

National Unit Specification: General Information

UNIT Crop Establishment Equipment (Intermediate 2)

NUMBER D840 11

COURSE

SUMMARY

A specialist module which enables the candidate to operate and maintain seed drills, planters, fertiliser distributors and crop sprayers.

OUTCOMES

- 1 Identify different types of seed drills, planters, fertiliser distributors and crop sprayers.
- 2 Explain the uses, layout and working principles of seed drills, planters, fertiliser distributors and crop sprayers.
- 3 Maintain, set and calibrate drills, planters, fertiliser distributors and crop sprayers.
- 4 Operate drills, planters, fertiliser distributors and sprayers, making use of appropriate marking systems.

RECOMMENDED ENTRY

08061 Tractor Operation 2

08070 Tillage

CREDIT VALUE

1.0 Credit at Intermediate 2.

CORE SKILLS

Information on the automatic certification of any core skills in this unit is published in *Automatic Certification of Core Skills in National Qualifications* (SQA, 1999).

Administrative Information

Superclass: SK

Publication date: December 1998

Source: Scottish Qualifications Authority

Version: 02 (*Version 01 is National Certificate Module 68072*)

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National unit specification: statement of standards

UNIT Crop Establishment Equipment (Intermediate 2)

Acceptable performance in this unit will be the satisfactory achievement of the standards set out in this part of the unit specification. All sections of the statement of standards are mandatory and cannot be altered without reference to the Scottish Qualifications Authority.

OUTCOME 1

Identify different types of seed drills, planters, fertiliser distributors and crop sprayers.

Performance Criteria

- a) Different types of seed drills are identified correctly.
- b) Different types of planters are identified correctly.
- c) Different types of crop sprayers are identified correctly.

Evidence Requirements

Written and/or oral evidence of the candidate's ability to identify different types of seed drills, planters, fertiliser distributors and crop sprayers.

OUTCOME 2

Explain the uses, layout and working principles of seed drills, planters, fertiliser distributors and crop sprayers.

Performance Criteria

- a) The use, layout and operation of seed drills is explained correctly.
- b) The use, layout and operation of planters is explained correctly.
- c) The use, layout and operation of crop sprayers is explained correctly.

Evidence Requirements

Written and/or oral evidence of the candidate's ability to explain the uses, layout and working principles of seed drills, planters, fertiliser distributors and crop sprayers.

OUTCOME 3

Maintain, set and calibrate drills, planters, fertiliser distributors and crop sprayers.

Performance Criteria

- a) Drills are maintained, set and calibrated correctly.
- b) Planters are maintained, set and calibrated correctly.
- c) Fertiliser distributors are maintained, set and calibrated correctly.
- d) Crop sprayers are maintained, set and calibrated correctly.

Evidence Requirements

Evidence of actual performance of the candidate's ability to maintain, set and calibrate drills, planters, fertiliser distributors and crop sprayers.

National unit specification: statement of standards (cont)

UNIT Crop Establishment Equipment (Intermediate 2)

OUTCOME 4

Operate drills, planters, fertiliser distributors and sprayers, making use of appropriate marking systems.

Performance Criteria

- a) Drills are operated correctly.
- b) Fertiliser distributors are operated correctly.
- c) Sprayers are operated correctly.
- d) Appropriate use is made of marking systems.

Evidence Requirements

Evidence of actual performance of the candidate's ability to operate drills, planters, fertiliser distributors and sprayers making use of appropriate marking systems.

National unit specification: support notes

UNIT Crop Establishment Equipment (Intermediate 2)

This part of the unit specification is offered as guidance. None of the sections of the support notes is mandatory.

GUIDANCE ON CONTENT AND CONTEXT

Corresponding to outcomes:

Outcome 1

The range of machines should include:

- a) unit/precision drills (eg. belt, cell wheel, pneumatic);
- b) planters;
- c) grain and grass drills (including combine drills);
- d) trailed and mounted fertiliser distributor;
- e) crop sprayers with emphasis on the conventional hydraulic type, but candidates should be aware of new developments.

Outcome 2

The range given in Outcome 1. Marking systems available should cover:

- a) conventional drill markers;
- b) tramlining systems (including how to match other equipment to this system);
- c) other methods of obtaining accurate bouts.

Outcome 3

Selection of matching equipment. Undertaking pre-season, routine and end of season maintenance tasks on the machinery operated.

Setting a drill, a unit/precision drill, a planter, a fertiliser distributor and a crop sprayer (selected from the range of machines previously identified) to a given sowing/application rate and drill/bout width.

Stationary/field calibration for the range of equipment used.

Outcome 4

Planning the approach to field procedures for the range of machinery used, eg.

- endriggs
- direction of sowing/planting/spraying
- starting and stopping/switching on and off
- positioning of seed/fertiliser trailer or water bowser.

National unit specification: support notes (cont)

UNIT Crop Establishment Equipment (Intermediate 2)

Operating a drill, a unit/precision drill, a planter, a fertiliser distributor and a crop sprayer, selected from the range of machines previously identified.

GUIDANCE ON TEACHING AND LEARNING APPROACHES

The types of equipment identified and used, should reflect the interests and specialisms of the candidates.

The candidate will be expected to spend time in the workshop, on the farm and on visits in order to identify range of the relevant machinery. It would also permit the layout and working principles to be observed. Some time will be needed in the classroom to reinforce the observation, by use of O.H.P.s, slides, films, etc. Wherever possible, bout marking systems and tramlining should be seen operating. If this is not possible, videos may be used.

Many of the remaining activities covered by the module should be undertaken in the practical situation, either in the workshop or in the field. These should involve practical operation and testing of the machines, and the completion of report forms where necessary. The use of simulated materials may be necessary, where appropriate work is not available, but the correct and safe mixing procedures for spray chemicals must be covered.

Because of the large practical element in the module a programme of formative assessment should be followed.

GUIDANCE ON APPROACHES TO ASSESSMENT

Outcome 1

Identification test - the candidate is required to identify 10 items of equipment including examples of seed drills, planters, fertiliser distributors and crop sprayers either by viewing the machine or a picture of it.

Outcome 2

Written test - 10 short answer questions on the layout and working principles of seed drills, planters, fertiliser distributors and crop sprayers.

National unit specification: support notes (cont)

UNIT Crop Establishment Equipment (Intermediate 2)

Outcome 3

Practical exercise - the candidate is required to set, calibrate and maintain one seed drill, one planter, one fertiliser distributor and one crop sprayer.

The performance criteria should be based on:

- a) correct attachment of machine;
- b) correct setting of machine to suit a given rate/application.
- c) correct setting of machine to achieve good field results;
- d) carrying out the correct calibration routine;
- e) resetting machine in light of calibration;
- f) correctly carrying out the maintenance expected of an operator;
- (g) following safety requirements.

Practical exercises - the candidate is required to operate one seed drill, one planter, one fertiliser distributor and one sprayer making use of appropriate marking systems.

- (a) Appropriate planning of operation eg. correct positioning of trailer or bowser, correct choice of size of endrigger and making correct allowance for wind;
- b) accurate driving of machine using marking systems;
- c) observation of all safety requirements.

Where cutting scores are stated these are intended to be for guidance. The precise cutting score for a test will depend on the difficulty of the test and will have to be decided by the Tutor in discussion with the Assessor.

SPECIAL NEEDS

This unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering alternative outcomes for units. For information on these, please refer to the SQA document *Guidance on Special Assessment and Certification Arrangements* (SQA, 1998).