

Practical observation descriptor table

Unit 111 - Operating mounted, trailed and self propelled hydraulic nozzle or rotary atomiser horizontal boom sprayers

Activity number and description from check list	Assessment criteria
<p>1.1</p> <p>Describe the legal requirements relating to applying pesticides using horizontal boom sprayers</p>	<p>May include:</p> <ul style="list-style-type: none"> • all required guards are in place and equipment • complies with legal requirements • comply with all relevant road traffic regulations when operating or transporting on the public highway • comply with The Plant Protection Products (Sustainable Use) Regulations 2012 • the operator must hold the appropriate certification for the equipment they are using
<p>1.2</p> <p>Describe how to apply pesticides safely using horizontal boom sprayers following industry best practice</p>	<p>Operator safety regulations may include:</p> <ul style="list-style-type: none"> • comply with Pesticide Codes of Practice adopt industry best practice • be aware of any safety implications imposed by Risk/COSHH assessment and comply with the requirements <p>Checks to protect self from pesticide contamination:</p> <p>Sealed cab:</p> <ul style="list-style-type: none"> • fit carbon filter • use of in-cab controls • ensure ventilation system is functional close all windows • contaminated PPE stored in external locker • awareness of the siting of pressurised components within confines of cab <p>Open cab/canopy/platform:</p> <ul style="list-style-type: none"> • use of appropriate PPE • awareness of the siting of pressurised components within confines of cab/canopy/platform <p>Checks to protect self from physical danger during operation:</p> <ul style="list-style-type: none"> • compatibility of prime mover and sprayer front weights • wheel track width • correct tyre pressures • condition of tyres • brake function

		<p>Safe practice when driving on uneven/sloping terrain:</p> <ul style="list-style-type: none"> • assess conditions • select four wheel drive • appropriate speed • correct gear selection • effect of changing load on stability • use of weights to stabilise prime mover • correct turning procedure • keep centre of gravity as low as possible <p>Consideration for safe driving on a public highway:</p> <ul style="list-style-type: none"> • independent brakes coupled together • travelling at high speed makes vehicle unstable
2.1	Identify risks to the environment	<p>May include:</p> <ul style="list-style-type: none"> • ground conditions • water courses • environmental margins/strips/areas • drains • boreholes • wildlife • non-target plants • sensitive crops/areas • hedgerows • housing • public access • other risks particular to the site
2.2	Explain how to minimise risks to the environment	<p>Explanation may include the following points:</p> <ul style="list-style-type: none"> • check and maintain application rate • avoid spray drift • avoid off target application • observe buffer zones • comply with LERAP requirements • inform neighbours • erect warning signs • use an appropriate pesticide (minimal environmental impact) • appropriate timing of application <p>Minimising spray drift:</p> <ul style="list-style-type: none"> • avoidance of contamination to people and the environment <p>Check wind speed and direction:</p> <ul style="list-style-type: none"> • use of an anemometer at suitable height or visual signs

		<ul style="list-style-type: none"> wind direction <p>Factors that affect spray drift:</p> <ul style="list-style-type: none"> weather conditions direction of spraying nozzle type and size pressure forward speed boom height rotary atomiser speed defective equipment
3.1 - 3.2	<p>Read product information</p> <p>Interpret product information</p>	<p>May include the following:</p> <ul style="list-style-type: none"> product name active substance(s) (ingredient(s)) <p>Important information:</p> <ul style="list-style-type: none"> field of use crop/target maximum individual dose maximum total dose maximum number of treatments specific product precautions/warnings operator protection environmental protection restrictions on use <p>Crop specific information:</p> <ul style="list-style-type: none"> crop/target dose rate water volume timing <p>Mixing and spraying:</p> <ul style="list-style-type: none"> filling reduced volume applications (if applicable) recommended nozzles recommended pressure spray quality additional label information compatibility
4.1	Identify applicator components and controls	<p>May include:</p> <ul style="list-style-type: none"> main spray tank pump pulsation damper filling control and devices agitation control pressure adjustment control pressure gauge on/off control

		<ul style="list-style-type: none"> • boom isolators • boom section pressure compensation controls • filters • tank wash system • clean water tank(s) • nozzles/atomisers • diaphragm check valves • tank drain • other components/controls specific to the applicator <p>Nozzle types:</p> <ul style="list-style-type: none"> • flat fan – fine/medium/coarse spray • air inclusion – medium/coarse spray, low-drift • cone – fine spray, good coverage
4.2	Carry out pre-use checks to the prime mover	<p>May include:</p> <ul style="list-style-type: none"> • guards in place and in good condition • visual inspection of the wheels and tyres • tyre pressures • fuel level adequate • engine oil level is within acceptable limits • hydraulic oil level is within acceptable limits (if accessible) • transmission oil level is within acceptable limits (if accessible) • coolant level is adequate • engine air filter is clean
4.3	Carry out pre-use and operational checks to the sprayer	<p>May include all/some of the following as applicable to the sprayer/applicator:</p> <p>Security of attachment</p> <ul style="list-style-type: none"> • safe unfolding of booms to avoid personal contamination and contact with Over Head Power Lines (OHPL) and any other overhead hazards • fasteners tight • straps inspected and adjusted if necessary • linkage secure • sideways movement restricted • drawbar pin secured <p>Possible mechanical defects:</p> <ul style="list-style-type: none"> • seized, worn or damaged controls/components • atomiser drives and electrical connectors <p>Applicator lubrication:</p>

		<ul style="list-style-type: none"> • identification of lubrication points • visual inspection of lubrication points • visual inspection of levels <p>Boom settings, suspension and break-back devices:</p> <ul style="list-style-type: none"> • boom suspension operational • break-back efficiency • height adjustment <p>Candidate to remove, clean and refit filter:</p> <ul style="list-style-type: none"> • remove and clean using appropriate method • contain spillage • check for defects, replace if damaged • refit <p>Candidate to remove, clean and refit a nozzle/restrictor:</p> <ul style="list-style-type: none"> • remove and clean using appropriate method • contain spillage • check for defects replace if worn/damaged • refit <p>Use of control panel may include:</p> <ul style="list-style-type: none"> • functions of control panel • recognition of malfunctions before and during operation • check accuracy of base settings • switch to manual/test mode where possible <p>Part fill applicator to include:</p> <ul style="list-style-type: none"> • suitable site selected • fill by usual on-site method, following approved procedures • clean water supply <p>Check for leaks/spray patterns:</p> <ul style="list-style-type: none"> • suitable site selected • use higher than normal operating pressure • visual check of all nozzles/atomisers for correct spray patterns, absence of blockages, streaking, pulsing • correct alignment • replace defective nozzles/atomisers/discs • lids and seals • pipe work and connections • control valves • filters
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4.4	Calibrate the sprayer and record relevant data	<p>Calibration may include the following:</p> <ul style="list-style-type: none"> • suitable forward speed for crop/target and ground conditions • appropriate gear selected and engine speed established • accurate measurement of distance • accurate measurement of time taken to cover distance correct use of formula to establish forward speed • correct use of formula to establish forward speed <p>Calculate required output/volume rate:</p> <ul style="list-style-type: none"> • correct use of formula <p>Selection of nozzle/atomiser:</p> <ul style="list-style-type: none"> • use of manufacturers operators handbook • use of nozzle/atomiser manufacturers literature • confirm requirements of product label <p>Operating pressure/disc speed:</p> <ul style="list-style-type: none"> • pressure as determined by nozzle chart • disc speed as determined by manufacturers literature • pressurise/purge appropriate to the system <p>Nozzle/atomiser outputs:</p> <ul style="list-style-type: none"> • use a measuring jug to check output from at least outputs one nozzle/atomiser per boom section (minimum of three per applicator) • compare with target output • vary pressure to make small adjustments • change nozzles/atomisers if required • or any other acceptable method <p>Calibration data:</p> <ul style="list-style-type: none"> • registration number of vehicle • tyre size and pressure • gear selected • engine speed • vehicle forward speed • application volume • nozzle/atomiser fitted

		<ul style="list-style-type: none"> • pressure/disc speed • flow rate
4.5	Calculate the quantities of pesticide and water required	<p>To include:</p> <ul style="list-style-type: none"> • amount of water required for specified area • amount of pesticide required for specified area • amount of pesticide required for full tank
5.1	Measure the required quantities and add to the sprayer	<p>To include:</p> <ul style="list-style-type: none"> • correct selection and use of PPE (as required by the product label and/or COSHH assessment) • observance of pesticide manufacturers • instructions for mixing sequence and agitation (or other recommended method) • suitable site selected • clean water supply • accurate measurement of water • accurate measurement of pesticide • use of filling device (if fitted) • avoidance of spillage • return to secure storage
5.2	Demonstrate safe and accurate application procedures	<p>Methods to achieve accurate application May include any of the following:</p> <ul style="list-style-type: none"> • tramlines • crop rows • blob markers • marker poles • marker dyes • use of GPS <p>Refilling applicator part way through application Explanation to include:</p> <ul style="list-style-type: none"> • avoid contact with contaminated crop • mark the location at which the applicator emptied • refill applicator • continue spraying by accurately matching at the appropriate point <p>Procedure when nozzle/restrictor becomes blocked during an application Explanation to include:</p> <ul style="list-style-type: none"> • select and use appropriate PPE • care not to walk in contaminated crop • clean or replace nozzle/restrictor as appropriate

		<p>Demonstrate safe and accurate application procedures to include:</p> <ul style="list-style-type: none"> • ensure boom is level or aligned to the target • correct boom height according to target and type of nozzle • operate controls to start and finish applying accurately at the beginning and end of each bout • correct forward speed and pressure • accurate matching of bouts / use of driving aids • coping with obstacles (if applicable) • all of specified area treated, minimising overlaps and misses • awareness of changes in wind speed and direction
5.3	Carry out all activities protecting human health and the environment	<p>To include:</p> <ul style="list-style-type: none"> • prevention of personal injury and contamination through correct selection and use of PPE (as required by the product information and/or COSHH/Risk Assessment) • prevention of public / bystander contamination • safe filling procedure • avoidance of spray drift • avoidance of off-target application • avoidance of over dosing/under dosing crop/target
5.4	Complete a treatment record	<p>Completion of the treatment record must be:</p> <ul style="list-style-type: none"> • accurate • legible (if handwritten)
6.1	Explain how to manage surplus pesticide and dispose of waste material	<p>Surplus concentrate pesticide:</p> <ul style="list-style-type: none"> • return to temporary mobile store • return to fixed store <p>Containers:</p> <ul style="list-style-type: none"> • triple rinsed • placed in secure storage until disposal • returned to supplier • collected by licensed waste contractor <p>Packaging:</p> <ul style="list-style-type: none"> • thoroughly emptied • placed in secure storage until disposal • collected by licensed waste disposal contractor <p>Surplus dilute pesticide:</p>

		<ul style="list-style-type: none"> • back on to site as long as it is below the maximum dose rate • use on another approved crop/target • treated by specialist treatment facility on site (e.g. a lined bio bed) • collected by licensed waste disposal contractor
6.2	Explain how to clean and decontaminate the sprayer and, if applicable, the prime mover	<p>May include:</p> <ul style="list-style-type: none"> • select and use appropriate PPE • appropriate site • thorough washing with water and suitable cleaning agent (if recommended/required) • internal and external surfaces • use of in-built wash systems if provided • care to ensure contamination 'hot-spots' are clean • thorough flushing of systems • safe disposal of contaminated washings • when cleaning should take place • safe procedures followed
6.3	Describe the storage requirements for the sprayer	<p>May include:</p> <ul style="list-style-type: none"> • ensure the applicator is clean and dry • inspect for wear and damage • replace any worn or damaged parts • controls left in appropriate positions • frost protection measures implemented • lubricate as required • store undercover and out of direct sunlight • store in a secure area

Unit 112 - Operating mounted, trailed and self propelled air / fluid nozzle horizontal boom sprayers

1.1	Describe the legal requirements relating to applying pesticides using horizontal boom sprayers with thin fluid nozzles	<p>May include:</p> <ul style="list-style-type: none"> • all required guards are in place and equipment complies with legal requirements • comply with all relevant road traffic regulations when operating or transporting on the public highway • comply with The Plant Protection Products (Sustainable Use) Regulations 2012
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