

Version 1.1 (February 2025)

Assessment Pack - Candidate Version

Version and date	Change detail	Section
1.0 February 2024	First version	All
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Introduction

This assessment relates to the unit in the Qualification handbook. The assessment can be achieved at pass only. If any task is not yet met the candidate is unsuccessful.

This assessment is for the following units and learning outcomes:

Unit 276 Operating automated equipment for applying pesticides covering the following learning outcomes:

- 1. Know the legislative and safety regulations relating to application equipment
- 2. Be able to assess the environmental factors relating to mixing and application
- 3. Be able to read and interpret product information
- 4. Be able to prepare and calibrate the automated/robotic equipment
- 5. Be able to operate the application equipment
- 6. Know how to carry out post-operational procedures

Unit 277 Operation of Mounted, Trailed or Self Propelled Electrostatic Charged Sprayers for applying Pesticides to Crops covering the following learning outcomes:

- 1. Know the legislative and safety regulations relating to application equipment
- 2. Be able to assess the environmental factors relating to mixing and application
- 3. Be able to read and interpret product information
- 4. Be able to prepare and calibrate the applicator
- 5. Be able to operate the application equipment
- 6. Know how to carry out post-operational procedures

Unit 278 Operation of Pesticide Applicators attached to Cultivating or Planting Equipment covering the following learning outcomes:

- 1. Know the legislative and safety regulations relating to application equipment
- 2. Be able to assess the environmental factors relating to the filling & application site
- 3. Be able to read and interpret product information
- 4. Be able to prepare and calibrate the applicator(s)
- 5. Be able to operate the applicator(s)
- 6. Know how to carry out post-operational procedures

Unit 279 Operation of a sprayer mounted on a train fitted with hydraulic nozzles for applying pesticides covering the following learning outcomes:

- 1. Know the legislative and safety regulations relating to application equipment
- 2. Be able to assess the environmental factors relating to filling, mixing and application
- 3. Be able to read and interpret product information
- 4. Be able to prepare and calibrate the applicator
- 5. Be able to operate the application equipment
- 6. Know how to carry out post-operational procedures

Unit 280 Operation of a bankside sprayer mounted on a train fitted with hydraulic nozzles for applying pesticides covering the following learning outcomes:

- 1. Know the legislative and safety regulations relating to application equipment
- 2. Be able to assess the environmental factors relating to filling, mixing and application
- 3. Be able to read and interpret product information
- 4. Be able to prepare and calibrate the applicator
- 5. Be able to operate the application equipment
- 6. Know how to carry out post-operational procedures

Unit 281 Operating 'any other' equipment for applying pesticides covering the following learning outcomes:

- 1. Know the legislative and safety regulations relating to application equipment
- 2. Be able to assess the environmental factors relating to filling, mixing and application
- 3. Be able to read and interpret product information
- 4. Be able to prepare and calibrate the applicator
- 5. Be able to operate the application equipment
- 6. Know how to carry out post-operational procedures

General guidance on the requirements for assessment can be found in the Assessor Guidance General guidance on the requirements for assessment can be found in the Assessor Guidance document available on the City & Guilds web site www.nptc.org.uk

The assessor must complete the Practical Table mark sheet for each candidate which should be kept by the assessor for a minimum period of twelve months.

Assessment Time

The expected assessment time for this qualification is 1.5 - 3 hours.

Summary of responsibilities in the assessment process

Centre responsibilities	Candidate responsibilities	Assessor responsibilities
A suitable site is made available for the assessment to take place		Ensuring that the site provided is suitable for the assessment to take place
Machinery, equipment and materials are available to enable assessment of all the activities to take place	To be familiar with the machinery/equipment being used for the assessment	Ensuring that the machinery, equipment and materials provided satisfy the assessment requirements
	To bring appropriate Personal Protective Equipment (PPE) to the assessment	Ensuring that candidate's PPE complies with the requirements of the assessment
	To bring relevant training materials (including calibration sheet if applicable)	
	To bring a product label appropriate for the assessment	To ensure that the product label is appropriate for the assessment (or provide a suitable alternative)

This is not an open book assessment, however additional technical information may be sought from the relevant manufacturer's operator manuals or any other appropriate training or safety publication.

Practical observation descriptor table

Unit 276 Operating automated equipment for applying pesticides

		Assessment criteria
	Describe the legal requirements	May include:
	relating to applying pesticides using automated or robotic equipment	all required guards are in place and equipment complies with legal requirements
1.1		comply with The Plant Protection Products (Sustainable Use) Regulations 2012
		the operator must hold the appropriate certification for the equipment they are using
	Describe how to apply pesticides	May include:
	safely using automated or robotic	comply with Pesticide Codes of Practice
1.2	equipment following industry best practice	adopt industry best practice
	practice	 be aware of any safety implications imposed by COSHH/Risk Assessment and comply with the requirements
	Identify risks to the environment	May include:
		ground conditions
		water courses
		drains
		• boreholes
2.1		wildlife
		non-target plants
		sensitive crops/areas had arrows
		hedgerowshousing
		public access
		other risks particular to the site
	Explain how to minimise risks to	Explanation may include the following points:
	the environment	check and maintain application rate
		avoid spray drift
		avoid off target application
		observe buffer zones
		comply with LERAP requirements
2.2		inform neighbours
		erect warning signs
		use an appropriate pesticide (minimal
		environmental impact)
		appropriate timing of application
		operate within any temperature parameters Miniming approved: Miniming approved:
		Minimising spray drift:

		 avoidance of contamination to people and the environment
		Check wind speed and direction:
		 use of anemometer at suitable height or visible signs
		wind direction
		Factors that affect spray drift:
		wind speed and direction
		nozzle type and size
		pressure
		forward speed
		nozzle height
		defective equipment
		suction effect of wind
	Read product information	May include the following:
	read product information	product name
	Interpret product information	active substance(s) (ingredient(s))
		Important information:
		field of use
		crop/target
		maximum individual dose
		maximum total dose
		maximum rotal dosc maximum number of treatments
		specific product precautions/warnings
		operator protection
		environmental protection
3.1		restrictions on use
-		Crop specific information:
3.2		crop/target
		dose rate
		water volume
		• timing
		Mixing and spraying:
		filling
		 reduced volume applications (if applicable)
		 recommended nozzles
		recommended pressure
		spray quality
		additional label information
		compatibility
	Identify the components &	May include:
	controls on the equipment	tank
4.1		
		filters
		pipe work
		• pump

		, <u>.</u>
		pressure control
		• nozzles
		pressure gauge
		• connections
		• seals
		metering devices
		mechanical/electrical controls
		 programming controls
		Nozzle types
		 flat fan – fine/medium/coarse spray
		 air inclusion – medium/coarse spray, low- drift
		cone – fine spray good coverage
	Carry out pre use checks to the	May include:
4.2	prime mover (if applicable)	 integrity of power source
7.2		fluid levels
		fail-safe systems
	Carry out pre-use checks to the	May include:
	application equipment	 metering & delivery systems
		drive systems
		 condition & tension of belts
		Security of attachment
4.3		 boom suspension/break-back devices (if applicable)
		security of attachment to prime mover
		 lubrication of components
		checking for leaks under pressure
		 any problems identified to be rectified if within operators level of responsibility and ability
	Calibrate the application	May include:
	equipment and record relevant	accurate measurements
	data	accurate timings
		accurate calculations
4.4		correct use of formulae
		Calibration data may include:
		 equipment settings used
		 product used for calibration
		application rate achieved
4.5	Measure the area to be treated	Must include:
4.5		accurate measurements
4.6	Calculate the area to be treated	Must include:
		accurate calculations
	Calculate the quantities of	May include:
4.7	pesticide and water required for a specified area	amount of water required for specified area

		amount of pesticide required for specified area
5.1	Measure the required quantities and add to the applicator, or attach pesticide container	To include all of the following: correct selection and use of PPE/RPE (as required by the product label, COSHH/Risk Assessment) suitable site selected fill following product recommendations and approved procedures correct use of water supply accurate measurement of water accurate measurement of pesticide avoidance of spillage or
5.2	Demonstrate safe and accurate application procedures	 attach pesticide container To include: treatment area clearly identified constant speed maintained accurate switch on/off points accurate matching of bouts obstacles dealt with correctly (if applicable) area treated minimising overlaps and misses awareness of changing climatic conditions and appropriate action taken (if applicable)
5.3	Carry out all activities protecting human health and the environment	 To include: prevention of personal injury and contamination through correct selection and use of PPE/RPE (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 over/under dosing crop/target/plant material
5.4	Complete a treatment record	Completion of the treatment record must be: accurate legible (if handwritten)
6.1	Explain how to manage surplus pesticide and dispose of waste material	Surplus concentrate pesticide return to temporary mobile store return to fixed store Containers: triple rinsed placed in secure storage until disposal returned to supplier

		 collected by a licensed waste disposal contractor
		Packaging:
		thoroughly emptied
		placed in secure storage until disposal
		 collected by a licensed waste disposal contractor
		Surplus dilute pesticides
		 back on to target 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 a licensed waste disposal contractor
	Explain how to clean and	May include:
	decontaminate the application	 select and use correct PPE/RPE
	equipment	 selection of an appropriate site for cleaning the application equipment
6.2		 triple rinse the applicator following product information recommendations
		through flushing of system
		 safe disposal of contaminated washings in an appropriate manner following good practice
		safe procedures followed
	Describe the storage	May include:
	requirements for the application equipment	de-pressurisation
		 ensure the application equipment is clean and dry
		inspect for wear or damage
0.0		 repair or notify supervisor if not within operators level of responsibility and ability
6.3		lubricate if required
		frost protection measures implemented
		 nozzles and filters removed prior to freezing conditions
		store in a secure area
		isolation of any electrical controls
		store under cover and out of direct sunlight

Unit 277 Operation of mounted, trailed or self propelled electrostatic charged sprayers for applying pesticides to crops

Activi	ty number and description from	Assessment criteria
	check list	
1.1	Describe the legal requirements relating to applying pesticides using electrostatic equipment	 May include: 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
1.2	Describe how to apply pesticides safely using electrostatic equipment following industry best practice	Operator safety regulation may include: comply with Pesticide Codes of Practice adopt industry best practice be aware of any safety implications imposed by COSHH/Risk Assessment and comply with the requirements awareness of possible electro-hazards Checks to protect self from pesticide contamination: Sealed cab: 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 Open cab/canopy/platform: use of appropriate PPE awareness of the siting of pressurised components within confines of cab/canopy/platform Checks to protect self from physical danger during operation: compatibility of prime mover and sprayer front weights wheel track width correct tyre pressures condition of tyres brake function circuit integrity

	Safe practice when driving on uneven/sloping
	terrain:
	assess conditions
	select four wheel drive (if fitted)
	appropriate speed
	correct gear selection
	effect of changing load on stability
	use of weights to stabilise prime mover
	correct turning procedure
Identify risks to the environment	May include:
	ground conditions
	water courses
	environmental margins/strips/areas
	drains
	boreholes
2.1	wildlife
	non-target plants
	sensitive crops/areas
	hedgerows
	housing
	public access
	other risks particular to the site
Explain how to minimise risks to	May include the following:
the environment	use of an appropriate pesticide
	careful timing of application
	check and maintain application rate
	avoid spray drift
	observe buffer zones
	erect warning signs
	 notify neighbours before application
	Minimising off target application and spray
	drift
2.2	avoidance of contamination to people and the environment
	Check wind speed and direction:
	use of anemometer at suitable height or
	visible signs
	wind direction
	Factors that affect spray drift:
	wind speed and direction
	wind speed and directionnozzle type and size
	·
	nozzle type and size
	nozzle type and sizepressure
	nozzle type and sizepressureforward speed

3.2	Interpret product information	product nameactive substance(s) (ingredient(s))suitability for electrostatic applications
		Important information:
		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 Crop and disconnections.
		Crop specific information:
		crop/targetdose rate
		water volume
		timing
		Mixing and spraying:
		• filling
		reduced volume applications (if applicable)
		recommended nozzles
		recommended pressure
		spray quality
		additional label information
		compatibility
	Identify sprayer components and	May include:
	controls	main spray tank
		• pump
		pulsation damper
		filling control and devices
		agitation control
		pressure adjustment control
		pressure gauge
4.1		• on/off control
4.1		boom isolators
		boom section pressure compensation controls
		• filters
		tank wash system
		clean water tank(s)
		nozzles/atomisers
		diaphragm check valves
		tank drain
		earthing system

		other components/controls specific to the
		applicator
		Nozzle types
		 flat fan – fine/medium/coarse spray
		 air inclusion – medium/coarse spray, low- drift
		cone – fine spray good coverage
	Carry out pre use checks to the	May include:
	prime mover	guards in place and in good condition
		 visual inspection of the wheels and tyres
		tyre pressures
		fuel level adequate
4.2		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
	Carry out pre-use and operational	May include all/some of the following as
	checks to the sprayer	applicable to the sprayer:
		Possible mechanical & electrical defects
		 seized, worn or damaged controls/components
		integrity of electrostatic circuitry
		Sprayer lubrication:
		identification of lubrication points
		visual inspection of lubrication points
		visual inspection of oil levels Security of attachment
		Security of attachment
		fasteners tightstraps inspected and adjusted if necessary
		 linkage secure
4.3		 sideways movement restricted
		drawbar pin secured
		Boom settings, suspension and break-back
		devices:
		safe unfolding of booms to avoid personal contamination and contact with Over Head Pewer Lines (OHPL) and any other.
		Power Lines (OHPL) and any other overhead hazards
		boom suspension operational
		parallel linkage operational
		break-back efficiency
		height adjustment
		Remove, clean & refit a filter
		remove & clean using appropriate method
		contain spillage

		check for defects
		replace if worn/damagedrefit
		Remove, clean/replace & refit a nozzle
		remove & clean using appropriate method acetain apillage.
		contain spillagecheck for defects
		replace if worn/damaged
		• refit
		Part fill sprayer
		suitable site selected
		 fill by usual on-site method, following approved procedure
		clean water supply
		Check for leaks/spray patterns:
		use higher than normal operating pressure
		 visual check of all nozzles for correct spray patterns
		 absence of blockages, streaking, pulsing & correct alignment
		replace defective nozzles/diaphragm check valves
		electrostatic feature operational
		Use of control panel may include:
		functions of control panel
		recognition of malfunctions before and during operation
		check accuracy of calibration
		switch to manual/test mode where applicable
		Action in event of control panel failing:
		stop pesticide operation
		manual operation of controls if possible
	Calibrate the application	Calibration may include the following:
	equipment and record relevant data	select suitable forward speed for crop & ground conditions
		appropriate gear selected and engine speed established
		accurate measurement of distance
		accurate measurement of time taken to
4.4		cover distance
		correct use of formula to determine forward speed
		Output/volume rate
		correct use of formula
		Selection of nozzle:
		use of manufacturer's/operator's handbook
		use of nozzle manufacturer's literature

		 confirm requirements of product label Set operating pressure pressure as determined from nozzle chart pressurise/purge appropriate to the system Nozzle outputs electrostatic system disabled use measuring jug to check output from at least one nozzle per boom section compare with target output vary pressure to make small adjustments change nozzles if required Calibration data may include: registration number of vehicle tyre size & pressure gear selected engine speed forward speed application volume nozzle fitted operation pressure flow rate
4.5	Calculate the quantities of pesticide and water required for a specified operation	 May include: 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 sprayer	To include all of the following: correct selection and use of PPE/RPE (as required by the product label, COSHH/Risk Assessment) suitable site selected fill following product recommendations and approved procedures correct use of water supply accurate measurement of water accurate measurement of pesticide avoidance of spillage observance of pesticide manufacturer's instructions for mixing & agitation
5.2	Demonstrate safe and accurate application procedures	Methods to achieve accurate application May include any of the following: tramlines crop rows blob markers marker poles use of GPS

		Procedure to refill applicator part way through application:
		avoid contact with contaminated crop
		mark the spot at which the sprayer emptied
		refill sprayer
		continue spraying by accurately matching
		at the appropriate point
		Procedure when nozzle/restrictor becomes blocked during an application
		select and use appropriate PPE/RPE
		care not to walk in contaminated crop
		clean or replace nozzle as appropriate
		Demonstrate safe and accurate application procedures to include:
		 ensure boom is level or aligned to the target
		 correct boom height according to the target and type of nozzle
		treatment area clearly identified
		constant speed maintained
		accurate switch on/off points
		accurate matching of bouts
		obstacles dealt with correctly (if applicable)
		 area treated minimising overlaps and misses
		 awareness of changing weather conditions and appropriate action taken (if applicable)
	Carry out all activities protecting	To include:
	human health and the environment	 prevention of personal injury and contamination through correct selection and use of PPE/RPE (as required by the product information and/or COSHH/Risk Assessment)
5.3		 prevention of public/bystander contamination
		safe filling procedure
		avoidance of spray drift
		avoidance of off target application
		avoidance of over/under dosing crop/target
	Complete a treatment record	Completion of the treatment record must be:
5.4		accurate
		legible (if handwritten)
	Explain how to manage surplus	Surplus concentrate pesticide
	pesticide and dispose of waste material	return to temporary mobile store
	Пасопа	return to fixed store
		Containers:
		triple rinsed (if applicable)
		placed in secure storage until disposal

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		returned to supplier
		collected by a licensed waste disposal contractor
		Packaging:
		thoroughly emptied
		placed in secure storage until disposal
		collected by a licensed waste disposal contractor
		Surplus dilute pesticide
		 back on to target 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 a licensed waste disposal contractor
	Explain how to clean and	May include:
	decontaminate the applicator and	select and use correct PPE/RPE
	prime mover (if applicable)	selection of an appropriate site for cleaning the application equipment
6.2		triple rinse the applicator following product information recommendations
		through flushing of system
		 safe disposal of contaminated washings in an appropriate manner following good practice
		safe procedures followed
	Describe the storage	May include:
	requirements for the sprayer	ensure the application equipment is clean and dry
		inspect for wear or damage
6.2		repair or notify supervisor if not within operators level of responsibility and ability
6.3		Iubricate if required
		frost protection measures implemented
		store in a secure area
		isolation of any electrical
		controls/components
		store under cover and out of direct sunlight

Unit 278 Operation of pesticide applicators attached to cultivating or planting equipment

Activ	vity number and description from check list	Assessment criteria
1.1	Describe the legal requirements relating to applying pesticides using equipment attached to cultivators or planters	 May include: 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
1.2	Describe how to apply pesticides safely using equipment attached to cultivators or planters following industry best practice	 Operator safety regulation may include: comply with Pesticide Codes of Practice adopt industry best practice be aware of any safety implications imposed by COSHH/Risk Assessment and comply with the requirements Sealed cab: Checks to protect self from pesticide contamination: 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 Open cab/canopy/platform: use of appropriate PPE awareness of the siting of pressurised components within confines of cab/canopy/platform Checks to protect self from physical danger during operation: compatibility of prime mover and sprayer front weights wheel track width correct tyre pressures condition of tyres brake function

	Safe practice when driving on uneven/sloping terrain: 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
Identify risks to the environment 2.1	May include the following: water courses ground conditions drains boreholes wildlife non-target plants sensitive crops/areas housing public/co-worker access environmental margins/strips/areas other risks specific to the site
2.2	 May include the following: use of appropriate pesticides careful timing of application check and maintain application rate avoid spray drift observe buffer zones erect warning signs notify neighbours before application Check wind speed and direction: use of anemometer at suitable height or visible signs wind direction Minimising off target application and spray drift avoidance of contamination to people and the environment Factors that affect target application: wind speed and direction nozzle type and size pressure forward speed nozzle height defective delivery mechanisms
3.1 Read product information	May include the following: • product name

3.2 Interpret product information •	active substance(s) (ingredient(s))
	mportant information:
	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
	Crop specific information:
	crop/target
	dose rate
	water volume (if applicable)
	timing
	flixing and spraying:
	filling
	reduced volume applications (if
	applicable)
•	recommended nozzles
•	recommended pressure
•	spray quality
•	recommended aperture settings
•	soil incorporation requirements
•	additional label information
•	compatibility
Identify applicator components and N	flay include:
controls	tank/hopper
•	lid
•	filters
•	pipe work
•	connections
•	filling controls and devices
•	pressure adjustment control
4.1	pressure gauge
•	diaphragm check valves
•	tank wash system
•	clean water tank(s)
•	seals
•	pump
•	mechanical/electrical controls
•	nozzles/delivery mechanisms
•	
	aperture controls
Carry out pre use and operational checks to the prime mover	aperture controls flay include:

tyre pressures fuel level adequate engine oil within acceptable limits hydraulic oil within acceptable limits (if accessible) transmission oil level within acceptable limits (if accessible) transmission oil level within acceptable limits (if accessible) coolant level is adequate engine air filter is clean May include all/some of the following as applicable to the application equipment: Possible mechanical defects seized, worn or damaged controls/components Applicator lubrication: identification of lubrication points visual inspection of lubri			- 4.440 0 00000000
engine oil within acceptable limits (if accessible) hydraulic oil within acceptable limits (if accessible) transmission oil level within acceptable limits (if accessible) coolant level is adequate engine air filter is clean May include all/some of the following as applicator(s) May include all/some of the following as applicator label to the application equipment: Possible mechanical defects seized, worn or damaged controls/components Applicator lubrication: identification of lubrication points visual inspection of ilubrication points visual inspection of oil levels Security of attachment fasteners tight linkage secure sideways movement restricted drawbar pin secured Remove, clean & refit a filter remove & clean using appropriate method contain spillage check for defects refit Part fill tank/hoppers suitable site selected fill by usual on-site method, following approved procedures clean water supply Use of control panel may include: functions of control panel recognition of malfunctions before and during operation check accuracy of calibration switch to manual/test mode where applicable Action in event of control panel failing: stop pesticide application manual operation of controls if possible Calibrate the application equipment and record relevant data Calibration may include the following: Select & record forward speed for crop &			
hydraulic oil within acceptable limits (if accessible) transmission oil level within acceptable limits (if accessible) coolant level is adequate engine air filter is clean Carry out pre-use checks to the applicator(s) May include all/some of the following as applicable to the application equipment: Possible mechanical defects seized, worn or damaged controls/components Applicator lubrication: identification of lubrication points visual inspection of oil levels Security of attachment fasteners tight linkage secure sideways movement restricted drawbar pin secured Remove, clean & refit a filter remove & clean using appropriate method contain spillage check for defects refit Part fill tank/hoppers suitable site selected fill by usual on-site method, following approved procedures clean water supply Use of control panel may include: functions of control panel recognition of malfunctions before and during operation check accuracy of calibration switch to manual/test mode where applicable Action in event of control panel failing: stop pesticide application manual operation of controls if possible Calibration may include the following: select suitable forward speed select suitable forward speed for crop &			·
accessible) transmission oil level within acceptable limits (if accessible) coolant level is adequate engine air filter is clean May include all/some of the following as applicator(s) May include all/some of the following as applicable to the application equipment: Possible mechanical defects seized, worn or damaged controls/components Applicator lubrication: identification of lubrication points visual inspection of oll brication points visual inspection of oll levels Security of attachment fasteners tight linkage secure sideways movement restricted drawbar pin secured Remove, clean & refit a filter remove & clean using appropriate method contain spillage check for defects refit Part fill tank/hoppers suitable site selected fill by usual on-site method, following approved procedures clean water supply Use of control panel may include: functions of control panel recognition of malfunctions before and during operation check accuracy of calibration switch to manual/test mode where applicable Action in event of control panel failing: stop pesticide application manual operation of controls if possible Calibration may include the following: Select & record forward speed select suitable forward speed for crop &			
Carry out pre-use checks to the applicator(s) Carry out pre-use checks to the applicator(s) Carry out pre-use checks to the applicator(s) May include all/some of the following as applicable to the application equipment: Possible mechanical defects • seized, worn or damaged controls/components Applicator lubrication of lubrication points • visual inspection of oil levels Security of attachment • fasteners tight • linkage secure • sideways movement restricted • drawbar pin secured Remove, clean & refit a filter • remove & clean using appropriate method • contain spillage • check for defects • refit Part fill tank/hoppers • suitable site selected • fill by usual on-site method, following approved procedures • clean water supply Use of control panel may include: • functions of control panel • recognition of malfunctions before and during operation • check accuracy of calibration • switch to manual/test mode where applicable Action in event of control panel failing: • stop pesticide application • manual operation of controls if possible Calibrate the application equipment and record relevant data			
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select suitable forward speed for crop &			
	4.4		select suitable forward speed for crop &

		T
		 appropriate gear selected and engine speed established
		accurate measurement of distance
		accurate measurement of time taken to cover distance
		correct use of formula to determine
		forward speed
		Calculate required outputs
		correct use of formula
		Appropriate nozzle
		 use of manufacturer's/operator's handbooks
		use of nozzle manufacturer's literature
		confirm requirements of product label
		Operating pressure
		pressure as determined from nozzle chart
		pressurise/purge appropriate to the system
		Nozzle outputs
		use measuring jug to check liquid outputs
		use weighing equipment to check powder/granule outputs
		compare with target outputs
		vary settings to make appropriate adjustments
		Calibration data may include:
		registration number of prime mover
		tyre size & pressure
		gear selected
		engine speed
		forward speed
		applicator settings
		flow rate
	Measure the required quantities of	To include all of the following:
	pesticide and add to the applicator(s)	correct selection and use of PPE/RPE (as required by the product label,
		COSHH/Risk Assessment)
		suitable site selected ill fallowing product recommendations
5.1		fill following product recommendations and approved procedures
		correct use of water supply
		accurate measurement of water
		 accurate measurement/weighing of pesticide
		avoidance of spillage
		observance of pesticide manufacturer's
		-

procedures to include: constant speed maintained accurate switch on/off points accurate matching of bouts obstacles dealt with correctly (if applicable) area treated minimising overlaps and misses awareness of changing weather conditions and appropriate action taken (if applicable) Carry out all activities protecting human health and the environment To include: prevention of personal injury and contamination through correct selection and use of PPE/RPE (as required by the product information and/or COSHH/Rist Assessment) prevention of public/bystander contamination safe filling procedure avoidance of spray drift avoidance of over/under dosing crop/target			instructions for mixing and agitation (if applicable)
Procedure to refill applicator part way through application: avoid contact with contaminated crop mark the spot at which the tank/hopper emptied refill tank/hopper continue application by accurately matching at the appropriate point Demonstrate safe and accurate application procedures to include: constant speed maintained accurate switch on/off points accurate switch on/off points accurate matching of bouts obstacles dealt with correctly (if applicable) area treated minimising overlaps and misses awareness of changing weather conditions and appropriate action taken (if applicable) To include: prevention of personal injury and contamination through correct selection and use of PPE/RPE (as required by the product information and/or COSHH/Risl Assessment) prevention of public/bystander contamination safe filling procedure avoidance of spray drift avoidance of over/under dosing crop/target Complete a treatment record Completion of the treatment record must be accurate legible (if handwritten) Surplus concentrate pesticide return to temporary mobile store return to temporary mobile store			May include any of the following: • crop rows
mark the spot at which the tank/hopper emptied			use of GPS Procedure to refill applicator part way
refill tank/hopper continue application by accurately matching at the appropriate point Demonstrate safe and accurate application procedures to include: constant speed maintained accurate switch on/off points accurate matching of bouts obstacles dealt with correctly (if applicable) area treated minimising overlaps and misses awareness of changing weather conditions and appropriate action taken (if applicable) Carry out all activities protecting human health and the environment Carry out all activities protecting human health and the environment To include: prevention of personal injury and contamination through correct selection and use of PPE/RPE (as required by the product information and/or COSHH/Risl Assessment) prevention of public/bystander contamination safe filling procedure avoidance of spray drift avoidance of over/under dosing crop/target Complete a treatment record Completion of the treatment record must be accurate legible (if handwritten) Surplus concentrate pesticide return to temporary mobile store return to temporary mobile store			mark the spot at which the tank/hopper
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constant speed maintained accurate switch on/off points accurate matching of bouts obstacles dealt with correctly (if applicable) area treated minimising overlaps and misses awareness of changing weather conditions and appropriate action taken (if applicable) Carry out all activities protecting human health and the environment To include: prevention of personal injury and contamination through correct selection and use of PPE/RPE (as required by the product information and/or COSHH/Risl Assessment) prevention of public/bystander contamination safe filling procedure avoidance of spray drift avoidance of off target application avoidance of over/under dosing crop/target Complete a treatment record Completion of the treatment record must be accurate legible (if handwritten) Surplus concentrate pesticide return to temporary mobile store return to fixed store	5.2		matching at the appropriate point Demonstrate safe and accurate application
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Carry out all activities protecting human health and the environment 5.3 Carry out all activities protecting human health and the environment Fig. 2 Carry out all activities protecting human health and the environment Contamination through correct selection and use of PPE/RPE (as required by the product information and/or COSHH/Rist Assessment) Prevention of public/bystander contamination Safe filling procedure avoidance of spray drift avoidance of off target application avoidance of over/under dosing crop/target Complete a treatment record Completion of the treatment record must be accurate legible (if handwritten) Explain how to manage surplus pesticide(s) and dispose of waste material Carry out all activities protecting (if applicable) To include: Prevention of personal injury and contamination through correct selection and use of PPE/RPE (as required by the product information and/or COSHH/Rist Assessment) Prevention of personal injury and contamination through correct selection and use of PPE/RPE (as required by the product information through correct selection and use of PPE/RPE (as required by the product information through correct selection and use of PPE/RPE (as required by the product information through contamination through c			misses
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Complete a treatment record Completion of the treatment record must be accurate legible (if handwritten) Explain how to manage surplus pesticide(s) and dispose of waste material Surplus concentrate pesticide return to temporary mobile store return to fixed store			avoidance of spray driftavoidance of off target applicationavoidance of over/under dosing
Explain how to manage surplus pesticide(s) and dispose of waste material Surplus concentrate pesticide • return to temporary mobile store • return to fixed store	5.4	Complete a treatment record	Completion of the treatment record must be: • accurate
triple rinsed (if applicable)	6.1	pesticide(s) and dispose of waste	Surplus concentrate pesticide • return to temporary mobile store • return to fixed store Containers:

		 placed in secure storage until disposal returned to supplier collected by a licensed waste disposal contractor Packaging: thoroughly emptied placed in secure storage until disposal collected by a licensed waste disposal contractor Surplus dilute pesticide use on another approved crop/target treated by specialist treatment facility on site (e.g. a lined bio bed) collected by a licensed waste disposal contractor
6.2	Explain how to clean and decontaminate the applicator(s) and prime mover (if applicable)	 May include: select and use correct PPE/RPE selection of an appropriate site for cleaning the application equipment triple rinse the liquid applicator following product information recommendations through flushing of system safe disposal of contaminated washings in an appropriate manner following good practice thorough (dry) cleaning of powder/granule mechanisms following product manufacturer's guidelines safe disposal of contaminated (dry) arisings following product manufacturer's guidelines
6.3	Describe the storage requirements for the applicator(s)	 May include: ensure the application equipment is clean and dry inspect for wear or damage repair or notify supervisor if not within operators level of responsibility and ability lubricate if required frost protection measures implemented rust protection applied as appropriate store in a secure area isolation of any electrical controls store under cover and out of direct sunlight

Unit 279 Operation of a sprayer mounted on a train fitted with hydraulic nozzles for applying pesticides

Activ	rity number and description from check list	Assessment criteria
1.1	Describe the legal requirements relating to applying pesticides using rail track application equipment	 May include: all required guards are in place and equipment complies with legal requirements comply with all relevant trackside safety regulations and protocols comply with The Plant Protection Products (Sustainable Use) Regulations 2012 the operator must hold the appropriate certification for the equipment they are using
1.2	Describe how to apply pesticides safely using rail track application equipment following industry best practice	Operator safety regulation may include: 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 Checks to protect self from physical danger during operation: trackside safety protocols safe access from ground level to spraying platform safe travel along spraying platform
2.1	Identify risks to the environment	May include the following: • water courses • drains • wildlife • viaducts • station platforms • non-target plants • sensitive crops/areas • trackside housing • public/co-worker access • other risks specific to the site
2.2	Explain how to minimise risks to the environment	May include the following: use of an appropriate pesticide careful timing of application check and maintain application rate avoid spray drift observe buffer zones Check wind speed and direction:

		- use of enemometer at quitable beight or
		 use of anemometer at suitable height or visible signs
		wind direction
		Minimising off target application and spray drift
		avoidance of contamination to people and the environment
		Factors that affect spray drift
		wind speed and direction
		nozzle type and size
		pressure
		forward speed
		•
		nozzle height & angle
		defective equipment
	Read product information	May include the following:
		product name
	Interpret product information	active substance(s) (ingredient(s))
		Important information:
		field of use
		crop/target
		maximum individual dose
		maximum total dose
		maximum number of treatments
		specific product precautions/warnings
		operator protection
		environmental protection
3.1		restrictions on use
-		Crop specific information:
3.2		crop/target
		dose rate
		water volume
		timing
		Mixing and spraying:
		filling
		reduced volume applications (if applicable)
		recommended nozzles
		recommended pressure
		spray quality
		additional label information
		compatibility
	Identify sprayer components and	May include:
	controls	tank(s)
		transfer systems
4.1		filters
		pipe work
		connections

	filling controls and devices
	pressure adjustment control
	pressure gauge
	clean water tank
	• seals
	• pumps
	mechanical/electrical controls
	Nozzle types
	flat fan – standard boom nozzle
	 radial – standard spray train nozzle
	extended reach nozzle
Carry out pre-use and operational checks to the sprayer	May include all/some of the following as applicable to the sprayer:
	Possible mechanical defects
	seized, worn or damaged controls/components
	Sprayer lubrication:
	identification of lubrication points
	visual inspection of lubrication points
	 visual inspection of oil levels (if applicable)
	Security of attachment
	fasteners tight
	linkage secure (if applicable)
	Boom settings, suspension and break-back devices:
	 boom suspension operational
	break-back efficiency
4.2	height adjustment
4.2	Remove, clean & refit a filter
	 remove & clean using appropriate method
	contain spillage
	check for defects
	refit
	Remove, clean/replace & refit a nozzle
	 remove & clean using appropriate method
	contain spillage
	check for defects
	replace if worn/damaged
	refit
	Part fill sprayer
	suitable site selected
	 fill by usual on-site method, following approved procedure
	clean water supply

Check for leaks/spray patterns: use higher than normal operating pressure visual check of all nozzles for correct spray patterns absence of blockages, streaking, pulsing & correct alignment replace defective nozzles/diaphragm check valves Use of control panel may include: functions of control panel recognition of malfunctions before and during operation check accuracy of calibration switch to manual/test mode where applicable Action in event of control panel failing: stop pesticide operation calibrate the sprayer and record relevant data Pessure measurement of distance accurate measurement of distance accurate measurement of distance accurate measurement of time taken to cover distance correct use of formula to determine formard speed Output/volume rate correct use of formula to determine formard speed Output/volume rate correct use of formula to determine formard speed Output/volume rate correct use of formula to determine formard speed Output/volume rate correct use of formula to determine formard speed Output/volume rate correct use of formula to determine formard speed Output/volume rate correct use of formula to determine formard speed Output/volume rate correct use of formula to determine formard speed Output/volume rate correct use of formula to determine formard speed Output/volume rate correct use of formula to determine formard speed Output/volume rate correct use of formula			Chack for looks/spray patterns:
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Calibration data may include: • identification number of spray train			I
identification number of spray train			
			-
			forward speed

		application volume
		nozzle fitted
		operation pressure
		flow rate
	Calculate the quantities of pesticide	May include:
4.4	and water required for a specified operation	amount of pesticide required for specified area
4.4		amount of water required for specified area
		amount of pesticide required for full tank
	Determine that there are sufficient	To include all of the following:
	quantities of water and pesticide on board for the task	 correct selection and use of PPE (as required by the product label, COSHH/Risk Assessment)
		suitable site selected
5.1		fill following product recommendations and approved procedures
0		correct use of water supply
		accurate measurement of water
		accurate measurement of pesticide
		avoidance of spillage
		observance of pesticide manufacturer's
		instructions for mixing and agitation
	Demonstrate safe and accurate	Methods to achieve accurate application
	application procedures	May include any of the following:
		track markers
		use of GPS
		Procedure to refill applicator part way through application:
		avoid contact with contaminated target
		mark the spot at which the sprayer emptied
		refill sprayer
		continue spraying by accurately matching at the appropriate point
5.2		Procedure when nozzle/restrictor becomes blocked during an application
		select and use appropriate PPE
		care not to walk in contaminated target
		clean or replace nozzle as appropriate
		Demonstrate safe and accurate application procedures to include:
		correct boom height and attitude according to the target and type of nozzle
		treatment area clearly identified constant area maintained
		constant speed maintained accurate switch on/off points
		accurate switch on/off points

Carry out all activities protecting human health and the environment Carry out all activities protecting human health and the environment Carry out all activities protecting human health and the environment Carry out all activities protecting human health and the environment To include: 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 over/under dosing target Completion of the treatment record must be: accurate legible (if handwritten) Explain how to manage surplus pesticide and dispose of waste material Explain how to manage surplus pesticide are treturn to fixed store Containers: triple rinsed (if applicable) placed in secure storage until disposal returned to supplier collected by a licensed waste disposal contractor Packaging: thoroughly emptied placed in secure storage until disposal contractor Packaging: thoroughly emptied placed in secure storage until disposal contractor Surplus dilute pesticide back on to target as long as it is below the maximum dose rate use on another approved target collected by a licensed waste disposal contractor Surplus dilute pesticide back on to target as long as it is below the maximum dose rate use on another approved target collected by a licensed waste disposal contractor May include: selection of an appropriate site for cleaning the application equipment triple rinse the application following product information recommendations			abata alaa daalt with assure - 0 - 12t
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cleaning the application equipment triple rinse the applicator following product information recommendations	6.2	• •	select and use correct PPE
product information recommendations			· · · · ·
through flushing of system			product information recommendations
			through flushing of system

	 safe disposal of contaminated washings in an appropriate manner following good practice safe procedures followed
Describe the storage requirements for the applicator 6.3	May include: de-commissioning ensure the application equipment is clean and dry inspect for wear or damage repair or notify supervisor if not within operators level of responsibility and ability lubricate if required frost protection measures implemented store in a secure area

Unit 280 Operation of a bankside sprayer mounted on a train fitted with hydraulic nozzles for applying pesticides

Activ	rity number and description from check list	Assessment criteria
1.1	Describe the legal requirements relating to applying pesticides using rail track bankside application equipment	 May include: all required guards are in place and equipment complies with legal requirements comply with all relevant trackside safety regulations and protocols comply with The Plant Protection Products (Sustainable Use) Regulations 2012 the operator must hold the appropriate certification for the equipment they are using
1.2	Describe how to apply pesticides safely using rail track bankside application equipment following industry best practice	Operator safety regulation may include: comply with Pesticide Codes of Practice adopt industry best practice be aware of any safety implications imposed by COSHH/Risk Assessment and comply with the requirements Checks to protect self from physical danger during operation: trackside safety protocols safe access from ground level to spraying platform safe travel along spraying platform
2.1	Identify risks to the environment	May include the following: • water courses • drains • wildlife • viaducts • station platforms • non-target plants • sensitive crops/areas • trackside housing • public/co-worker access • other risks specific to the site
2.2	Explain how to minimise risks to the environment	May include the following: use of an appropriate pesticide careful timing of application check and maintain application rate avoid spray drift observe buffer zones Check wind speed and direction:

		use of anemometer at suitable height or visible signs
		wind direction
		Minimising off target application and
		spray drift
		avoidance of contamination to people and the environment
		Factors that affect spray drift
		wind speed and direction
		nozzle type and size
		• pressure
		·
		forward speed
		nozzle height & angle
		defective equipment
	Read product information	May include the following:
		product name
	Interpret product information	active substance(s) (ingredient(s))
		Important information:
		field of use
		crop/target
		maximum individual dose
		maximum total dose
		maximum number of treatments
		specific product precautions/warnings
		operator protection
		environmental protection
3.1		restrictions on use
-		Crop specific information:
3.2		crop/target
0.2		dose rate
		water volume
		timingMixing and spraying:
		• filling
		reduced volume applications (if applicable)
		recommended nozzles
		recommended pressure
		spray quality
		additional label information
		compatibility
	Identify sprayer components and	May include:
	controls	tank(s)
		transfer systems
4.1		• filters
		pipe work
		• connections
		300

	filling controls and devices
	pressure adjustment control
	pressure gauge
	clean water tank
	operating pod
	nozzle directional controls
	• seals
	• pumps
	mechanical/electrical controls
	Nozzle types
	flat fan – standard boom nozzle
	radial – standard spray train nozzle
	extended reach nozzle
Carry out pre-use and operational checks to the sprayer	May include all/some of the following as applicable to the sprayer:
· ·	Possible mechanical defects
	seized, worn or damaged
	controls/components
	Sprayer lubrication
	identification of lubrication points
	 visual inspection of lubrication points
	visual inspection of oil levels (if applicable)
	Security of attachment
	fasteners tight linkage secure (if applicable)
	linkage secure (if applicable) Directional controls
	 free movement throughout range of operation
4.2	Remove, clean & refit a filter
4.2	 remove & clean using appropriate method
	contain spillage
	check for defects
	refit
	Remove, clean/replace & refit a nozzle
	remove & clean using appropriate method
	contain spillage
	check for defects
	replace if worn/damagedrefit
	Part fill sprayer
	suitable site selected Suitable site selected
	 fill by usual on-site method, following approved procedure
	clean water supply

		Check for leaks/spray patterns:
		 use higher than normal operating
		pressure
		 visual check of all nozzles for correct spray patterns
		 absence of blockages, streaking, pulsing and correct alignment
		 replace defective nozzles
		Use of control panel may include:
		functions of control panel
		 recognition of malfunctions before and during operation
		 check accuracy of calibration
		 switch to manual/test mode where applicable
		Action in event of control panel failing:
		 stop pesticide operation
		 manual operation of controls if possible
	Calibrate the sprayer and record	Calibration may include the following:
	relevant data	Select & record forward speed
		 request suitable forward speed
		accurate measurement of distance
		accurate measurement of time taken to cover distance
		 correct use of formula to determine forward speed
		Output/volume rate
		correct use of formula
		Appropriate nozzle
		 use of manufacturer's operators handbook
		use of nozzle manufacturer's literature
4.3		 confirm requirements of product label Operating pressure
		 pressure as determined from nozzle chart
		 pressurise/purge appropriate to the system
		Nozzle outputs
		 use measuring jug to check output from at least one nozzle
		 compare with target output
		 vary pressure to make small adjustments
		 change nozzles if required
		Calibration data may include:
		identification number of spray train
		forward speed

		application volume		
		nozzle fitted		
		operation pressure		
		flow rate		
	Calculate the quantities of pesticide	May include:		
4.4	and water required for a specified operation	amount of water required for specified area		
4.4		amount of pesticide required for specified area		
		amount of pesticide required for full tank		
	Determine that there are sufficient	To include all of the following:		
	quantities of water and pesticide on board for the task	 correct selection and use of PPE (as required by the product label, COSHH/Risk Assessment) 		
		suitable site selected		
5.1		fill following product recommendations and approved procedures		
		correct use of water supply		
		accurate measurement of water		
		accurate measurement of pesticide		
		avoidance of spillage		
		observance of pesticide manufacturer's instructions for mixing and agitation		
	Demonstrate safe and accurate	Methods to achieve accurate application		
	application procedures	May include any of the following:		
		track markers		
		use of GPS		
		Procedure to refill applicator part way through application:		
		avoid contact with contaminated target		
		 mark the spot at which the sprayer emptied 		
• refill sprayer				
		continue spraying by accurately matching at the appropriate point		
5.2		Procedure when nozzle/restrictor becomes blocked during an application		
		select and use appropriate PPE		
		care not to walk in contaminated target		
		clean or replace nozzle as appropriate		
		Demonstrate safe and accurate application procedures to include:		
		correct angle/alignment according to the target and type of nozzle		
		treatment area clearly identified		
		constant speed maintained		
		accurate switch on/off points		
		<u>, </u>		

Carry out all activities protecting human health and the environment Carry out all activities protecting human health and the environment Carry out all activities protecting human health and the environment To include: 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 off target application avoidance of onder/over dosing target Complete a treatment record Explain how to manage surplus pesticide and dispose of waste material Explain how to manage surplus pesticide and dispose of waste material Explain how to manage surplus pesticide and dispose of waste material Surplus concentrate pesticide return to tixed store Containers: triple rinsed (if applicable) placed in secure storage until disposal returned to supplier collected by a licensed waste disposal contractor Packaging: thoroughly emptied placed in secure storage until disposal contractor Packaging: thoroughly emptied placed in secure storage until disposal contractor Surplus dilute pesticide back on to target as long as it is below the maximum dose rate use on another approved target collected by a licensed waste disposal contractor Surplus dilute pesticide back on to anget as long as it is below the maximum dose rate use on another approved target collected by a licensed waste disposal contractor on an appropriate site for cleaning the application equipment triple rinse the application equipment triple rinse the application following product information recommendations through flushing of system			1
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Explain how to clean and decontaminate the applicator and prime mover (if applicable) 6.2 May include: • select and use correct PPE • selection of an appropriate site for cleaning the application equipment • triple rinse the applicator following product information recommendations			
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prime mover (if applicable) • selection of an appropriate site for cleaning the application equipment • triple rinse the applicator following product information recommendations			I
6.2 Selection of an appropriate site for cleaning the application equipment triple rinse the applicator following product information recommendations			
product information recommendations	6.2	Fill (ii applicable)	cleaning the application equipment
through flushing of system			product information recommendations
			through flushing of system

		safe disposal of contaminated washings in an appropriate manner following good practice
		safe procedures followed
	Describe the storage requirements	May include:
	for the applicator	de-commissioning
		ensure the application equipment is clean and dry
		inspect for wear or damage
6.3		 repair or notify supervisor if not within operators level of responsibility and ability
		lubricate if required
		frost protection measures implemented
		store in a secure area

Unit 281 Operating 'any other' equipment for applying pesticides

Activ	ity number and description from check list	Assessment criteria
1.1	Describe the legal requirements relating to applying pesticides using selected application equipment	 May include: all required guards are in place and equipment complies with legal requirements comply with The Plant Protection Products (Sustainable Use) Regulations 2012 the operator must hold the appropriate certification for the equipment they are using
1.2	Describe how to apply pesticides safely using selected application equipment following industry best practice	 May include: comply with Pesticide Codes of Practice adopt industry best practice be aware of any safety implications imposed by COSHH/Risk Assessment and comply with the requirements
2.1	Identify risks to the environment	May include: ground conditions water courses 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	 Explanation may include the following points: 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 operate within any temperature parameters Minimising spray drift or off target application avoidance of contamination to people and the environment

		Check wind speed and direction:
		use of anemometer at suitable height or
		visible signs
		wind direction Contains that offset approved wift
		Factors that affect spray drift
		wind speed and direction
		nozzle type and size
		pressure
		forward speed
		nozzle height
		defective equipment
		suction effect of wind
	Read product information	May include the following:
		product name
	Interpret product information	active substance(s) (ingredient(s))
		Important information:
		field of use
		crop/target
		maximum individual dose
		maximum total dose
		maximum number of treatments
		specific product precautions/warnings
		operator protection
		environmental protection
3.1		restrictions on use
-		Crop specific information:
3.2		crop/target
		dose rate
		water volume
		timing
		Mixing and spraying:
		filling
		 reduced volume applications (if applicable)
		recommended nozzles
		recommended pressure
		spray quality
		additional label information
		compatibility
	Identify the components & controls	May include:
	on the equipment	• tank
		• lid
4.1		• filters
		pipe work
		• pump
		pressure control
		• prossure control

		nozzles
		pressure gauge
		• connections
		• seals
		metering devices
		mechanical/electrical controls
		programming controls
		Nozzle types
		flat fan – fine/medium/coarse spray
		 air inclusion – medium/coarse spray, low- drift
		cone – fine spray, good coverage
	Carry out pre use checks to the	May include:
4.0	prime mover (if applicable)	integrity of power source
4.2		fluid levels
		fail-safe systems
	Carry out pre-use checks to the	May include:
	selected application equipment	metering & delivery systems
		drive systems
		condition & tension of belts
		Security of attachment
		boom suspension/break-back devices (if
4.3		applicable)
		security of attachment to prime mover
		lubrication of components
		checking for leaks under pressure
		any problems identified to be rectified if
		within operators level of responsibility and
		ability
	Calibrate the selected application	May include:
	equipment and record relevant	accurate measurements
	data	accurate timings
		accurate calculations
4.4		correct use of formulae
		Calibration data may include:
		equipment settings used
		product used for calibration
		application rate achieved
4.5	Measure the area/volume to be	Must include:
4.5	treated	accurate measurements
4.6	Calculate the area/ volume to be	Must include:
4.0	treated	accurate calculations
	Calculate the quantities of	May include:
4.7	pesticide and water required for a	amount of water required for specified
	specified area/volume	area/volume

		amount of pesticide required for specified
		area/volume
	Measure the required quantities	To include all of the following:
	and add to the selected applicator	 correct selection and use of PPE/RPE (as required by the product label, COSHH/Risk Assessment)
		suitable site selected
5.1		 fill following product recommendations and approved procedures
J		correct use of water supply
		accurate measurement of water
		accurate measurement of pesticide
		avoidance of spillage
		or
		attach pesticide container
	Demonstrate safe and accurate	To include:
	application procedures	treatment area clearly identified
		constant speed maintained
		accurate switch on/off points
		accurate matching of bouts (if applicable)
5.2		 obstacles dealt with correctly (if applicable)
		 area/volume treated minimising overlaps and misses (if applicable)
		 awareness of changing climatic conditions and appropriate action taken (if applicable)
	Carry out all activities protecting	To include:
	human health and the environment	 prevention of personal injury and contamination through correct selection and use of PPE/RPE (as required by the product information and/or COSHH/Risk Assessment)
5.3		 prevention of public/bystander contamination
		safe filling procedure
		avoidance of spray drift
		avoidance of off target application
		 avoidance of over/under dosing crop/target/plant material
	Complete a treatment record	Completion of the treatment record must be:
5.4		accurate
		legible (if handwritten)
	Explain how to manage surplus	Surplus concentrate pesticide
	pesticide and dispose of waste	return to temporary mobile store
6.1	material	return to fixed store
		Containers:
		triple rinsed

		placed in secure storage until disposal returned to supplier
		returned to supplier collected by a licensed wests disposal.
		 collected by a licensed waste disposal contractor
		Packaging:
		thoroughly emptied
		placed in secure storage until disposal
		 collected by a licensed waste disposal contractor
		Surplus dilute pesticides
		 back on to target 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 a licensed waste disposal contractor
	Explain how to clean and	May include:
	decontaminate the selected application equipment	select and use correct PPE/RPE
		 selection of an appropriate site for cleaning the application equipment
6.2		 triple rinse the applicator following product information recommendations
		through flushing of system
		 safe disposal of contaminated washings in an appropriate manner following good practice
		safe procedures followed
	Describe the storage requirements	May include:
	for the selected application	de-pressurisation
	equipment	 ensure the application equipment is clean and dry
		inspect for wear or damage
		 repair or notify supervisor if not within operators level of responsibility and ability
6.3		lubricate if required
		frost protection measures implemented
		 nozzles and filters removed prior to freezing conditions
		store in a secure area
		isolation of any electrical controls
		store under cover and out of direct sunlight

Appendix 1 Practical table

Unit 276 Operating automated equipment for applying pesticides

Activity number and description	Achieved
1.1 Describe the legal requirements relating to applying pesticides using automated or robotic equipment	
1.2 Describe how to apply pesticides safely using automated or robotic equipment following industry best practice	
2.1 Identify risks to the environment	
2.2 Explain how to minimise risks to the environment	
3.1 Read product information	
3.2 Interpret product information	
4.1 Identify the components & controls on the equipment	
4.2 Carry out pre use checks to the prime mover (if applicable)	
4.3 Carry out pre-use checks to the application equipment	
4.4 Calibrate the application equipment and record relevant data	
4.5 Measure the area to be treated	
4.6 Calculate the area to be treated	
4.7 Calculate the quantities of pesticide and water required for a specified area	
5.1 Measure the required quantities and add to the applicator, or attach pesticide container	
5.2 Demonstrate safe and accurate application procedures	
5.3 Carry out all activities protecting human health and the environment	
5.4 Complete a treatment record	
6.1 Explain how to manage surplus pesticide and dispose of waste material	
6.2 Explain how to clean and decontaminate the application equipment	
6.3 Describe the storage requirements for the application equipment	

Unit 277 Operation of mounted, trailed or self-propelled electrostatic charged sprayers for applying pesticides to crops

Activity number and description	Achieved
1.1 Describe the legal requirements relating to applying pesticides using electrostatic equipment	
1.2 Describe how to apply pesticides safely using electrostatic equipment following industry best practice	
2.1 Identify risks to the environment	
2.2 Explain how to minimise risks to the environment	
3.1 Read product information	
3.2 Interpret product information	
4.1 Identify sprayer components and controls	
4.2 Carry out pre use checks to the prime mover	
4.3 Carry out pre-use and operational checks to the sprayer	
4.4 Calibrate the application equipment and record relevant data	
4.5 Calculate the quantities of pesticide and water required for a specified operation	
5.1 Measure the required quantities and add to sprayer	
5.2 Demonstrate safe and accurate application procedures	
5.3 Carry out all activities protecting human health and the environment	
5.4 Complete a treatment record	
6.1 Explain how to manage surplus pesticide and dispose of waste material	
6.2 Explain how to clean and decontaminate the applicator and prime mover (if applicable)	
6.3 Describe the storage requirements for the sprayer	

Unit 278 Operation of pesticide applicators attached to cultivating or planting equipment

Activity number and description	Achieved
1.1 Describe the legal requirements relating to applying pesticides using equipment attached to cultivators or planters	
1.2 Describe how to apply pesticides safely using equipment attached to cultivators or planters following industry best practice	
2.1 Identify risks to the environment	
2.2 Explain how to minimise risks to the environment	
3.1 Read product information	
3.2 Interpret product information	
4.1 Identify applicator components and controls	
4.2 Carry out pre use and operational checks to the prime mover	
4.3 Carry out pre-use checks to the applicator(s)	
4.4 Calibrate the application equipment and record relevant data	
5.1 Measure the required quantities of pesticide and add to the applicator(s)	
5.2 Demonstrate safe and accurate application procedures	
5.3 Carry out all activities protecting human health and the environment	
5.4 Complete a treatment record	
6.1 Explain how to manage surplus pesticide(s) and dispose of waste material	
6.2 Explain how to clean and decontaminate the applicator(s) and prime mover (if applicable)	
6.3 Describe the storage requirements for the applicator(s)	

Unit 279 Operation of a sprayer mounted on a train fitted with hydraulic nozzles for applying pesticides

Activity number and description	Achieved
1.1 Describe the legal requirements relating to applying pesticides using rail track application equipment	
1.2 Describe how to apply pesticides safely using rail track application equipment following industry best practice	
2.1 Identify risks to the environment	
2.2 Explain how to minimise risks to the environment	
3.1 Read product information	
3.2 Interpret product information	
4.1 Identify sprayer components and controls	
4.2 Carry out pre-use and operational checks to the sprayer	
4.3 Calibrate the sprayer and record relevant data	
4.4 Calculate the quantities of pesticide and water required for a specified operation	
5.1 Determine that there are sufficient quantities of water and pesticide on board for the task	
5.2 Demonstrate safe and accurate application procedures	
5.3 Carry out all activities protecting human health and the environment	
5.4 Complete a treatment record	
6.1 Explain how to manage surplus pesticide and dispose of waste material	
6.2 Explain how to clean and decontaminate the applicator and prime mover (if applicable)	
6.3 Describe the storage requirements for the applicator	

Unit 280 Operation of a bankside sprayer mounted on a train fitted with hydraulic nozzles for applying pesticides

Activity number and description	Achieved
1.1 Describe the legal requirements relating to applying pesticides using rail track bankside application equipment	
1.2 Describe how to apply pesticides safely using rail track bankside application equipment following industry best practice	
2.1 Identify risks to the environment	
2.2 Explain how to minimise risks to the environment	
3.1 Read product information	
3.2 Interpret product information	
4.1 Identify sprayer components and controls	
4.2 Carry out pre-use and operational checks to the sprayer	
4.3 Calibrate the sprayer and record relevant data	
4.4 Calculate the quantities of pesticide and water required for a specified operation	
5.1 Determine that there are sufficient quantities of water and pesticide on board for the task	
5.2 Demonstrate safe and accurate application procedures	
5.3 Carry out all activities protecting human health and the environment	
5.4 Complete a treatment record	
6.1 Explain how to manage surplus pesticide and dispose of waste material	
6.2 Explain how to clean and decontaminate the applicator and prime mover (if applicable)	
6.3 Describe the storage requirements for the applicator	

Unit 281 Operating 'any other' equipment for applying pesticides

Activity number and description	Achieved
1.1 Describe the legal requirements relating to applying pesticides using selected application equipment	
1.2 Describe how to apply pesticides safely using selected application equipment following industry best practice	
2.1 Identify risks to the environment	
2.2 Explain how to minimise risks to the environment	
3.1 Read product information	
3.2 Interpret product information	
4.1 Identify the components & controls on the equipment	
4.2 Carry out pre use checks to the prime mover (if applicable)	
4.3 Carry out pre-use checks to the selected application equipment	
4.4 Calibrate the selected application equipment and record relevant data	
4.5 Measure the area/volume to be treated	
4.6 Calculate the area/ volume to be treated	
4.7 Calculate the quantities of pesticide and water required for a specified area/volume	
5.1 Measure the required quantities and add to the selected applicator	
5.2 Demonstrate safe and accurate application procedures	
5.3 Carry out all activities protecting human health and the environment	
5.4 Complete a treatment record	
6.1 Explain how to manage surplus pesticide and dispose of waste material	
6.2 Explain how to clean and decontaminate the selected application equipment	
6.3 Describe the storage requirements for the selected application equipment	

Appendix 2 Sources of general information

The following documents contain essential information for centres delivering City & Guilds qualifications. To download the documents and to find other useful documents, go to **www.cityandguilds.com** or click on the links below:

Centre handbook: quality assurance standards

This document is for all approved centres and provides guidance to support their delivery of our qualifications. It includes information on

- Centre quality assurance criteria and monitoring activities
- Administration and assessment systems
- Centre-facing support teams at City & Guilds / ILM
- Centre quality assurance roles and responsibilities.

The Centre Handbook should be used to ensure compliance with the terms and conditions of the Centre Contract.

Centre assessment: quality assurance standards

Approved centres must have effective quality assurance systems to ensure optimum delivery and assessment of qualifications. Quality assurance includes initial centre approval, qualification approval and the centre's own internal procedures for monitoring quality. Centres are responsible for internal quality assurance and City & Guilds is responsible for external quality assurance. All external quality assurance processes reflect the minimum requirements for verified and moderated assessments, as detailed in the Centre Assessment Standards Scrutiny (CASS), section H2 of Ofqual's General Conditions. For more information on both CASS and City & Guilds Quality Assurance processes visit: the What is CASS? and Quality Assurance Standards documents on the City & Guilds website.

This document sets out the minimum common quality assurance requirements for our regulated and non-regulated qualifications that feature centre assessed components. Specific guidance will also be included in relevant qualification handbooks and/or assessment documentation.

It incorporates our expectations for centre internal quality assurance and the external quality assurance methods we use to ensure that assessment standards are met and upheld. It also details the range of sanctions that may be put in place when centres do not comply with our requirements, or actions that will be taken to align centre marking/assessment to required standards. Additionally, it provides detailed guidance on the secure and valid administration of centre-assessments.

Access arrangements: When and how applications need to be made to City & Guilds provides full details of the arrangements that may be made to facilitate access to assessments and qualifications for candidates who are eligible for adjustments in assessment.

The Centre Document Library also contains useful information on such things as:

- conducting examinations
- registering learners
- appeals and malpractice.

Useful contacts

Please visit the Contact Us section of the City & Guilds website, Contact us

City & Guilds

For over 140 years, we have worked with people, organisations and economies to help them identify and develop the skills they need to thrive. We understand the life-changing link between skills development, social mobility, prosperity and success. Everything we do is focused on developing and delivering high-quality training, qualifications, assessments and credentials that lead to jobs and meet the changing needs of industry.

We partner with our customers to deliver work-based learning programmes that build competency to support better prospects for people, organisations and wider society. We create flexible learning pathways that support lifelong employability because we believe that people deserve the opportunity to (re)train and (re)learn again and again – gaining new skills at every stage of life, regardless of where they start.

The City & Guilds community of brands includes Gen2, ILM, Intertrain, Kineo and The Oxford Group.

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