

Component Specification

Boom Sprayer Pesticide Application

NFQ Level 5

5N1797

1. Component Details

Title	Boom Sprayer Pesticide Application
Teideal as Gaeilge	Feidhmiú Lotnaidicídí Búm-Spraeire
Award Class	Minor
Code	5N1797
Level	5
Credit Value	5
Purpose	The purpose of this award is to equip the learner with the knowledge, skill and competence to apply crop pesticides using a boom sprayer in accordance with recommended safe practice.
Learning Outcomes	<p>Learners will be able to:</p> <ol style="list-style-type: none">1 Describe how infestations of pests (weeds, diseases, insects and vertebrates) affect crop growth and reduce quality2 Describe the range of pest control methods available to farmers and growers3 Explain the terminology used to categorise pesticides for crop production, the factors affecting pesticide efficiency and the factors to be considered when selecting a formulation4 Describe principles and procedures for the safe handling, storage, application and disposal of pesticides including appropriate personal protective equipment

- 5 Summarise laws and regulations relating to poisonous substances to include pesticide residues and maintenance of adequate records
- 6 Explain the principles of application technology necessary for the proper application of pesticides in respect of applicator components, calibration, maintenance, field operating procedures and precautions
- 7 Interpret pesticide label information in respect of precautionary symbols, product name, class designation, registration number, purpose, precautions, first aid instruction, toxicology information, disposal, notice to user, material safety data sheets (MSDS) and directions for use
- 8 Prepare boom sprayer for work, including calibration, in accordance with safe recommended good practice and manufacturer's instructions
- 9 Make up a pesticide spray mix in accordance with good practice including the pesticide product label dosage recommendations and the application area
- 10 Store a boom sprayer and personal protective equipment in a safe and efficient manner according to manufacturer's instructions
- 11 Apply a pesticide mix with a boom sprayer in a safe and efficient manner in accordance with recommended good practice.

Assessment

General Information

Details of FET assessment requirements are set out in [Assessment Guidelines for Providers](#).

All FET assessment is criterion referenced. Successful achievement of the award is based on learners attaining the required standards of knowledge, skill or competence.

The techniques set out below are considered the optimum approach to assessment for this component. In exceptional circumstances providers may identify alternative assessment techniques through the provider's application for programme validation which are **reliable** and **valid** but which are more appropriate to their context.

Assessment of a number of components may be integrated across programmes for delivery, provided that the learning outcomes of each minor award are assessed.

Group or team work may form part of the assessment, provided each learner's achievement is separately assessed.

All providers are required to submit an assessment plan as part of their application for programme validation. Assessment Plans will include information relating to scheduling and integration of assessment. See current FET validation guidelines at www.qqi.ie.

Assessment Techniques

In order to demonstrate that they have reached the standards of knowledge, skill and competence identified in all the learning outcomes, learners are required to complete the assessment(s) below.

The assessor is responsible for devising assessment instruments (e.g. project and assignment briefs, examination papers), assessment criteria and mark sheets, consistent with the techniques identified below and FETAC's assessment requirements.

Programme validation will require providers to map each learning outcome to its associated assessment technique. See current FET validation guidelines at www.qqi.ie.

All learning outcomes **must** be assessed and achieved

Skills Demonstration	60%
Examination - Theory	40%

Description

Skills Demonstration

A skills demonstration is used to assess a wide range of practical based learning outcomes including practical skills and knowledge. A skills demonstration will require the learner to complete a task or series of tasks that demonstrate a range of skills.

The assessor will devise a skills demonstration based on learning outcomes 7-11. The learner must complete the 20 tasks set out in the list below.

Weighting Factor:

Where a critical fault occurs the entire skills demonstration must be terminated.

0 marks for termination of skill demonstration due to a critical fault or failure to complete the task.

1 mark for completing the task with 3 or more minor faults

2 marks for completing the task with less than 3 minor faults

3 marks for exceeding the criteria for the task with no minor faults

Examples of critical faults: compromises safety, animal welfare, the environment, makes a pesticide mix that does not conform with label information

Examples of minor faults: Incorrect sequence, too slow, requires guidance

The learner must achieve at least 40 of the 60 marks available, to pass this assessment. The learner must pass this assessment to achieve the award

List of tasks:

Preparing boom sprayer for work

1 Carries out risk assessment for spraying

- 2 Selects and wears appropriate personal protective equipment
- 3 Selects applicator and identifies components and their functions
- 4 Checks sprayer before and after attaching to tractor (with access to checklists)
- 5 Selects nozzles from nozzle chart
- 6 Calibrates static boom sprayer (with access to worksheet)
- 7 Calibrates tractor forward speed (with access to worksheet)

Making up a pesticide spray mix

- 8 Interprets pesticide label information for approved uses, risk and safety information and directions for use
- 9 Half fills tanks with clean water & sets agitator running
- 10 Measures pesticide accurately, adds correct dose and rinses containers
- 11 Tops up tank and washes off traces of chemical
- 12 Returns pesticide to store and completes Chemical Store Stock Record Chart
- 13 Disposes of empty pesticide containers in a safe manner

Applying pesticide with a boom sprayer

14 Marks out bouts/or uses tramlines

15 Applies pesticide mix by setting nozzles at correct height , using pressure and forward speed from calibration, checking wind speed and direction and starting spraying from downwind end, spraying 2 bouts, square turns, around perimeter leaving first headland unsprayed

16 Rinses sprayer and sprays out first rinsings on unsprayed headland

17 Completes Sprayer Operators Log

Preparing boom sprayer and personal protective equipment for storage

18 Decontaminates sprayer and prepares for storage

19 Prepares personal protective equipment for storage and stores in a clean, dry ventilated locker

20 Washes hands & exposed skin

Overall Marks: 60

Examination - Theory

An examination provides a means of assessing a learner's ability to recall and apply knowledge, skills and understanding within a set period of time and under clearly specified conditions.

A theory-based examination assesses the ability to recall, apply and understand specific theory and knowledge.

The assessor will devise a theory based examination to assess learning outcomes 1 - 6.

Overall Marks 40

Recognition of Prior Learning (RPL)

Learners may be assessed on the basis of their prior knowledge and experience. Providers must be specifically quality assured to assess learners by this means. To do so they must complete B10, see Provider's Quality Assurance Guidelines and be included on the Register of RPL approved providers. See RPL Guidelines at www.fetac.ie for further information and registration details.

Grading

Pass	50% - 64%
Merit	65% - 79%
Distinction	80% - 100%

Specific Validation Requirements

There are no specific validation requirements for this award

Supporting Documentation

None

Access

To access programmes leading to this award the learner should have reached the standards of knowledge, skill and competence associated with the preceding level of the National Framework of Qualifications. This may have been achieved through a formal qualification or through relevant life and work experience.

Transfer

Successful completion of this component award enables the learner to transfer to programmes leading to other certificates where this component is a mandatory or an elective requirement.

2. FET Award Standards

QQI award standards are determined within the National Framework of Qualifications (NFQ), <http://www.nfq-qqi.com>. QQI determines standards for the education and training awards that it makes itself and that are made by providers to whom it has delegated authority to make an award. Providers offering programmes leading to QQI awards **must** have their programme(s) validated in accordance with current validation policy (see www.qqi.ie).

Award standards are designed to be consistent with the NFQ's award classes i.e. major, special purpose, supplemental and minor awards. They are expressed in terms of **learning outcomes** i.e. concise statements of what the learner is expected to know or be able to do in order to

achieve a particular award. Learning outcomes for FET awards are contained within the associated specifications:

AWARD CLASS	STANDARDS	AWARDS
Major Award	Certificate Specification	Certificate (Levels 1 to 5) Advanced Certificate (Level 6)
Supplemental Award	Supplemental Specification	Supplemental Certificate (Level 3 to 6)
Special Purpose	Specific Purpose Specification	Specific Purpose Certificate (Levels 3 to 6)
Minor Award	Component Specification	Component Certificate (Levels 1 to 6)

Award standards are thresholds, they describe standards of knowledge, skill or competence to be acquired, and where appropriate, demonstrated, by a learner before an award may be made.

Award standards will be reviewed from time to time as necessary. Minor changes may be made by the QQI executive outside the review cycle where necessary. Changes to standards are published on QQI's website. Providers with validated programmes and providers with delegated authority to make awards are responsible for monitoring relevant standards and making necessary responses to changes.

3. FET Credit

Every FET certificate and component specification includes an FET credit value (Table 1). FET credit is quantified in multiples of 5 FET credits (up to 50 hours of learner effort). Learner effort is based on the time taken by typical learners at the level of the award to achieve the learning outcomes for the award. It includes all learning time involved including: guided learning hours, self-directed learning and assessment.

Table 1: FET Credit Values

NFQ Level	Major Awards Credit Values	Default Credit Values Minor Awards	Other Permitted Minor Award Credit Values	Special Purpose and Supplemental Award Credit Value Ranges
1	20	5	10	
2	30	5	10	
3	60	10	5,20	>5 and <60
4	90	10	5,15,20	>5 and <90
5	120	15	5,10,30	>5 and <120
6	120	15	5,10,30	>5 and <120

Guide to Level

Learning outcomes at this level include a broad range of skills that require some theoretical understanding. The outcomes may relate to engaging in a specific activity, with the capacity to use the instruments and techniques relating to an occupation. They are associated with work being undertaken independently, subject to general direction.

Strand	Sub-strand	Nature of learning
Knowledge	Breadth	Broad range of knowledge
	Kind	Some theoretical concepts and abstract thinking, with significant depth in some areas.
Know How & Skill	Range	Demonstrate a broad range of specialised skills and tools
	Selectivity	Evaluate and use information to plan and develop investigative strategies and to determine solutions to varied unfamiliar problems
Competence	Context	Act in a range of varied and specific contexts, taking responsibility for the nature and quality of outputs; identify and apply skill and knowledge to a wide variety of contexts
	Role	Exercise some initiative and independence in carrying out defined activities; join and function within multiple, complex and heterogeneous groups
	Learning to Learn	Learn to take responsibility for own learning within a managed environment
	Insight	Assume full responsibility for consistency of self- understanding and behaviour

Extract from 'Determinations for the Outline National Framework of Qualifications': NQAI