



Higher National Graded Unit specification

General information for centres

This Graded Unit has been validated as part of the HND Agricultural Science. Centres are required to develop the assessment instrument in accordance with this validated specification. Centres wishing to use another type of Graded Unit or assessment instrument are required to submit proposals detailing the justification for change for validation.

Graded Unit title: Agricultural Science: Graded Unit 2

Graded Unit code: F3R1 35

Type of Graded Unit: Project

Assessment Instrument: Case Study

Credit points and level: 1 HN credit at SCQF level 8: (8 SCQF credit points at SCQF level 8*)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Purpose: This Graded Unit is designed to provide evidence that the candidate has achieved the following principal aims of the HND Agricultural Science:

- ◆ Develop study and research skills in the area of agricultural science.
- ◆ Further develop transferable skills including the Core Skills.
- ◆ Develop candidates' ability to undertake planning, development, synthesis and evaluation in the area of agricultural science.
- ◆ Develop candidates' employment skills and enhance candidates' employment prospects, by providing the candidate with a wide range of practical, laboratory, scientific and technical skills and an awareness of safe working practices, health and safety issues and business management.
- ◆ Develop candidates' knowledge and understanding of the applications of scientific principles and techniques to support the agricultural industry.
- ◆ Develop candidates' knowledge and understanding of crop and livestock production systems, their management and the economic, environmental, regulatory and animal welfare issues that influence these sectors.
- ◆ Prepare candidates for employment at a technical or supervisory level with the agricultural supply and support industries, as well as government departments, environmental agencies and regulatory bodies dealing with agricultural issues.
- ◆ Prepare candidates for progression to degree level study in Agricultural Science and related areas.

General information for centres (cont)

Recommended prior knowledge and skills: It is recommended that the candidate should have completed or be in the process of completing the following Units relating to the above specific aims prior to undertaking this Graded Unit:

DV08 35	<i>Statistics for Science 2</i>
F2GA 35	<i>Land Use Systems</i>
F2E5 35	<i>Agroecosystems: Energetic Efficiency</i>
F1JL 35	<i>Soils and Plant Nutrition</i>
F2ED 34	<i>Livestock Production Systems</i>
F2EC 35	<i>Livestock Nutrition</i>
F1Y9 34	<i>Grass and Fodder Crop Production</i>
F1Y7 35	<i>Farm Manures, Wastes and the Environment</i>
F1RJ 34	<i>Business Management: An Introduction</i>

Core Skills: There are opportunities to develop the Core Skills of *Problem Solving, Numeracy, Information and Communication Technology* and *Communication* all at SCQF level 6 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

Context for delivery

If this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

The Assessment Support Pack (ASP) for this unit provides assessment and marking guidelines that exemplify the national standard for achievement. It is a valid, reliable and practicable assessment. Centres wishing to develop their own assessments should refer to the ASP to ensure a comparable standard. A list of existing ASPs is available to download from SQA's website (<http://www.sqa.org.uk/sqa/46233.2769.html>).

Assessment: This Graded Unit will be assessed by the use of a Case Study. The developed case study should provide the candidate with the opportunity to produce evidence that demonstrates she/he has met the aims of the Graded Unit that it covers.

Administrative Information

Graded Unit code: F3R1 35
Graded Unit title: Agricultural Science: Graded Unit 2
Original date of publication: August 2007
Version: 01

History of changes:

Version	Description of change	Date

Source: SQA

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Higher National Graded Unit specification: instructions for designing the assessment task and assessing candidates

Graded Unit title: Agricultural Science: Graded Unit 2

Conditions of assessment

The candidate should be given a date for completion of the case study. However, the instructions for the assessment task should be distributed to allow the candidate sufficient time to assimilate the details and carry out the assessment task. During the time between the distribution of the assessment task instructions and the completion date, assessors may answer questions, provide clarification, guidance and reasonable assistance. The assessment task should be marked as soon as possible after the completion date. The final grading given should reflect the quality of the candidate's evidence at the time of the completion date.

The evidence for the project is generated over time and involves three distinct stages, where each stage has to be achieved before the next is undertaken. Thus any re-assessment of stages must be undertaken before proceeding to the next stage.

If a candidate fails the project overall or wishes to upgrade, then this must be done using a *substantially different* project, ie all stages are undertaken using a new project, assignment, case study, etc. In this case, a candidate's grade will be based on the achievement in the re-assessment, if this results in a higher grade.

Instructions for designing the assessment task

The assessment task is a project. The project undertaken by the candidate must be a complex task which involves:

- ◆ variables which are complex or unfamiliar
- ◆ relationships which need to be clarified
- ◆ a context which may be familiar or unfamiliar to the candidate

The assessment task must require the candidate to:

- ◆ analyse the task and decide on a course of action for undertaking the project
- ◆ plan and organise work and carry it through to completion
- ◆ reflect on what has been done and draw conclusions for the future
- ◆ produce evidence of meeting the aims which this Graded Unit has been designed to cover

The assessment task must be a technical case study-based project within the context of agricultural production. The case study must be based on a scenario to simulate the situation faced by a technical advisor called to a farm to investigate and solve a serious technical problem (rather than general farm management issues). It must describe a scenario set in agricultural production selected so that it demands consideration of crop, livestock and environmental factors.

An example of a serious technical problem could include concerns with efficiencies or yields or qualities of outputs.

The range of the tasks identified in the Evidence Requirements must be defined in relation to the context of the serious technical problem. The technical problem selected must focus on the principal aims of the HND course, and the need to demonstrate an ability to integrate knowledge and skills across the defined mandatory Units in the award.

Higher National Graded Unit specification: instructions for designing the assessment task and assessing candidates (cont)

Guidance on grading candidates

Candidates who meet the minimum Evidence Requirements will have their achievement graded as C — competent, or A — highly competent or B somewhere between A and C. The grade related criteria to be used to judge candidate performance for this Graded Unit is specified in the following table

Grade A	Grade C
<p>Is a seamless, coherent piece of work which:</p> <ul style="list-style-type: none"> ◆ provides considerably more than the minimum evidence for each of the three tasks specified in the project brief ◆ evidence is of a consistently high standard in terms of presentation style, language, accuracy and technical content ◆ demonstrates an accurate and insightful interpretation of the project brief ◆ embodies “state of the art” solutions to problems ◆ effectively consolidates and integrates required knowledge and skills ◆ includes full rationale and justification for proposed solutions ◆ fully considers financial implications of proposed solutions ◆ includes a critical appraisal of proposed solutions identifies problem areas and issues of conflict. ◆ demonstrates independence of thought by successfully completing the stages of the project with infrequent and minimal tutor support 	<p>Is a co-ordinated piece of work which:</p> <ul style="list-style-type: none"> ◆ provides evidence for each of the three phases of the project ◆ is presented in a style, language, accuracy and technical detail to meet Evidence Requirements ◆ demonstrates an interpretation of the project brief ◆ embodies only routine and traditional solutions ◆ contains evidence of integration of knowledge and skills ◆ contains solutions ◆ considers cost issues ◆ proposes solutions ◆ seeks tutor intervention to keep the case study on track

The project will be marked out of 100. Assessors will mark each stage of the project, taking into account the criteria outlined. The marks will then be aggregated to arrive at an overall mark for the project. Assessors will then assign an overall grade to the candidate for this Graded Unit based on the following grade boundaries.

A = 70% — 100%
 B = 60% — 69%
 C = 50% — 59%

Note: the candidate must achieve all of the minimum evidence specified below for each stage of the project in order to achieve the Graded Unit.

Higher National Graded Unit specification: instructions for designing the assessment task and assessing candidates (cont)

Evidence Requirements

The project consists of three stages: planning; developing; and evaluating. The following table specifies the minimum evidence required to pass each stage.

Note: The candidate must achieve **all of the minimum evidence** specified below for each stage of the project in order to pass the Graded Unit.

Project stage	Minimum Evidence Requirements
Stage 1 — Planning 18%	<p>Develop an action plan to include:</p> <ul style="list-style-type: none"> ◆ the aims of the case study ◆ the identification of the tasks to be undertaken ◆ identification of the research required to fulfil the case study requirements ◆ a time line action plan to manage and complete subsequent stages within the requisite timescale <p><i>The candidate must achieve all of the minimum evidence specified above in order to pass the Planning stage.</i></p>
Stage 2 — Developing 64%	<p>Preparation of a Case Study report (circa 2,000 words or equivalent) that includes:</p> <ul style="list-style-type: none"> ◆ strategic and operational objectives ◆ identification and collection/collation of significant data ◆ evaluation of the current situation using appropriate means (eg calculations, graphs, tables with reference to industry benchmarks) ◆ investigation and discussion of possible solutions to the problem ◆ rationale and justification for the recommended actions ◆ consideration of financial, legal and Health and Safety implications ◆ consideration of environmental and animal welfare implications <p>The format of the Case Study report should include:</p> <ul style="list-style-type: none"> ◆ contents page ◆ executive summary ◆ description of the scenario contained in the brief ◆ conclusion containing the recommended actions and anticipated responses ◆ acknowledgements (if appropriate) ◆ references <p>Candidates may be required to answer questions from the assessor to validate the evidence</p> <p><i>The candidate must achieve all of the minimum evidence specified above in order to pass the Developing stage.</i></p>

Higher National Graded Unit specification: instructions for designing the assessment task and assessing candidates (cont)

Project stage	Minimum Evidence Requirements
Stage 3 — Evaluating 18%	<p>Preparation of an evaluation report which reflect on the outputs of Stage 1 and 2 and contains:</p> <ul style="list-style-type: none"> ◆ evaluation of the Case Study progress compared to the time line action plan ◆ appraisal of the proposed solutions to the problems identified ◆ identification of key issues to inform future similar tasks <p><i>The candidate must achieve all of the minimum evidence specified above in order to pass the Evaluating stage.</i></p>

Support notes

Here are some ideas as to how the brief for the Case Study could be devised.

It could simulate the situation faced by a technical advisor called to a farm to investigate and solve a serious technical problem.

The Case Study may involve a farm visit to enable candidates to gather background information.

The focus of the Case Study could be a technical problem (eg concerned with efficiencies, or yields or qualities of outputs) rather than general farm management issues.

It could describe a scenario set in agricultural production selected so that it demands consideration of crop, livestock and environmental factors and could provide adequate background and physical data to describe the current production system.

The data provided could enable the identification of a technical problem faced by the farm which requires a set of actions to rectify.

Access to agricultural advisory software (eg to formulate rations for livestock) is desirable.

Candidates could be encouraged to complete an activity log or to keep a diary of the progress and tasks completed to facilitate the reflective component. It is recommended that there are regular scheduled meetings between the tutor and the candidates to review progress, and to provide appropriate guidance. The guidance must not be such that it influences the final grading, but, for example, pointing out to the candidate the consequences of significant deviation from their plan during the development phase, would be legitimate. It is desirable for notes of the meetings to be made for the purposes of clarity and to further simulate the working environment. The notes should be agreed upon by both parties.

Candidates are encouraged to produce a concise, well-presented technical case study report in a form which would be easily understood by a farm manager.

Tutor questions may be used to ascertain the candidates' understanding of the issues contained in the Case Study report and probe the validity of the recommended actions.

Higher National Graded Unit specification: instructions for designing the assessment task and assessing candidates (cont)

Disabled candidates and/or those with additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website www.sqa.org.uk/assessmentarrangements

General information for candidates

This is a Graded Unit worth 8 SCQF credit points at SCQF level 8.

This Graded Unit is a project (case study), to be completed towards the end of your course. It is designed to assess your ability to integrate and apply knowledge and understanding from the mandatory Units in order to meet the principal aims of the HND Agricultural Science award.

The Case Study is based on a scenario to simulate a potential situation faced by a technical advisor called to a farm to investigate and solve a serious technical problem. The precise details of the case study will be discussed in consultation with your tutor. You will then undertake the investigation, propose possible solutions to the problem and prepare the case study report. Finally, following completion of the case study report, you will undertake a critical analysis of your methods and conclusions in relation to the brief.

You may be given a high degree of autonomy during all stages of the Case Study with your tutor available for guidance and support at pre agreed stages. After submission of your report, your tutor may interview you to probe your understanding of the underlying issues and the validity of your proposal.

The Project (Case Study) will be assessed in three stages: Planning, Developing, Evaluating. You will need to pass the planning stage of your Case Study before you can progress to the developing stage, and pass the developing stage before you continue to the evaluating stage. To pass you must achieve 50% of the total marks and all the minimum Evidence Requirements for each of the three phases of the work.

The overall project will be marked out of 100. Assessors will mark each stage of the project, taking into account the criteria outlined. The marks will then be aggregated to arrive at an overall mark for the project. Assessors will then assign an overall grade to the candidate for this Graded Unit based on the following grade boundaries.

A = 70% — 100%

B = 60% — 69%

C = 50% — 59%

There are opportunities to develop your Core Skills in *Problem Solving*, *Numeracy*, *Information and Communication Technology* and *Communication*, all at SCQF level 6 in this Unit.