

-SQA-SCOTTISH QUALIFICATIONS AUTHORITY

**Hanover House
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NATIONAL CERTIFICATE MODULE DESCRIPTOR

-Module Number- 0068166 -Session-1986-87
-Superclass- SC

-Title- CEREAL HARVESTING AND STORAGE

-DESCRIPTION-

Type and Purpose A specialist module which enables the student to operate and maintain an efficient cereal harvesting and storage system.

Preferred Entry Level 08061 Tractor Operation 2
08163 Field Scale Cropping

Learning Outcomes The student should:

1. identify appropriate time for harvesting;
2. know cereal harvesting equipment and its field operational procedures;
3. know the principles of, and the equipment for, the conservation and storage of grain;
4. know methods of straw disposal;
5. set, adjust, and maintain a combine harvester, drier and conveying equipment.

Content/ Context Corresponding to the Learning Outcomes:

1. requirements for grain for seed, feed, milling, intervention, and malting with regard to: variety, moisture content, impurities, specific weight protein content, crop moisture levels, weather conditions, problems associated with early and late harvest. Methods of assessing suitability for harvest.

2. review of the range of combine harvesters, their working principles, constructional features and field operational procedures. Assessment of crop losses, especially those due to combining faults, the rectification of faults and methods of monitoring losses. 3. principles of grain conservation/storage Principles of:

- (a) grain drying, high and low temperatures
- (b) sealed grain stores
- (c) acid preservation
- (d) grain chilling

Assessment of grain samples.

Types of high and low temperature drier, their construction and operating procedures, including the effect of air temperatures and moisture content on drying. Types of grain store, their preparation and hygiene. Pre-cleaners - working principles. Moisture meters use. Conveying and elevating equipment. Sealed grain stores, acid preservation equipment. and layout of grain chilling unit. Layout of driers and stores with associated. conveying and elevating equipment.

4. methods of straw disposal. Regulations, codes of practice and benefits of each method.
5. preparation of combine harvester for work, set and adjust a combine for one specified crop. Maintenance of combine harvester Location of the operational controls. Drive a combine harvester.

Maintenance of one type of grain drier. Use of a moisture meter to determine grain sample moisture content.

Suggested Learning and Teaching Approaches

Wherever possible, field operation should be included, but failing this, operation in a demonstration area should be substituted, supplemented by field studies and visual aids eg. videos. Use should be made of workshop practicals and exercises.

Assessment Procedures

All Learning Outcomes must be validly assessed.

The student must be informed of the tasks which contribute to summative assessment. Any unsatisfactory aspects of performance should, if possible, be discussed with the student as and when they arise.

Acceptable performance in the module will be satisfactory achievement of the performance criteria specified for each Learning Outcome.

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 aided by the Assessor.

The following abbreviations are used below:

LO Learning Outcome
IA Instrument of Assessment
PC Performance Criteria

LO1

IA Short answer written test consisting of 5 questions.

PC The student identifies the appropriate time for harvesting.

Questions to cover:

- (a) visual symptoms of plant readiness for harvest;
- (b) problems associated with use of moisture testing equipment;
- (c) problems associated with early/delayed harvest;
- (d) moisture range appropriate for a specified storage system.

Cutting score 80%.

LO2

IA Short answer written test consisting of 5 questions.

PC The student describes harvesting equipment and field operational procedures.

Questions to cover:

- (a) range of combine design;
- (b) operational settings for specified situations;
- (c) assessment of crop losses/modifications to reduce crop losses.

Cutting score 80%.

- LO3 IA Short answer written test consisting 5 questions.
- The student describes the principles of and equipment for the conservation and storage of grain.
- Questions to cover the operating principles and dangers/limitations of:
- (a) moist grain storage - sealed storage and acid treatment;
 - (b) grain drying methods - bulk and batch.
- Cutting score 80%.
- LO4 IA Short answer written test consisting of 5 questions.
- PC The student describes the methods of straw disposal and states the code of practice for burning straw.
- Cutting score 80%.
- LO5 IA Practical exercise used with observation checklist operating and maintaining a combine harvester drier and conveying equipment.
- PC The student:
- (a) correctly sets the machine/equipment for a specific situation;
 - (b) adjusts the controls of the machine/ equipment to suit given variations;
 - (c) drives the machine, locating and using the operational controls in a satisfactory way (where appropriate);
 - (d) correctly uses the equipment (where appropriate);
 - (e) undertakes the routine maintenance expected of an operator.