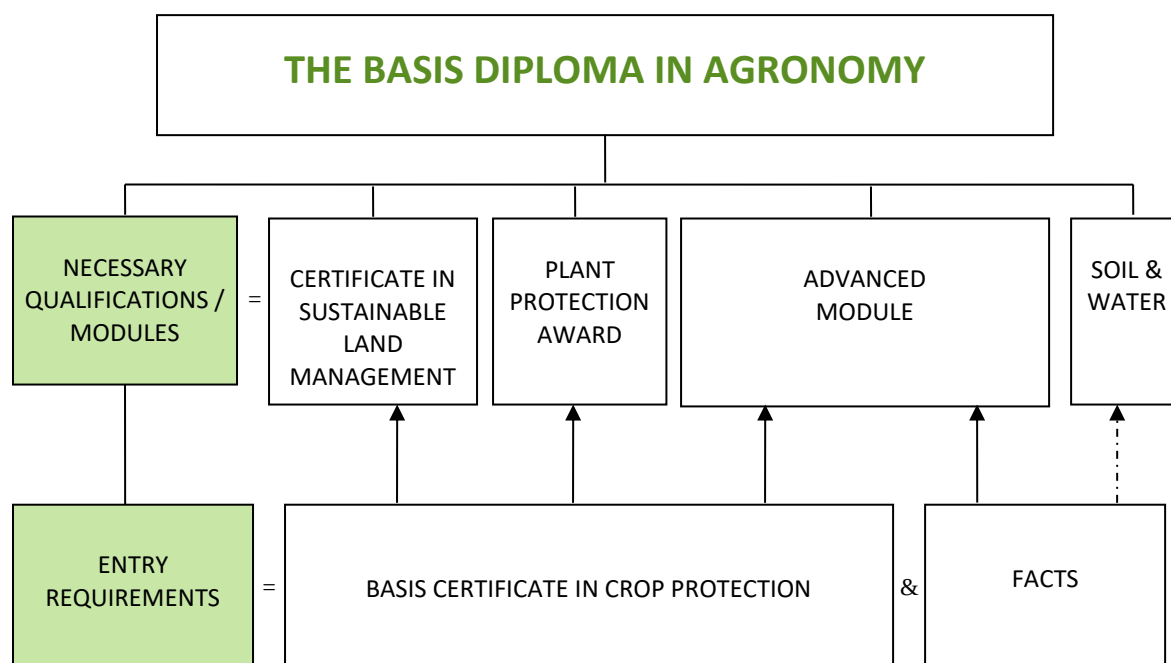
COMPLAINTS POLICY

For a full copy of our Complaints Policy please go to:

<https://www.basis-reg.co.uk/documents/Complaints-Procedures.pdf>

THE BASIS DIPLOMA IN AGRONOMY

The breadth and scope of knowledge needed for crop protection sales and advice grows every year. New products, new techniques and the way that crop protection fits with other farm and crop management activities all add to the skills needed by those involved in sales and advice for Crop Protection. To cover the range of factors involved, the new BASIS Diploma in Agronomy, as set out below, gives a comprehensive training and qualification framework for those involved in on-farm advice and sales.



TOPICS COVERED

ADVANCED MODULE	Weed, Pest & Disease Control, Crop Protection Programmes, Marketing, Food Industries, Crop Assurance
CERTIFICATE IN SUSTAINABLE LAND MANAGEMENT	Environment, Biodiversity, EIS's, IFM, Climate Change
PLANT PROTECTION AWARD (PPA)	Systems & Society, Formulation, Mode of Action, Application, Health & Safety
SOIL & WATER MANAGEMENT	Cultivation Types and Properties, Cropping Systems, Water Quality, Drainage, Pollution / Waste, Plant Nutrition

For the PPA and the Advanced Crop Module the prior achievement (by examination, exemption or validated certificate) of the BASIS Certificate in Crop Protection is an entry requirement. For the Advanced Waste to Land and Quality of Soils courses the prior achievement of the FACTS qualification is required.

The FACTS qualification is a requirement for successful completion of the BASIS Diploma and strongly recommended for those wishing to train for the Soil & Water Management Certificate.

It is **strongly** recommended that candidates should have had at least two years experience of on-farm practical agronomy before attempting any of the modules which contribute towards the BASIS Diploma in Agronomy, but in particular before taking the Plant Protection Award.

BASIS CPD points are available for training and certification in all modules of the BASIS Diploma in Agronomy.

The accreditation process for our qualifications has enabled BASIS to demonstrate a high standard of training and certification for our BASIS courses. The BASIS Diploma comprises a number of modules and 6 are required to complete the qualification.

A further consequence of accreditation by Harper Adams University and the Higher Education qualifications framework has been the development by Harper Adams University of a Graduate Diploma in Agronomy with Environmental Management.

This is a 120 credit graduate level qualification.

BASIS courses have all been awarded a number of credits based on the time spent on the course (Targeted Learning Hours). This is a recognised formula including face to face tuition time, research, reading and experiential learning. The credits are awarded at a level that reflects the intensity / difficulty of the learning materials, for example A-level equivalent or 1st, 2nd or final year honours degree etc.

The qualifying BASIS courses with credits and levels awarded are shown below:

FACTS	
Credit Value	15
Level	5 - Intermediate

SOIL & WATER MANAGEMENT	
Credit Value	15
Level	6 - Honours

BASIS CROP PROTECTION	
Credit Value	30
Level	6 - Honours

BASIS PLANT PROTECTION AWARD	
Credit Value	15
Level	6 - Honours

BASIS ADVANCED MODULES	
Credit Value	15
Level	6 - Honours

CERTIFICATE IN SUSTAINABLE LAND MANAGEMENT	
Credit Value	15
Level	5 - Intermediate

Intermediate = 2nd or 3rd year of university degree qualification.

Honours level – final year university degree.

Eg. FACTS 15 credits = 150 hours notional teaching time

The six modules required for the BASIS Diploma add up to 105 credits. In order to qualify for the Harper Adams University Graduate Diploma in Agronomy with Environmental Management, candidates will need to accumulate 120 credits (ie One extra 15 credit module in addition to the BASIS Diploma). This can be any of the Advanced Modules, including Waste to Land.

Further details of the BASIS Diploma in Agronomy can be obtained from the BASIS office or by e-mail to training.courses@basis-reg.co.uk

INTENDED LEARNING OUTCOMES

1. Identify and evaluate the different types of organic manures and wastes, their storage, handling and spreading properties.
2. Assess the issues involved in measuring the nutrient contribution of the materials.
3. Identify and assess the correct use of spreaders for solid and fluid materials to ensure efficient application.
4. Outline the environmental issues relating to organic manures, both during and after application.
5. Review the relevance of quality standards and requirements for compliance with PAS and Quality Protocols.
6. Exemplify the difference between 'waste' and 'products'.

INDICATIVE CONTENT

Nutrient availability: Appreciate the characteristics, analysis, and the short and longer term availability of nutrients contained in non-livestock organic manures and wastes.

Modes of application: Identify the different methods for application and understand their relative merits and the economic and environmental consequences of nitrogen loss during spreading.

Environmental issues: Identifying and describe to the farmer the environmental issues associates with an application of an organic manure. Operate under the relevant quality standards and protocols that apply within different situations and advise farmers on how to comply.

Statutory requirements: Advise farmers on statutory requirements and relevant codes of practice, including Environmental Permitting Regulations (England), Waste Management Licensing Regulations (Scotland), the Sludge (Use in Agriculture) Regulations and the Code of Practice for Agricultural Use of Sewage Sludge. Implications of Nitrate Vulnerable Zones on nutrient management; Compliance with Nmax and record-keeping for livestock / grassland and arable farmers.

LEARNING AND TEACHING STRATEGY

Nature of student support

Candidates for the Advanced BASIS modules are provided with comprehensive course notes which form the basis of candidate support for the learning outcomes outlined above. This is supplemented by tuition which has been developed to address the requirements of the module. Candidates will normally be employed in the Crop Protection industry or will have experience of production agriculture. Tuition will be in the form of small group delivery and will include field or laboratory classes and workshops.

Support through Virtual Learning Environment

None.

Pattern of study including links to other module delivery

Students are expected to complete pre-course reading in advance of the taught element in order to familiarise themselves with the key aspects of the syllabus. It is also important that the student spends time actively reflecting on the content of the course in order to contextualise its relevance to the workplace. The taught element of the course will normally be delivered as a minimum 3 day short course.

Variations for different course groups

N/A

MODULES

MODULE 1 – NON-LIVESTOCK ORGANIC MANURES AND WASTES AS NUTRIENT SOURCES

Aim: To understand the role, value and nature of non-livestock organic manures and wastes.

1.1 Competence

Candidates must be able to describe the different types of organic manures and wastes, their storage, handling and spreading properties and understand the issues involved in measuring the nutrient contribution of the materials.

1.2 Performance Criteria

Candidates must be able to:

- appreciate the characteristics, analysis, and the short and longer term availability of nutrients contained in:
 - a) sewage sludge products (biosolids)
 - b) anaerobic digestate
 - c) composted organic materials
 - d) other non-livestock organic manures and wastes, when related to specific cropping situations
- appreciate factors influencing the nutrient value and plant availability of these materials

1.3 Essential Knowledge & Skills

Candidates must have the ability to:

- explain the methods/devices for measuring the nutrient content of organic manures and application of the materials to land
- interpret an analytical report for an organic manure or waste and explain the difference between total and readily available nutrients
- explain the main options for improving the management of organic manures to optimise nutrient uptake by crops and grass (e.g. timing and method of application)
- demonstrate competence in advising on rates and timing of applications in relation to soil type and prevailing patterns of rainfall distribution
- demonstrate awareness of the benefits from adding organic matter to the soil and the situations where these benefits mostly apply

25% of total time

MODULE 2 - APPLICATION OF ORGANIC MANURES AND WASTES

Aim: To ensure awareness of the economic and environmental importance of spreading non-livestock organic manures.

2.1 Competence

Candidates should be able to advise on the correct use of spreaders for solid and fluid materials to ensure efficient spreading and minimum impact on the environment.

2.2 Performance Criteria

Candidates must be able to:

- identify the different methods for application and understand their relative merits
- understand the economic and environmental consequences of nitrogen loss during spreading

2.3 Essential Knowledge and Skills

Candidates must have the ability to:

- demonstrate awareness of the pathways for loss of nitrogen as ammonia and the amounts that can be lost
- demonstrate the ability to identify the different types of spreading equipment (broadcast, injection, trailing shoe, trailing hose) and to describe the principles of their operation
- demonstrate awareness of the need to avoid nutrient application to non-crop areas, especially field margins and near water courses

10% of total time

MODULE 3 – ENVIRONMENTAL ISSUES ASSOCIATED WITH ORGANIC MANURES AND WASTES

Aim: To increase awareness of the environmental issues relating to the use of non-livestock organic manures and wastes in agriculture.

3.1 Competence

Candidates should be able to advise farmers on the environmental issues relating to organic manures, during and after application.

3.2 Performance Criteria

Candidates must be able to identify and describe to the farmer the environmental issues associated with an application of an organic manure.

3.3 Essential Knowledge & Skills

Candidates must have the ability to:

- understand the main pathways for loss of nitrogen – leaching of nitrate emission of nitrous oxide, volatilization of ammonia – and describe the associated risk factors
- understand how phosphorus can move from agricultural land to surface waters and describe the associated risk factors
- identify the PTEs that might be associated with an application of an organic nutrient source – heavy metals, pathogens – and describe the associated risk factors
- identify other issues that could be important locally – odour, fly infestations, proximity to residential areas

25% of total time

MODULE 4 – QUALITY STANDARDS AND PROTOCOLS

Aim: To increase awareness of the quality standards and, in England, Quality Protocols that apply to some organic manures.

4.1 Competence

Candidates should be able to advise farmers on the relevance of quality standards and on requirements for compliance with PAS and Quality Protocols and should understand the difference between 'waste' and 'product'.

4.2 Performance Criteria

Candidates should be able to identify the standards and protocols that apply in different situations and advise farmers on how to comply.

4.3 Essential Knowledge & Skills

Candidates must have the ability to:

- identify situations where the quality standards PAS100 and PAS110 apply
- describe the main quality criteria for compost in PAS100
- describe the main quality criteria for anaerobic digestate in PAS110
- demonstrate awareness of the requirements that affect farmers of the Quality Protocols for compost and anaerobic digestate (England)

10% of total time

MODULE 5 – RELEVANT CODES AND REGULATIONS

Aim: To increase awareness of the codes and regulations relevant to application of non-livestock organic manures and wastes.

5.1 Competence

Candidates should be able to advise farmers on the guidance and legal requirements relating to application of non-livestock organic manures and wastes.

5.2 Performance Criteria

Candidates must be able to advise farmers on statutory requirements and relevant codes of practice.

5.3 Essential Knowledge & Skills

Candidates must have the ability to:

- understand current UK environmental legislation concerning non-livestock organic manures and wastes including relevant parts of the Environmental Permitting Regulations (England), Waste Management Licensing Regulations (Scotland), the Sludge (Use in Agriculture) Regulations and the Code of Practice for Agricultural Use of Sewage Sludge
- understand the difference between activities that are exempt and those that require a permit under the Environmental Permitting Regulations (England) or Waste Management Licensing Regulations (Scotland)
- describe the soil and application limits for heavy metals as set out in the Sludge (Use in Agriculture) Regulations and the Sewage sludge in agriculture: code of practice for England, Wales and Northern Ireland
- describe the requirements for soil sampling and analysis where sewage sludge is applied
- demonstrate awareness of the Safe Sludge Matrix and understand the basis for the rules
- demonstrate awareness of the Biosolids Assurance Scheme
- demonstrate awareness of other guidance and legislation including government advice, particularly
- current guidelines in the Code of Good Agricultural Practice and the statutory requirements of NVZ's
- describe the requirements for, and constraints on, use of organic manures in NVZ's
- demonstrate awareness of 'Catchment Sensitive Farming' (England) and main objectives of The Water Environment (Water Framework Directive) Regulations 2017 and explain where more detailed advice can be obtained

30% of total time

ESSENTIAL READING

DEFRA, Nitrate Vulnerable Zone guidance.

www.gov.uk/government/collections/nitrate-vulnerable-zones

DEFRA, Protecting our Water, Air and Soil. A Code of Good Agricultural Practice for farmers, growers and land managers

www.gov.uk/government/publications/protecting-our-water-soil-and-air

Scottish Government Code of Good Agricultural Practice (PEPFAA)

www.gov.scot/Topics/farmingrural/Agriculture/Environment/PEPFAA/Intro

Environment Agency 2014 *Manage waste on land: guidance for land managers.*

<https://www.gov.uk/manage-waste-on-land-guidance-for-land-managers>

WRAP good practice guides for use of digestate and compost:

- Good practice guidance for farmers, growers and advisers
- Good practice guidance for agricultural contractors
- Good practice guidance (reference version)

www.wrap.org.uk/content/digestate-and-compost-good-practice-guidance

SEPA Regulatory Position Statement on digestate

www.biofertiliser.org.uk/pdf/SEPA-Position-Statement.pdf

SEPA composting Position September 2004

https://www.sepa.org.uk/media/153947/composting_position_statement.pdf

RECOMMENDED READING

Addiscott, T.M., Whitmore, A.P., and Powlson, D.S. 1991. *Farming, Fertilisers and the Nitrate Problem*. Wallingford: CAB International.

Davies, D. B., Eagle, D.J. and Finney, J.B. 2001. *Resource management: Soil*. Ipswich: Farming Press.

Mengel, K. and Kirkby, E.A. 2001. *Principles of plant nutrition*. 5th ed. Dordrecht: Kluwer Academic Publishers.

Scotland Farm Advisory Service Technical Note TN650 Optimising the application of bulky organic manures.

www.fas.scot/publication/technical-notes/

BASIS APPROVED TRAINERS

The following Colleges, Trainers and Training Providers are successfully running Waste to Land examinations and have been accepted as BASIS Approved Trainers for the Waste to Land course.

ADAS Gleadthorpe (UK) Ltd

Orchard House
Gleadthorpe
Meden Vale
MANSFIELD
Nottinghamshire, NG20 9PF

Contact: Paul Newell-Price
Tel: 01623 844331
Email: paul.newell-price@adas.co.uk
Trainer: Paul Newell-Price
Web: www.adas.uk

Boston & North Wash Training Group

Kiln House
West Fen
Stickney
BOSTON
Lincolnshire PE22 8BH

Contact: Margaret Dawson
Tel: 01205 480898
Email: dawsonm@dialstart.net
Trainer: Dr Jim Lewis / Anna Becvar
Web: <http://boston--north-wash-training-group.mytrainingwebsite.co.uk/>

DJL Agronomics

Highgrove House
Cassbrook Drive
Fulstow
LOUTH
LN11 0XR

Contact: Dr Jim Lewis
Tel: 07831 120363
Email: djlagronomics@gmail.com
Trainer: Dr Jim Lewis
Web: www.djlag.co.uk

Earthcare Technical Ltd

Head Office
Manor Farm
Chalton
WATERLOOVILLE
Hampshire, PO8 0BG

Contact: Anna Becvar
Tel: 02392 290488
Email: admin@earthcaretechnical.co.uk
Trainer: Anna Becvar
Web: www.earthcaretechnical.co.uk

Hampshire Training Providers

Unit G
Ashe Warren Farm
Overton
BASINGSTOKE
Hampshire

Contact: Angela Plank
Tel: 07810 386730
email: angela@hampshire-training.co.uk
Trainer: Dr Jim Lewis
Web: www.hampshire-training.co.uk

Harper Adams University

Edgmond
NEWPORT
Shropshire
TF10 8NB

Contact: Lisa Plant
Tel: 01952 815300
Email: lplant@harper-adams.ac.uk
Trainer: Paul Lewis
Web: www.harper-adams.ac.uk/shortcourses/

The Training Association (East)

High Cottage
St Andrews Lane
Congham
KINGS LYNN
Norfolk PE32 1DS

Contact: Rob Tarry
Tel: 01485 600225
Email: rob@traineast.co.uk
Trainer: Dr Jim Lewis
Web: www.traineast.co.uk

University of Lincoln

Short Courses Unit
Riseholme Park
LINCOLN
Lincolnshire, LN2 2LG

Contact: Simon Goodger
Tel. 01522 835295
Email: sgoodger@lincoln.ac.uk
Trainer: Simon Goodger
Web: <http://www.lincoln.ac.uk/home/liat/shortcourses/>

The following Colleges, Trainers and Training Organisations have expressed an interest in running the Waste to Land course.

Chelmsford & West Essex Training Group

2 Salisbury Cottages
Maldon Road
Hatfield Peverel
CHELMSFORD
Essex, CM3 2HS

Contact: Debbie Wedge
Tel: 01245 381193
Email: debbiewedge@cwetg.org
Trainer: Debbie Wedge
Web: <http://www.cwetg.org>

SRUC

Environment Team
Clifton Road
Turriff
AB53 4DY

Contact: Enquiries
Email: basis@sruc.ac.uk
Web: www.sac.co.uk

GrowTrain Ltd.

8b Woodhorn Business Centre
Woodhorn Lane
Oving
CHICHESTER
West Sussex
PO20 2BX

Contact: Graham Bryant
Tel: 01243 216278
Email: graham@growtrain.co.uk
Trainer: Graham Bryant
Web: www.growtrain.co.uk

06 February 2025