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NPTC LEVEL 2 AWARD IN THE SAFE USE OF PESTICIDES (QCF)

PA13 SUB-SURFACE LIQUID PESTICIDE APPLICATOR

ASSESSMENT SCHEDULE

PA13 – SUB SURFACE LIQUID APPLICATOR

Objective - Candidates will be able to:

1. Prepare a sub surface liquid applicator for work, calibrate and operate it to ensure correct application rates without risk to themselves other people and the environment.

2. Use the information detailed on product labels to determine the approved uses for the product and its potential hazards to human safety, non-target areas and the environment in general.

3. Carry out daily routine maintenance on a sub surface liquid applicator.

4. Carry out the correct procedure for cleaning personal protective equipment and application equipment which may have been contaminated with pesticide.

   There are a number of methods of calibration which the candidates may use provided that it produces the correct end result.

Qualification and Credit Framework (QCF) – credit value
PA1 has a credit value of 2 credits on the QCF.

Safe Practice:
Operating the prime mover and/or the equipment in such a way as to put the candidate, Assessor, equipment or the environment at risk will cause the candidate to be declared not yet competent.
All equipment used must be of the standard required under current Health & Safety legislation.
Candidates must wear Personal Protective Equipment (PPE) appropriate to the risk whenever carrying out work on the applicator.
Contaminated protective equipment should never be taken into tractor cab.

In addition, before entering the cab any protective equipment not required by legislation (other than coveralls and rubber boots) should be removed and placed in a suitable tractor locker or enclosed container outside the cab.

Candidates must be especially careful to avoid personal contamination when operating uncabbed or partially cabbed prime movers and be aware of the effect that changing circumstances have on the stability of the equipment.

Pre-requisites
The foundation unit (PA1) is required by candidates before being assessed for this application unit.

Validation of Equipment
Any type of sub surface liquid applicator, excluding pedestrian controlled machines and hand held equipment
Operator's instruction book should be available and may be used by the candidate during the assessment. Any other relevant literature may also by used.
The assessment should be conducted in the context of the work situation.

Candidates who undertake this assessment and are judged 'Competent' are reminded of their legal obligation to receive/undertake appropriate additional training in the use of any equipment that differs from that used during the assessment, but which they are nevertheless qualified to use.

Site:
Work site with suitable applicator filling/washing facilities, which comply with current environmental best practice and an area to be treated

Suggested facilities and equipment required to run the assessment:
Applicator and additional equipment
First Aid kit, which complies with Health and Safety (First Aid) Regulations 1981
Base machine matched to the applicator
Instruction books for base machine and applicator
Washing facilities
Personal Protective Equipment to comply with pesticide label/COSHH risk assessment
Tape measure/Measuring wheel to measure 100m run
Suitable tools
Spare nozzles, filters etc.
Clean product labels or label duplicates appropriate to the candidate.
Clean water supply and hosepipe.
Accurate and suitable measuring jugs.
Appropriate containers with simulated pesticide.
Site for practical work.
Pocket calculator.
Nozzle selection literature.
Tyre pressure gauge
Suitable lubricants.
Appropriate Application Record Sheets

Assessment Activity	Assessment Criteria
Preparation of Equipment	
1. Inspect applicator Identify applicator controls/components	 - Pump - Filling controls and devices - Agitation control - Pressure or volume regulator/pressure relief valve - On/off - Isolators - Tank wash system - Tank. Filters, pump, pressure gauge, nozzles and other items specific to the applicator - Controls - Valve positions - Spray lines and airlines
Demonstrate knowledge of liquid flow, action of applicator in filling, application and circulation modes	- Candidate to explain liquid flow of the machine being used.
Remove, clean and replace a filter.	- Check for defects - Contain spillage - Suitable procedure
2. Demonstrate knowledge of preparation of prime mover and equipment.	- Correct cab air filter and ventilation system. - Prime mover compatible applicator. - Wheel track width. - Front weights. - Accessibility of applicator controls from driving position. - Connection of hydraulic, pneumatic and electrical services. - Tyre pressures correct, tyres in good condition.
Check security of attachment of application mechanisms	- Bolts tight - Straps adjusted - All linkage secure - Side way restricted.
Demonstrate knowledge of legal requirements and safety regulations.	- Awareness of any safety implications imposed by the risk assessment on the machine and the operation. - Awareness of any guarding requirements. - Awareness of road traffic and carriage of dangerous goods by road regulations when in transport on the public highway. - Comply with the Code of Practice
3. Demonstrate knowledge of safe driving	- Correct gear selected - Load correctly attached - Effect of changing load on stability - Use of weights to stabilise prime mover Applicator correctly attached - Assess conditions - Check tyre pressures - Correct turning procedure - Keep centre of gravity low as possible - Desirability of 4-wheel drive on steep slopes - Assess conditions - Appropriate speed - Fingers and thumbs outside steering wheel - Independent brakes coupled together when on a public highway - Travelling at high speed makes vehicle unstable

Assessment Activity	Assessment Criteria
4. Check for mechanical defects.	- Seized, worn or damaged components - Compressor - Pressure relief device functions correctly - Lubrication points - Guards in position
Check condition of soil engaging components	- Tines/shares serviceable - Correct spacing - Securely attached
Check condition of soil sealing mechanism	- Securely attached - Pressure adjustment - Roller speed adjustment - Film dispensing mechanism (if applicable) -
Demonstrate knowledge of lubrication of components.	- Use of manufacturers handbook - All lubrication points indicated. - Type of lubricant identified. - Air compressor
Setting and Testing Application Rate	
5. Demonstrate working knowledge of the functions of the control panel	Answers in accordance with manufacturers instructions - Recognise malfunctions before and during operation - Check accuracy of calibration - Switch to test mode where applicable
Demonstrate knowledge of action to be taken if system fails	- Stop pesticide application - Convert to manual if possible - Ensure: • Correct output • Correct forward speed
6. Read and interpret product label (as supplied or approved by the Assessor).	- Product being used - Appropriate for type of applicator - Timing - Additional label information - Restrictions on use - Depth of injection - Dose rate - WELs
7. Select and calculate speed.	- Trial run on typical ground to establish suitable depth and sealing. - Suitable forward speed - Accurate measurement of 100m - Time in seconds to cover 100m using gear and r.p.m. established - Correct use of formula
Calculate required output.	- Correct use of formula
Select appropriate nozzle/restrictor	- Use of manufacturer's operators handbook
8 Fill applicator tank.	- Suitable site selected - Fill by usual on site method following approved safe procedures. - Determine size of area to be treated - Procedure for opening containers - Pipework clean - Attaching to container - Position of controls - Pipework purged - Disconnection and storage of pipework

Assessment Activity	Assessment Criteria
Assessor to note: **Candidates will have to have engine running and PTO in gear to carry out next operation. Ensure safe practices are followed on leaving the seat.**	
9. Check applicator for leaks and/or air locks	- Candidates will have to have engine running and PTO. in gear to carry out next operation. Ensure safe practices are followed on leaving the seat. - Lid and seals - Hoses and pipework - Air leaks - Control valves - Pressure gauge
Demonstrate procedure for replacing blocked nozzles	- Follow manufacturer's instructions for cleaning flow regulator - Replace nozzles according to manufacturer's instructions - Replacements from spare nozzles stored in a clean container - Applicator safely supported
10. Set operating pressure and check flow rate.	- Built in flow meter and closed calibration system as appropriate for the machine being used.
Demonstrate knowledge of calibration data to be recorded	Record for future use: - Registration number of vehicle - Tyre size - Vehicle gear selected - Engine speed (rpm) - Vehicle speed - Application volume - Nozzle fitted - Pressure - Flow rate - Additives used - Liquid/air pressure ratio - Nozzle restrictor fitted
Site Work	
11. Assess the environmentally sensitive factors of the site.	- Ground conditions - Water courses. - Drains. - Wildlife. - Flowering plants. - Public access. - Sensitive crops. - Hedgerows - Housing - Factors particular to the site. - Note presence of non targets susceptible to product. - Warning signs.
	- Visible signs or wind speed gauge at suitable height - Wind direction
Protection of the environment	- Check and maintain application rate. - Observe buffer zone recommendations - Other environmental margins. - Warn neighbours - Correct soil conditions - Effective soil sealing - Use an appropriate pesticide - Careful timing of application - Comply with environmental assessment.

Assessment Activity	Assessment Criteria
12. Demonstrate knowledge of factors affecting field operation	- The target. - Soil type. - Soil preparation. - Soil temperature - Soil water content - Weather forecast. - Obstructions.
13. Set machine for correct operation	- Depth of tines/shares - Depth of cultivation - Pressure of sealing roller/skid - Sealing roller speed (if applicable) - Film dispensing mechanism (if applicable)
14. Demonstrate knowledge of safe and accurate application procedures on site.	- Avoid operator contamination - Different marking systems and their correct use, especially on headland and corners. - Procedure to follow when tank is empty. - If pesticide runs out in mid-run, mark end of spraying - Re-entry procedures. - According to manufacturers recommendations. - Effective soil conditions. - Effective sealing.
15. Apply to a given area in a safe and appropriate manner	- Operate controls to start and finish applying accurately at beginning and end of each bout. - Correct forward speed and pressure in site conditions. - Accurate matching of bouts / use of driving aids - Coping with obstacles e.g. electricity poles. - All area treated/minimising overlaps and misses - Depth maintained - Surface sealed
Post Operation	
16. Demonstrate knowledge of:	
a) cleaning and decontamination of the sprayer	- Appropriate site - Thorough cleaning, appropriate to type of applicator - Internal and external surfaces - Use of in-built systems when provided - Safe disposal of tank washings by approved methods - Thorough flushing of systems - When cleaning should take place - Safe procedures followed - Safe disposal of surplus dilute pesticide
b) appropriate procedures prior to any repair or replacement of parts	- Equipment made safe - Isolate and drain the parts to be repaired - Wash the area to be repaired on a suitable site to contain the washings - Machine safely parked on appropriate site for removal / replacement of parts
c) preparation of applicator for storage	- Reference to manufacturers handbook - Ensure applicator is clean and decontaminated - Drain whole system/use of antifreeze - Remove filters and nozzles - Place valves in open position - Lubricate and store pump - Store under cover - Safe stowage - Danger of contamination
17. Complete application record.	- Records completed. - Accurate recording