-SQA- SCOTTISH QUALIFICATIONS AUTHORITY

NATIONAL CERTIFICATE MODULE: UNIT SPECIFICATION

GENERAL INFORMATION

-Module Number- **1230156** **-Session- 1996-97**

-Superclass- **SB**

-Title- **POTATO ROGUING (x1 1/2)**

-DESCRIPTION-

GENERAL COMPETENCE FOR UNIT: Identifying specified varieties of potatoes and recognising genetic variations and stated diseases important in seed potato production, for the purpose of roguing seed potato crops to meet the standards set by the Government.

Explaining how relevant potato diseases are spread and reproduced and interpreting regulations and stated standards for the purpose of ensuring standards are achieved and regulations met.

OUTCOMES

1. identify commonly grown varieties of seed potatoes at the appropriate vegetative stage;

2. identify diseases and genetic variations in potato plants by the symptoms and characteristics evident in the foliage;

3. explain how diseases and genetic variations are spread and reproduced in potato plants;

4. interpret crops classification standards, tolerances and requirements as set by Government;

5. demonstrate roguing procedures in the field situation.

CREDIT VALUE: 1.5 NC Credits

ACCESS STATEMENT: There is no access statement for this module.

For further information contact: Committee and Administration Unit, SQA, Hanover House, 24 Douglas Street, Glasgow G2 7NQ.

Additional copies of this unit may be purchased from SQA (Sales and Despatch section). At the time of publication, the cost is £1.50 (minimum order £5.00).

NATIONAL CERTIFICATE MODULE: UNIT SPECIFICATION

STATEMENT OF STANDARDS

UNIT NUMBER: 1230156

UNIT TITLE: POTATO ROGUING

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

OUTCOME

1. IDENTIFY COMMONLY GROWN VARIETIES OF SEED POTATOES AT THE APPROPRIATE VEGETATIVE STAGE

PERFORMANCE CRITERIA

(a) Potato varieties are correctly identified on the basis of their foliar characteristics.
(b) Potato varieties are correctly identified on the basis of their growth habit.
(c) Potato varieties are correctly identified by the characteristics evident in the developing flowers.

RANGE STATEMENT

Foliar characteristics: leaves; stems; colour; shade; texture; pigments; size; shape; open leaf; close leaf; leaf axil; leaf midrib; leaf margins; terminal leaflet; primary leaflets; secondary leaflets; nodes; wings.

Growth habit: erect; prostrate; bushy; spreading; domed; tall.

Flowers: buds; sepals; petal colour; stalk length; number of flowers; absence of flowers.

EVIDENCE REQUIREMENTS

Written and/or oral evidence that the candidate can identify and name, on two occasions, 35 different varieties of seed potatoes presented at the appropriate stage of growth, by their foliar characteristics, growth habit, and flowers. The candidate should be able to identify and name a minimum of eighteen plants correctly on both occasions.

The varieties to be identified should be those included in lists published by the Government's Agricultural Departments.

The different varieties provided for identification should be appropriate to ensure coverage of all the critical classes of the range.

OUTCOME

2. IDENTIFY DISEASES AND GENETIC VARIATIONS IN POTATO PLANTS BY THE SYMPTOMS AND CHARACTERISTICS EVIDENT IN THE FOLIAGE

PERFORMANCE CRITERIA

(a) The identification of diseases in potato plants by symptoms evident in their foliage is correct.
(b) The identification of generic variations in potato plants by characteristics evident in their foliage is correct.

RANGE STATEMENT

Identification characteristics; characterisation of foliage; buds, flowers and growth.

Diseases: blackleg; mild mosaic; severe mosaic; leaf roll.

Genetic variations: wilding; feathery wilding; not true to type.

EVIDENCE REQUIREMENTS

Written and/or oral evidence that the candidate can identify and name diseases and genetic variations in 25 preselected potato plants. The candidate should be able to identify the diseases correctly in a minimum of thirteen plants on one occasion. The potato plants provided for identification purposes should be appropriate to ensure coverage of all critical classes in the range.

OUTCOME

3. EXPLAIN HOW DISEASES AND GENETIC VARIATIONS ARE SPREAD AND REPRODUCED IN POTATO PLANTS

PERFORMANCE CRITERIA

(a) The explanation of how disease is physically spread from infected potato plants to healthy potato plants is correct.
(b) The explanation of how disease is spread by aphids from infected potato plants to healthy potato plants is correct.
(c) The explanation of how disease is spread to the next generation of potatoes as a result of planting infected tubers is correct.
(d) The description of how genetic variations are reproduced in the next generation of potato plants is correct.

RANGE STATEMENT

Disease: blackleg; mild mosaic; severe mosaic; leafroll.

Physical factors associated with spread of diseases: contact between plants; man; animals and machinery passing through crops.

Genetic variations: wilding; feathery wilding; not true to type.

EVIDENCE REQUIREMENTS

Oral and/or written evidence to demonstrate candidate's understanding of spread of disease and reproduction of genetic variations in potato plants.

OUTCOME

4. INTERPRET CROPS CLASSIFICATION STANDARDS, TOLERANCES AND REQUIREMENTS AS SET BY GOVERNMENT

PERFORMANCE CRITERIA

(a) The interpretation of crops classification standards, tolerances and requirements concerning minimum standards of purity and trueness to type in each class of seed is correct.
(b) The interpretation of crops classifications standards, tolerances and requirements concerning maximum tolerances of rogues, groundkeepers and variations allowable at first and second inspections is correct for each class of seed.
(c) The interpretation of crops classification standards, tolerances and requirements concerning maximum tolerances of diseased plants allowable at first and second inspection is correct for each class of seed.
(d) The interpretation of crops classification standards, tolerances and requirements concerning percentage roguing levels at first and second inspections is correct for each class of seed.
(e) The interpretation of crops classification standards, tolerances and requirements concerning recommended separations between potato crops is correct.
(f) The interpretation of crops classification standards, tolerances and requirements concerning rotational requirements is correct.

RANGE STATEMENT

Crops classification standards, tolerances and requirements: plant populations.

Diseases: blackleg; mild mosaic; severe mosaic; leaf roll.

EVIDENCE REQUIREMENTS

Written and/or oral evidence on circumstantial situations relating to rotational requirements and crop separations, also purity of crop, rogues, groundkeepers, variations, disease levels and roguing tolerances in three different classes of crop.

OUTCOME

5. DEMONSTRATE ROGUING PROCEDURES IN THE FIELD SITUATION

PERFORMANCE CRITERIA

(a) The field procedures involved in assessing a seed potato crop prior to roguing are carried out correctly.
(b) The field procedures involved in identifying rogue plants are carried out correctly.
(c) The field procedures involved in removal of rogue plants, together with the parent tubers and developing tubers from the affected crop are carried out correctly.
(d) The collection and disposal procedures for the accumulated rogue plants and tubers are carried out correctly.

RANGE STATEMENT

Features for assessing a seed potato crop: plant populations per hectare (ha); seed class; percentage of rogues; ground keepers; variations and diseased plants; rogueable crop.

Identification procedures: visual limitations; walking speed; spotting crop irregularities; spotting plant irregularities; observation techniques.

Plant removal procedures: with or without the use of hand tools; rogue holes.

Collection and disposal procedures: carrying off; dumping.

EVIDENCE REQUIREMENTS

Performance evidence for each performance criterion and for each critical class in the range statement should be gathered from direct observation of the candidate in the field situation.

Candidate to demonstrate competence on one occasion.

ASSESSMENT

In order to achieve this unit, candidates are required to present sufficient evidence that they have met all the performance criteria for each outcome within the range specified. Details of these requirements are given for each outcome. The assessment instruments used should follow the general guidance offered by the SQA assessment model and an integrative approach to assessment is encouraged. (See references at the end of support notes).

Accurate records should be made of the assessment instruments used showing how evidence is generated for each outcome and giving marking schemes and/or checklists, etc. Records of candidates' achievements should be kept. These records will be available for external verification.

SPECIAL NEEDS

In certain cases, modified outcomes and range statements can be proposed for certification. See references at end of support notes.

NATIONAL CERTIFICATE MODULE: UNIT SPECIFICATION

SUPPORT NOTES

UNIT NUMBER: 1230156

UNIT TITLE: POTATO ROGUING

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

NOTIONAL DESIGN LENGTH: SQA allocates a notional design length to a unit on the basis of time estimated for achievement of the stated standards by a candidate whose starting point is as described in the access statement. The notional design length for this unit is 60 hours. The use of notional design length for programme design and timetabling is advisory only.

PURPOSE The purpose of this unit is to enable candidates to demonstrate competence in practical potato roguing, incorporating variety recognition, disease recognition, recognition of genetic variations and interpretation of standards set by the Scottish Office Agricultural and Fisheries Potato Inspection Scheme.

It is aimed at seed growers, agricultural employees, candidates and members of the general public with an interest in employment in the industry. Candidates need no previous experience of agriculture in general, or potatoes in particular.

SQA publishes summaries of NC units for easy reference, publicity purposes, centre handbooks, etc. The summary statement for this unit is as follows:

On completion of this module you will be able to identify varieties of potatoes, recognise diseases important in seed potato production and be competent in practical potato roguing.

CONTENT/CONTEXT Plots of potatoes representing the most commonly planted seed potato crops in Scotland/United Kingdom will be required for instructional purposes. Plots of diseased plants and plants showing genetic variations will also be required for instructional purposes. It is suggested that plots of healthy mixed varieties and plots with healthy plants interspersed with diseased plants and plants showing genetic variations are available for assessment purposes.

Plots of potatoes should be made up from varieties chosen from the published lists of the most commonly grown varieties in the previous year. e.g. by area grown.

Access to crops of ware potatoes may substitute for seed crops when roguing practice is required. This crop can also allow assessment of practical roguing procedures.

It would be expected that a minimum of thirty-five different varieties would provide sufficient variation in foliage, growth habit and flowering characteristics to ensure all important characteristics are included. Offering thirty-five different varieties of the most commonly planted seed potatoes will also ensure candidates have some breadth of knowledge and experience before involvement in the task of roguing.

Recognition and naming of varieties, diseases and genetic variation is the preferred criteria for assessment as opposed to describing the characteristics of the variety or symptoms and characteristics of the disease and genetic variation.

An understanding of why rogues appear in seed potato crops, how diseases are spread and the consequences of planting infected material together with the knowledge of the fact that genetic variations are reproduced in the next generation should prepare the candidate for roguing practice and encourage the necessary attention to detail required in the task of roguing seed potato crops.

Potato Cyst Nematodes, Veinal Necrosis, Blight, Bolters, Semi-bolters and Ground keepers are problems related to seed potato crops which may prove difficult to provide examples in plots used for training. Candidates must be made aware of these problems, and their ability to understand, recognise and deal with these problems can be covered in outcomes two, four and five.

Crop classification standards, tolerances and requirements are standards set by Government, and crop inspectors employed by the Government ensure that the standards are met. Candidates should be able to interpret and implement the standards in different classes of seed potato crops, whether as a grower, a roguing contractor or as a member of a roguing team. A roguing contractor should be able to evaluate a seed crop and assess the likelihood of it meeting the seed class standard, and discuss the problems seen in a seed crop with a grower.

Knowing not only what to do but how to do it means putting into practice the skills and knowledge in the field situation. If roguing practice and assessment is to be carried out then an extra area of crop will have to be made available. Any area of growing ware crop will be suitable for practice and assessment of field procedures.

Candidates should be made aware of appropriate clothing and footwear. Though there is no compulsion to wear strong boots and waterproof clothing, common sense dictates what is necessary according to weather conditions. What is important is the possibility of spreading disease from one crop to another if clothes are not changed or washed/disinfected. It is therefore of paramount importance for clothing/overalls to be thoroughly cleaned before going from one farm to another.

Weather conditions can affect assessment of the crop. Strong sunshine, evening sunlight, windy conditions for example can affect the roguer’s ability to identify disease symptoms and leaf characteristics. Candidates should be made aware of these situations.

Good eyesight is important in roguers.

Potato crops are often sprayed with aphicides and fungicides. Sensible precautions should be taken regarding possible contact with these sprays.

Roguing can be carried out using no tools or equipment other than a container to carry off rogues. When soil conditions are hard, there may be problems in removing parent tubers from deep planted crops, therefore a light graip or trowel can be of value. A stick or cane is often carried for the purpose of opening up plants in the drill and moving leaves and stems to allow visual access to lower growing plants, but care should be taken to avoid damaging plants.

Candidates should be made aware of the significance of rogue holes and the allowable tolerances for them.

ASSESSMENT PROCEDURES Centres may use the instruments of assessment which are considered by tutors/trainers to be the most appropriate. Examples of instruments of assessment which could be used are as follows:

Outcome 1

The candidate should be set an identification test of 35 different varieties of potatoes on two occasions.

The plants should be true to type and exhibiting sufficient characteristics required to identify the variety.

The candidate should be able to identify and name a minimum of eighteen plants correctly on both occasions.

A time limitation may have to be imposed for practical management of the assessment. Written or oral responses.

Outcome 2

The candidate should be set an identification test of 25 plants exhibiting a full range of disease symptoms and characteristics of genetic variations on one occasion.

The candidate should be able to identify the diseases correctly in a minimum of thirteen plants on one occasion.

Written or oral responses.

Outcome 3

The candidate should be set a written or oral test of one short answer question or restricted response question for each performance criteria covered in this outcome.

All questions to be answered correctly.

Outcome 4

The candidate should be offered a written or oral test of twelve short answer, restricted response or multiple choice questions to cover all performance criteria and classes of range. The number of questions used for each outcome will reflect the diversity of the options to be assessed in each performance criterion but should be twelve in total.

The candidate should achieve a minimum of ten correct responses.

Outcome 5

The candidate should be given a practical assignment of sufficient complexity to enable each performance criterion to be met.

A checklist covering the key elements contained in each performance criterion should be available to ensure all criteria are met and procedures are carried out correctly.

Candidates will require to demonstrate competence in all key elements of the stated criteria on one occasion.

RECOGNITION Many SQA NC units are recognised for entry/recruitment purposes. For up-to-date information see the SQA guide 'Recognised Groupings of National Certificate Modules'.

REFERENCES

1. Guide to unit writing. (A018).
2. For a fuller discussion on assessment issues, please refer to SQA's Guide to Assessment. (B005).
3. Procedures for special needs statements are set out in SQA's guide 'Candidates with Special Needs'. (B006).
4. Information for centres on SQA's operating procedures is contained in SQA's Guide to Procedures. (F009).
5. For details of other SQA publications, please consult SQA's publications list. (X037).