-SQA-SCOTTISH QUALIFICATIONS AUTHORITY

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NATIONAL CERTIFICATE MODULE DESCRIPTOR

-Module Number- **0098039** **-Session-1989-90**
-Superclass- **SC**

-Title- **PESTICIDE APPLICATION BY HAND HELD APPLICATORS ($x^1/_2$)**

-DESCRIPTION-

Purpose

This module is designed to develop the knowledge and skills necessary to apply pesticides using a hand held applicator.

It is aimed at any student who will be required to apply pesticides in a variety of different occupations e.g. agriculture, horticulture, forestry, local authority employment.

This module is intended to offer education and training to meet the requirements of the current legislation/regulations.

Preferred Entry Level

98037 Introduction to Pesticides Application

A student must be at least 17 years of age prior to the commencement of this unit.

Learning Outcomes

The student should:

1. prepare hand held applicators for work;
2. calibrate a hand held applicator;
3. operate a hand held applicator;
4. demonstrate a knowledge of procedures to decontaminate and store equipment.

Content/ Context

The content of this module should be varied according to the major topic of interest of the students and current Code of Practice produced by the Ministry of Agriculture Fisheries and Food and the Control of Substances Hazardous to Health Regulations 1988.

Safety regulations and safe working practices and procedures should be observed at all times.

Corresponding to Learning Outcomes 1-4

1. Range of available hand held applicators Selection of applicators appropriate to work requirements/situation/volume to be applied.

   Checking of applicator

   - interpretation of instruction book;
   - pump and lance, spray pattern;
   - leaks, freedom from streaking;
   - cleanliness and serviceability of all working parts;
   - condition of straps, buckles and connections;
   - condition of batteries (if appropriate).

   Knowledge of nozzle components and assembly.

   Types of nozzle for different purposes and methods of use of each. Selection and fitting of nozzles/filters. Interpretations of product label recommendations. Selection of appropriate protective clothing. Dosage rates; volume of dilutant. Calculation of area to be treated.

2. Calibration procedure

   - walking speed in relation to ground conditions;
   - nozzle output;
   - volume rate;
   - swath width/spot diameter.

   Measurement, mixing and filling of container
   - calculation of amount of pesticides for full and part full tank;
   - mixing procedures/agitation;
   - use of face shield and avoidance of splashing.

3. Operation of the applicator

- correct lifting of applicator when full;
- accurate placement in spot and band treatment;
- bout swath width;
- height of working;
- cover/over/under lapping;
- avoiding contact with treated plants;
- avoiding contact with sensitive plants;
- direction of travel;
- use of marker to locate place when restarting after refilling.

Minimisation of drift

- weather conditions;
- nozzle/pressure;
- sensitive crops;
- conditions causing operator to stop spraying.

Personal hygiene.

4. Procedures for cleaning the applicator

- regularity of cleaning
- cleaning of key components
- avoidance of damage to key components
- safety precautions
- disposal of washing water.

Recognition of worn, cracked or perished parts.

Lubrication of applicator where appropriate.

Procedures for cleaning and storing.

Suggested Learning and Teaching Approaches

Most, of the work in this module should be undertaken in a practical situation using examples of simulated pesticides appropriate to the interests of the students.

Manufacturers' operators instruction books and calibration charts/calculators should be available at all times as should Health and Safety Executive leaflets and Code of Practice, Forestry Safety Council guides and British Crop Protection Council Nozzle Selection Handbooks.

Due to the practical nature of the module a programme of formative assessment should be followed.

The following general safety requirements apply to all Learning Outcomes.

Care should be taken to ensure that the operation of the prime mover and/or equipment does not in any way endanger the candidate, examiner, equipment and/or environment.

Candidates should not be credited with the Learning Outcome if these conditions are not met.

All equipment used must be of the standard required under the current Health and Safety legislation. Candidates must wear protective clothing appropriate to the risk when ever carrying out work on the sprayers.

Assessment Procedures

Acceptable performance in the module will be satisfactory achievement of all the Performance Criteria specified in the Learning Outcome.

The following abbreviations are used below:

LO Learning Outcome
IA Instrument of Assessment
PC Performance Criteria

LO1 PREPARE HAND HELD APPLICATORS FOR WORK.

PC The student:

(a) selects the appropriate applicator for the job;
(b) checks that the applicator is ready for use;
(c) follows all instructions on product label;
(d) adheres to all appropriate safety regulations and safe working practices.

IA Practical Exercise

The student will be set an exercise which will test the skills required to follow all appropriate procedures to prepare a hand held applicator for work.

The student will be asked to complete the exercise for one situation using one applicator and one pesticide.

Satisfactory achievement of the Learning Outcomes will be demonstrated by the student gaining all items on the following checklist.

CHECKLIST:

1. selects appropriate applicator;
2. checks applicator - pump;
3. checks applicator - lance;
4. checks applicator for leaks;
5. checks applicator for cleanliness;
6. interprets product label recommendations;
7. selects appropriate protective clothing;
8. calculates correctly area to be treated;
9. selects appropriate dosage rate and volume of diluent;
10. checks function of applicator.

LO2 CALIBRATE A HAND HELD APPLICATOR.

PC The student:

(a) correctly simulates spray operation when:

(I) wearing protective clothing;
(ii) tank is full;
(iii) spraying a given area.

(b) adjusts the applicator to suit the job being carried out;
(c) adheres to all appropriate safety regulations and safe working practices.

The student will be asked to complete the exercise for one situation using one applicator and one pesticide.

IA Practical Exercise

The student will be set an exercise which will test the skills required to follow the procedures to calibrate a hand held applicator.

The practical exercise will be carried out by given instructions and will be supported by a checklist.

Satisfactory achievement of the Learning Outcomes will be demonstrated by the student gaining all items on the checklist.

1. Measures walking speed in relation to ground conditions wearing appropriate protective clothing and operating part-filled applicator.
2. Measures nozzle output.
3. Measures swath width or spot diameter.
4. Calculates volume of application.
5. Specifies changes in volume of application when altering pressure, nozzle type, lance length or operator.
6. Changes volume of application to conform with product label recommendation by changing variable features appropriate to the applicator.

LO3 OPERATE A HAND HELD APPLICATOR.

PC The student:

(a) calculates the amount of pesticide required;
(b) mixes the pesticide in accordance with manufacturers instructions;
(c) uses the correct application technique;
(d) maintains a walking speed determined during calibration;
(e) minimises drift and splash;
(f) adheres to all appropriate safety regulations and safe working practices.

IA Practical Exercise

The student will be set an exercise to test the skills required to demonstrate the correct application techniques when operating a hand held applicator.

The student will be asked to complete the exercise for one situation using one applicator and one pesticide.

Satisfactory achievement of learning outcome will be demonstrated by the student gaining all items on the following checklist.

CHECKLIST:

1. accurately places pesticide;
2. prepares a safe working area for measurement of pesticide;
3. accurately measures the pesticide concentrate;
4. position applicator for safe lifting;
5. mixes the pesticide and fills the container using the correct procedures including washing measuring equipment;
6. uses a bout marker system to ensure correct direction of travel and correct overlap;

7. applies pesticide at walking speed determined during calibration;

8. applies pesticide at correct nozzle height with correct overlap;
9. maintains appropriate pressure whilst applying pesticide;
10. minimises contamination of neighbouring land;
11. demonstrates a safe method of surplus spray from applicator;
12. follows Control of Substances Hazardous to Health Regulations 1988.
13. works safely at all times.

LO4 DEMONSTRATE A KNOWLEDGE OF PROCEDURES TO DECONTAMINATE AND STORE EQUIPMENT.

PC The student:

(a) explains the procedures to be followed when cleaning the pesticide applicator;
(b) explains the importance of checking the applicator for worn, cracked or perished parts;
(c) explains the procedures to be followed for cleaning and storing equipment.

IA Restricted Response Questions

The student will be set five questions which test the understanding of procedures to be followed when cleaning equipment which may have been contaminated with pesticide.

The questions will be allocated as follows:

(a) knowledge of cleaning of the applicator.(2)
(b) serviceability and replacement of worn parts.(1)
(c) explains the procedures to be followed for cleaning and storing equipment.(2)

Successful achievement of the Learning Outcome will be demonstrated by the student producing correct responses to all of the Performance Criteria.