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## **NUTRIENT MANAGEMENT PLANNING SYLLABUS**

### **Introduction**

To prepare FACTS Qualified Advisers (FQAs) to manage the challenges of the Water Framework Directive (its associated initiatives and regulations), greenhouse gas mitigation strategies and soil protection, while also improving farm profitability, industry leaders have urged the FACTS Committee to introduce this topic of training in Nutrient Management Planning as core CPD training.

FACTS Qualified Advisers now have recognized roles in implementing NVZ rules, the Code of Good Agricultural Practice and assurance schemes. FACTS membership will benefit if this recognition is maintained and extended and, to this end, the FACTS Management Committee has agreed a need for some on-going training.

Nutrient Management Training is compulsory for all current FACTS Qualified Advisers and those gaining the qualification prior to 31<sup>st</sup> December 2009. We expect that over 3000 people will require training by the end December 2014. Only those who have attended the Train the Trainer Events and taken the Nutrient Management Exam are able to offer the training.

A new Nutrient Management Planning course for horticulture, comprising five modules, has been developed and is now available to current FQA's who will need to complete this course training by December 2014 if they are to retain their FQA status beyond that date. The same arrangement will apply to subsequent five-year periods. The outline is:

- Current FQAs will have to complete the training within 5 years from January 1<sup>st</sup> 2010.
- The five-year period for new FQAs will begin from the date they qualify.
- Anyone not trained within their allotted 5 years will lose FQA status. A Web Based Assessment will be made available to all those who have completed the 5 CPD training modules and all those who subsequently complete the course. Successful completion of the Web Based Assessment will be necessary if individuals wish to retain their FQA Status.
- To rejoin the FQA list, individuals will need to attend all 5 CPD training modules and take the exam. The recommended training time is 2½ days.
- Course content will be updated at intervals as regulations change or agronomic practices develop.
- An exam will be optional; this will comprise a written paper and a panel viva examination. An email will be sent to those who have not started the training around 2 years prior to the cut off date.
- The module can be used towards the BASIS Diploma in Agronomy if the examination is passed. Examinations can only be provided by a BASIS Approved Trainer (to comply with Quality Assurance Standards).

Where candidates wish to take the exam, minimum numbers will apply; if there are insufficient numbers on any particular course there will be opportunities for taking the exam at a later date. Exam dates will be available on our website.

**Please Note:** Training within the required timeframe is the responsibility of individual candidates.

## **The Examination**

The written examination will be approximately 2 hours in duration and with two component parts and an additional viva lasting 15 – 20 mins.

### **Multi-choice**

**30 mins**

**30 multi-choice questions covering topics from all 5 modules  
(no books allowed)**

### **Scenario**

**90 mins**

**“Open book” scenario with examples of nutrient requirements and issues**

### **Viva Panel**

**15-20 mins**

**The viva will be conducted by the exam chairman and an industry expert.**

**The pass mark is 70% for the multi-choice and 60% for the scenario paper. Candidates must pass every section of the examination in order to be successful and to be awarded the BASIS Nutrient Management Planning Certificate.**

**This qualification may be used towards the BASIS Diploma as an Advanced Crop Module.**

## **Background**

This nutrient management planning syllabus is designed to offer FQAs a training programme which will enable them to have the right type of competency in nutrient management planning and associated practices. The need for appropriately qualified and proactive advisers to support the sustainable production of grassland, arable and horticultural crops is essential in the context of environmental issues and pressures on profitability.

Detailed planning of plant and crop nutrition is required to reduce the environmental impact on soil, water and air. Important policy drivers for this are the Water Framework Directive, particularly important with respect to phosphorus, as well as nitrogen, the revised NVZ Action Plan and looming policies on greenhouse gases, for which compliance can be addressed as far as possible by good nutrient management practices.

In addition, concerns over fertiliser security and traceability are being built into everyday nutrient management activities on farms, nurseries and associated business enterprises and all advisers and agronomists need to be abreast of the latest requirements of the Fertiliser Industry Assurance Scheme.

## 1. Efficient utilisation of nutrients

Efficient use of nutrients is essential both for profits and for minimising impact on the wider environment. FQAs are expected to be conversant with:

### Matching nutrient inputs to crop or plant requirements

- ☐ Uptake of nutrients by crops
- ☐ Uptake in relation to stage of growth
- ☐ Sources of nutrients other than fertilisers (soil or growing media-based systems)

### Control of watering

- ☐ Potential effect of different irrigation systems on water and nutrient losses

### Nutrient supply and crop quality

- ☐ Nitrate concentration in ready-to-eat vegetables
- ☐ Disease incidence

### Diagnostic methods

- ☐ Visual symptoms of nutrient deficiency and toxicity
- ☐ Plant tissue analysis
- ☐ Monitoring of nutrient supply

## 2. Methods for nutrient supply

Several growing systems are used in horticulture. FQAs should be conversant with the main principles of nutrient supply and the principal benefits and potential problems for these systems

### Soil-based

- ☐ Crops grown in soil
- ☐ Container grown plants

### Growing media

- Peat-based media
- Peat substitutes
- Controlled release fertilizers
- Acidification of irrigation water

### Hydroponics

- ☐ Inert substrates
- ☐ NFT
- ☐ Closed and open systems

### Liquid feeding

### 3. Special issues for nitrogen and phosphorus

Loss of nitrogen or of phosphorus to the wider environment can contribute to several problems. FQAs should be aware of these problems and of the need to minimize nutrient loss.

#### Nitrate in water

- ☐ Limit in water
- ☐ Outline of NVZs, their purpose and extent

#### Nitrous oxide

- ☐ Contribution to GHG emission
- ☐ Emission from soil and from nitrate leached to surface water

#### Phosphorus in water

- ☐ Eutrophication of freshwaters
- ☐ Phosphorus balance for a holding or nursery

#### Disposal of unused nutrients (solutions or products)

#### **4. Codes, legislation and other requirement to protect the environment**

Nutrient use is covered by codes of practice and legislation. Presently, these relate mainly to field crops but the trend towards greater control is likely to extend to horticulture. FQAs should be aware of current codes and legislation so that they are prepared.

##### Code of practice

- ☐ Specialised horticulture section of Protecting our Water, Soil and Air (applies to England but relevant elsewhere)

##### Water Framework Directive

- ☐ Likely impact on phosphorus use

## **5. Fertiliser Industry Assurance Scheme (FIAS) and fertiliser security**

FIAS, a self-governing scheme, applies mainly to the fertiliser supply chain up to the holding gate. However, FQAs should be aware of the principles of FIAS so that the user can ensure due responsibility for fertiliser products whilst they are stored and used on the holding.

Need for fertiliser security

Purpose and scope of FIAS

Ten Point Code for Fertiliser Security (NaCTSO)

## 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 commercial Horticulture advice and sales.

<u>TOPICS COVERED</u>	
<b>ADVANCED CROP MODULE / NUTRITION MANAGEMENT PLANNING</b>	Weed, Pest & Disease Control, Crop Protection Programmes, Marketing, Food Industries, Crop Assurance, Nutrient Management
<b>BETA / CONSERVATION MANAGEMENT</b>	Environment, Biodiversity, EIS's, CPMP's, ICM, Climate Change
<b>PLANT PROTECTION AWARD (PPA)</b>	Systems & Society, Formulation, Mode of Action, Application, Health & Safety
<b>SOIL &amp; WATER MANAGEMENT</b>	Cultivation Types and Properties, Cropping Systems, Water Quality, Drainage, Pollution/Waste, Plant Nutrition

For the PPA and the Advanced Crop Modules the prior achievement (by examination, exemption or validated certificate) of the BASIS Certificate in Crop Protection is an entry requirement. For the Advanced Nutrient Management Planning Course 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 and Water Management certificate.

Prior qualification of the BASIS Certificate in Crop Protection (or exemption or validated certificate) or the Environmental Pesticide Management or POWER Certificates are required for the BETA examination. In some circumstances, it may be possible for other types of prior qualification to be taken into account for BETA examination eligibility. BASIS Approved Trainers must ensure that in such cases, the prospective candidate is capable of assimilating the knowledge imparted during the BETA course to enable them to pass the BETA examination.

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.

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 HAUC and the Higher Education qualifications framework has been the development by HAUC 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:

<b>FACTS</b>	
<b>Credit Value</b>	15
<b>Level</b>	Intermediate

<b>SOIL &amp; WATER MANAGEMENT</b>	
<b>Credit Value</b>	15
<b>Level</b>	Honours

<b>BASIS CROP PROTECTION</b>	
<b>Credit Value</b>	30
<b>Level</b>	Honours

<b>BASIS PLANT PROTECTION AWARD</b>	
<b>Credit Value</b>	15
<b>Level</b>	Honours

<b>BASIS ADVANCED MODULES / NUTRIENT MANAGEMENT PLANNING</b>	
<b>Credit Value</b>	15
<b>Level</b>	Honours

<b>BETA / CONSERVATION MANAGEMENT</b>	
<b>Credit Value</b>	15
<b>Level</b>	Intermediate

Intermediate = 2<sup>nd</sup> or 3<sup>rd</sup> 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 HAUC 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 Crop Modules or the Nutrient Management Planning Course.

Further details of the BASIS Diploma in Agronomy can be obtained from the BASIS office training department on 01335 340857 or 01335 340857 or by e-mail to [training.courses@basis-reg.co.uk](mailto:training.courses@basis-reg.co.uk)

## **Useful Background Reading Sources**

HDC research publications (you will need to be an HDC member)

[www.hdc.org.uk](http://www.hdc.org.uk)

Company (eg YARA, Solufeed) Literature

### **Phosphorus**

Understanding Phosphorus and its Role in Agriculture

<http://www.efma.org>

Phosphorus in agriculture and in relation to water quality

[http://www.agindustries.org.uk/document.aspx?fn=load&media\\_id=2149&publicationId=348](http://www.agindustries.org.uk/document.aspx?fn=load&media_id=2149&publicationId=348)

### **FIAS and Transport and Storage**

FIAS Documents

<http://www.agindustries.org.uk/content.output/398/398/Trade%20Assurance/Trade%20Assurance%20Schemes/FIAS.msp>

Storage and safe handling of AN

<http://www.hse.gov.uk/pubns/indg230.pdf>

EFMA Code of Best Agricultural Practice: Nitrogen

EFMA Code of Best Agricultural Practice: UREA

EFMA Guidance For safe and Secure Storage of Fertilisers on Farms

<http://www.efma.org>

ADR regulations

<http://www.hse.gov.uk/cdg/manual/adrcarriage.htm>

### **Legislation/ Guidance relating to fertiliser usage**

NVZ Booklets (1-9)

<http://www.defra.gov.uk/environment/quality/water/waterquality/diffuse/nitrate/help-for-farmers.htm#nvzs>

Protecting our Water, Soil and Air (Code of Good Agricultural Practice)

<http://www.defra.gov.uk/foodfarm/landmanage/cogap/documents/cogap090202.pdf>

Various documents relating to Water Framework Directive introduction in UK

<http://www.wfduk.org/>

<http://www.environment-agency.gov.uk/research/planning/33106.aspx>

Groundwater regulations

<http://www.netregs.gov.uk/netregs/legislation/future/97530.aspx>

**NOTE - It is NOT recommended that you print off all of these files**

## BASIS APPROVED TRAINERS

The following Colleges, Trainers and Training Providers are successfully running Nutrient Management Planning examinations and have been accepted as BASIS Approved Trainers for Nutrient Management Planning.

**David Godsmark**  
Swallowfield  
Eastergate Lane  
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West Sussex PO20 6JS

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