

T Level Technical Qualification in Agriculture Land Management and Production: Crop Production Occupational Specialism (Level 3)

Practical Assignment Assessor Pack (Sample)

September 2023 Version 2.1

Contents

1. Assessment	5
Task schedule summary	6
Performance outcomes	8
Performance outcome assessment themes	9
2. Assignment briefs	10
Assignment brief 1 (Autumn)	10
Assignment brief 2 (Spring)	11
Existing field-based crops (Figure 4)	12
Estate materials list (Figure 5)	12
3. Tasks (guidance for centres)	13
General task guidance	13
Task specific guidance for centres	16
4. Tasks	40
Task 1 – Field-based crop establishment and assessing a crop for harvest	40
Task 2 – Business, crop, and estate planning	44
Task 3 – Produce container-based crops	49
Task 4 – Produce field-based crops	53
Task 5 – Estate maintenance	58
5. Centre guidance	61
6. Marking	68
7. Marking grid	71
Performance Outcome 2 – Establish crops in field and container-based systems for optimum yield and quality	71
Performance Outcome 3 – Manage crops in field and container-based systems to optimise yield and quality	87
Performance Outcome 4 – Harvest crops for commercial markets	100
Performance Outcome 5 – Maintain the areas surrounding the crop production environment	113
8. Links to Maths, English and Digital Skills	120
9. Declaration of authenticity	121
10. Candidate Record Form (CRF)	122
11. Assessor observation forms	125

Assessor Observation Form (1a Assess a field-based crop in preparation for harvest)	126
Assessor Observation Form (1b Plan a field-based crop)	127
Assessor Observation Form (1c Establish a field-based crop)	128
Assessor Observation Form (3a Establish indoor container-based crops)	130
Assessor Observation Form (3b Manage container-based crop performance)	132
Assessor Observation Form (3c Collect and prepare a container-based crop for sale)	134
Assessor Observation Form (4a Manage field-based crop performance)	135
Assessor Observation Form (4b Apply nutrients to a field-based crop)	136
Assessor Observation Form (4c Harvest a field-based crop)	138
Assessor Observation Form (4d Assess a stored field-based combinable crop)	140
Assessor Observation Form (5a Maintain a stock proof boundary)	141
Assessor Observation Form (5b Maintain a hedge)	142
Assessor Observation Form (5c Maintain a ditch/drain)	143
12. Annex	144
Crop assessment in preparation for harvest template (Figure 1)	145
Risk assessment template (Figure 2)	146
Field record template (Figure 3)	147
Field-based crop gross margin template (Figure 6)	148
Container-based crop propagation record template (Figure 7)	149
Container-based crop diary template (Figure 8)	150
Container-based crop collection order sheet template (Figure 9)	152
Field record – Inorganic/organic fertiliser applications template (Figure 10)	153
Field-based crop harvest record template (Figure 11)	154
Field-based combinable crop storage monitoring template (Figure 12)	155

Version and date	Change Detail	Section
V1.0	Draft version	n/a
v2.0 June 2023	Approved version	n/a
V2.1 Sept 2023	Reordered photo list for task 1c.	Assessor Guidance, Assessor Observation form
	Amendment in task 3a – plain cress instead of mustard cress.	Assessor Guidance, Tasks, Assessor Observation form, Marking Grids
	Amendment to task 2a phrasing.	Tasks
	Amended to questions in task 3b.	Assessor Guidance, Tasks, Assessor Observation form, Marking Grids
	<i>Container-based crop propagation record (Figure 7)</i> – additional space for recording both crops.	Annex.

1. Assessment

The assessment for this component consists of a practical assignment that includes two assignment briefs and then a number of tasks for the candidate to complete. Tasks are assessed by assessment themes that cover a range of knowledge and skills from the performance outcomes in the qualification specification. They are designed to allow judgement of the candidate to be made across different categories of performance.

Assignment brief 1 should be provided with Task 1, Assignment brief 2 should be provided with Tasks 2–5.

Task schedule summary

Task	Conditions	Duration (hours)	Assessment window
1 Field-based crop establishment (PO2) and assessing a crop for harvest (PO4)			
a) Assess a field-based crop in preparation for harvest	controlled	1.5	Oct–Nov
b) Plan a field-based crop	controlled	1.5	
c) Establish a field-based crop	controlled	3	
<p>Sub task 1a is not related to the other sub tasks.</p> <p>The sub tasks 1b and 1c must be issued to candidates in order, one at a time, within the scheduled assessment window.</p> <p>Sub task 1b should be administered separately and completed and submitted by all candidates before moving onto sub task 1c.</p>			
2 Business, crop, and estate planning (PO2, PO4, PO5)			
a) Plan production of a container-based crop	controlled	3	Jan–May
b) Plan the harvest of a field-based crop	controlled	1	
c) Cost the harvest of a field-based crop	controlled	2	
d) Business review	controlled	2	
e) Plan a permanent stock-proof boundary	controlled	1.5	
<p>The sub tasks in Task 2 must be issued to candidates in order, one at a time, within the scheduled assessment window. Each sub task should be administered separately and completed and submitted by all candidates before moving onto the next sub task.</p>			
3 Produce container-based crops (PO2, PO3, PO4)			
a) Establish indoor container-based crops	controlled	2	Jan–May
b) Manage container-based crop performance	controlled	16	
c) Collect and prepare a container-based crop for sale	controlled	1	
<p>Task 3 and its sub tasks can be issued in any order within the scheduled assessment windows. Tasks can be completed at different times by different candidates.</p>			
4 Produce field-based crops (PO3, PO4)			
a) Manage field-based crop performance	controlled	4.5	Jan–May

b) Apply nutrients to a field-based crop	controlled	2	
c) Harvest a field-based crop	controlled	1.5	
d) Assess a stored field-based combinable crop	controlled	1	

Task 4 and its sub tasks can be issued in any order within the scheduled assessment windows. Tasks can be completed at different times by different candidates.

5 Estate maintenance

(PO5)

a) Maintain a stock-proof boundary	controlled	1.5	Jan–May
b) Maintain a hedge	controlled	2	
c) Maintain a ditch/drain	controlled	1	

Task 5 and its sub tasks can be issued in any order within the scheduled assessment windows. Tasks can be completed at different times by different candidates.

Performance outcomes

The weightings for each performance outcome will remain the same for every version of the practical assignment. This ensures the appropriate depth and breadth of knowledge and skills for each specialism can be reliably assessed in every version and meets the needs of industry while keeping comparability between each assessment over time.

Performance outcome	Typical knowledge and skills	Weighting
PO2 Establish crops in field and container-based systems for optimum yield and quality	<p>Demonstrate skills by establishing two different crops: one in field-based and one in container-based systems. Skills should be demonstrated in environments that reflect commercial crop establishment.</p> <p>Demonstrate the ability to optimise establishment of a variety of crop types in a range of soil types and conditions.</p>	30%
PO3 Manage crops in field and container-based systems to optimise yield and quality	<p>Demonstrate skills by managing two different crops: one in field based and one in container-based systems. Skills should be demonstrated in environments that reflect commercial crop management. Skills can be assessed in relation to different growth stages.</p> <p>Optimise yield and quality by identifying issues and problems with the growing crop. Effective control measures need to be applied at the appropriate growth stages to ensure optimum yield and quality.</p>	30%
PO4 Harvest crops for commercial markets	<p>Demonstrate harvesting skills in field-based and container-based systems. Skills should be demonstrated in environments that reflect commercial crop harvesting.</p> <p>Demonstrate an understanding of harvest preparation, timing, accuracy and efficiency. Crop quality to be maintained throughout harvest and storage.</p>	26%
PO5 Maintain the areas surrounding the crop production environment	<p>Skills can be demonstrated in relation to areas surrounding field-based or container-based crop production environments.</p> <p>Demonstrate the skills to maintain, protect and enhance the areas surrounding the production environment. These can include hedgerows, woodland, buildings, environmental stewardship schemes and other non-production areas.</p>	14%

Performance outcome assessment themes

A set number of marks are allocated against each performance outcome assessment theme, based on the performance outcome weightings recommended by stakeholders of the qualification. This mark allocation remains the same for all versions of the assessments, ensuring consistency across assessment versions and over time.

Candidates will be assessed against these assessment themes. This assignment has a total of 138 marks. The table below shows the mark distribution for this assessment.

Performance outcome (PO)	PO assessment themes	Marks per assessment theme	Total marks per performance outcome
PO2 Establish crops in field and container-based systems for optimum yield and quality	Preparing for field-based crop establishment	6	42
	Health and safety in field-based crop establishment	6	
	Field-based crop establishment	12	
	Health and safety in container-based crop establishment	6	
	Container-based crop establishment	12	
PO3 Manage crops in field and container-based systems to optimise yield and quality	Field-based crop monitoring	9	42
	Field-based crop management	12	
	Container-based crop monitoring	12	
	Container-based crop management	9	
PO4 Harvest crops for commercial markets	Business planning	6	36
	Assessing a crop for harvest	6	
	Harvesting field-based crop	12	
	Harvesting container-based crop	6	
	Crop storage	6	
PO5 Maintain the areas surrounding the crop production environment	Business management	6	18
	Estate maintenance	12	
Totals		138	138

2. Assignment briefs

Assignment brief 1 (Autumn)

You are employed as the crop production manager at The Guilds Estate, a 500-hectare estate with:

- field-scale arable crops and forage crops
- container-based crops in polytunnels
- a farm shop which is open to the public.

The owner has given you responsibility for management of operations throughout the year. As part of the small team on the estate, you are a 'hands-on' manager, involved in many aspects of estate work such as harvesting field-based crops and producing container-grown crops for sale in the estate farm shop.

Your next tasks have been agreed, including planning and establishing a field-based crop, and assessing another crop for harvesting. The assessor will tell you the crop and location for each task. It is expected that you comply with your centre's health and safety policy throughout the tasks.

This part of the assignment has one task and a total time of six hours.

Please read **all** information carefully before the assessment.

Assignment brief 2 (Spring)

You are employed as the crop production manager at The Guilds Estate, a 500-hectare estate with

- field-scale arable crops and forage crops
- container-based crops in polytunnels
- a farm shop which is open to the public.

The owner has given you responsibility for management of operations throughout the year. As part of the small team on the estate, you are a 'hands-on' manager, involved in many aspects of estate work such as harvesting field-based crops and producing container-grown crops for sale in the estate farm shop.

Your tasks for the next few months have been agreed, including establishing and managing crops, preparing for and carrying out harvesting, and planning and undertaking estate maintenance (*Figure 5*). The assessor will tell you the crop and location for practical tasks. You'll also be looking at how the business is running and making recommendations about alternative approaches the owner could take. It is expected that you comply with your centre's health and safety policy throughout the tasks.

The estate

The private roads on the estate are well maintained and smooth. The farm has the following owned equipment available, operated by farm staff:

- 14 tonne trailers
- 150 hp tractors
- crop establishment machinery and equipment
- crop management machinery and equipment
- harvesting machinery and equipment.

The *Existing field-based crops (Figure 4)* each cover 60-hectare blocks. Harvested field-based crops are stored next to the weighbridge. Straw is chopped after harvesting.

This part of the assignment has four tasks and a total time of 42 hours.

Please read **all** information carefully before the assessment.

Assignment brief 2

Existing field-based crops (Figure 4)

Current crops					Costs for this year			Benchmark data		
Location	Distance to farm store (miles)	Crop	Expected yield (t/ha)	Selling price (£/t)	Seed (£/ha)	Fertiliser (£/ha)	Spray (£/ha)	Seed (£/ha)	Fertiliser (£/ha)	Spray (£/ha)
Field 1	0.5	Winter oilseed rape	4.5	510	72	425	266	64	310	234
Field 2	0.5	Spring barley	7	247	66	221	127	69	250	151
Field 3	2	Winter barley (feed)	8	247	74	350	160	78	268	195
Field 4	2	Winter wheat	10	274	77	430	320	68	320	255
Field 5	3	Grass (silage)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Field 6	0.5	Forage maize	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Estate materials list (Figure 5)

- Half round rails (3.6m): £6.31/each
- Straining posts (2.1m): £30.81/each
- Intermediate post (1.65m): £4.10/post
- Stock netting: £76.67/100 metres
- Staples: £38.39/20kg
- Barbed wire: £27.43/200 metres
- Plain wire: £37.87/100 metres
- Strut (2.7m): £8.00/each

(All prices are excluding VAT)

* Figures for assessment purposes (February 2022)

3. Tasks (guidance for centres)

General task guidance

Please read **all** information carefully before starting the assessment.

Ensure you have read the following guidance before you undertake the assessment of candidates:

- *T level technical qualifications – marking*
- *T level technical qualifications – moderation (updated annually)*
- *T level technical qualifications – teaching, learning and assessment*
- *Technical qualification guides on marking and moderation*
- *Assessor Observation forms*
- *Marking grids following the tasks below*
- *Feedback guidance for assessors.*

All work carried out should be to industry standards, undertaken in a safe manner and compliant with relevant regulations. If a candidate fails to carry out the activities in a safe manner, the assessment should be stopped. Further guidance for assessors can be found in the centre guidance section under health and safety.

Photos and videos must be used to support the qualitative statements captured on the Assessor Observation form and must be taken by the assessor. Details of specific photo/video requirements are outlined in the task information below. Photos/videos must have the date, the candidate's name and their candidate number attached so that they can be differentiated. The candidate does not need to be in the photo/video, the purpose of the photo/video is to demonstrate the quality and standard of work of the specific activities and of the work throughout various stages of the assignment.

Where audio recordings must be made of the candidates' response(s) to questions during the task, the assessor must only ask the questions provided in the task specific guidance below. The recording must start with the date, the candidate's name and their candidate number. Notes about the responses must also be made in the appropriate Assessor Observation form.

All work submitted must be securely saved in an appropriate format as dictated by the evidence requirements. It is important that assessors can access copies of submitted materials to provide to candidates in subsequent tasks as instructed in the task specific guidance.

Time

The time allocated for the completion of the tasks and production of evidence for this assessment is 48 hours. Timings for completion of specific tasks are outlined below.

- Task 1 – 6 hours
- Task 2 – 9.5 hours
- Task 3 – 19 hours
- Task 4 – 9 hours
- Task 5 – 4.5 hours

There may be sub tasks within each of the above tasks. Assessors should ensure that the duration for each sub task is adhered to.

There may be additional resources that are required for a task/sub task. These will be provided by the assessor and listed within the task instructions within the candidate pack and task specific guidance. These resources must only be administered to the candidate as per the task specific guidance.

Scheduling assessment sessions

It is the centre's responsibility to arrange how time is managed to fit with timetables and meet the times allocated for each task during the assessment window. Assessment windows are specified in the key date schedule.

The tasks/sub tasks must be issued by centres in the order specified in the task schedule summary, one at a time to candidates and within in the scheduled assessment times. Candidates are able refer to the brief and scenario during all of the scheduled assessment time. Candidates are not permitted to return to tasks/sub tasks after the assessment time for the task has ended and the next task/sub task has begun. Candidates must not move on to the next task/sub task within the assessment session until instructed to do so by the assessor. It is the assessor's responsibility to ensure that all evidence for a task/sub task has been submitted before administering the next task/sub task. Candidates are not required to have formal reading time for the scenario and brief, this is included within the duration for Task 1 and Task 2.

When working under supervised conditions for longer sessions, breaks can be facilitated outside of the controlled conditions, ensuring the room is locked and all candidates have vacated once the break begins. All materials must be kept securely during the break.

Centres should aim to schedule tasks in the fewest amount of assessment sessions but ensure that the durations dictated for each task/sub task are covered. However, to aid deliverability and manageability of assessment, sessions can be split where there is a requirement – for example where timetabling of an appropriate location for six hours is not possible eg where centre's access to computer resources is limited, or where candidates are not available for six consecutive hours (eg due to work placement commitments). Where this is necessary, sessions must be timetabled over consecutive days and in as few sessions as possible. All assessment evidence must be stored securely and access to assessment materials and their work only given to candidates during the formal assessment times. All candidates are required to complete a declaration of authenticity along with their evidence submission, and the arrangements must support the assessor in being confident in confirming authenticity.

Where assessments need to be completed in a number of assessment sessions or over consecutive days all practical work areas and any evidence produced must be kept secure and must only be accessed by the assessor. Information and notices should be used to inform other users of the facility that no access will be granted when assessment sessions are in progress. Practical work areas, tools, equipment and systems for the assessment must not be reset until a candidate has completed the full assessment.

Internet access

Where internet access is allowed as part of a task (eg for research purposes) candidates must be advised that this is the case and reminded of the importance of submitting their own work and the seriousness of plagiarism, malpractice and collusion. Candidates should be advised that their browser history can be monitored and checked. Depending on the type of task candidates may be

requested to submit their internet search history to be considered as part of the submission of evidence, in order to confirm the authenticity of submitted evidence.

Where candidates are allowed the use of computer equipment, but not the use of the internet for a task, equipment should be provided with internet capability disabled (Wi-Fi disabled and machine disconnected from network).

Resources

Candidates must have access to a suitable range of resources as outlined in the task specific guidance to carry out the tasks and, where appropriate, to have the opportunity to choose materials, tools and equipment that demonstrate their ability to select from a range of appropriate resources.

Where candidates need access to evidence that has been submitted as part of a previous task, this will be provided as a copy of the original evidence and will be given at the start of the relevant task.

Task specific guidance for centres

Assessors should familiarise themselves with the tasks as well as this guidance for centres.

Templates must be provided in printed and digital format; candidates can choose to complete templates by hand or digitally.

Task 1 – Field-based crop establishment and assessing a crop for harvest

1a) Assess a field-based crop in preparation for harvest

Assessor guidance

- Candidates must carry out the task independently, under controlled conditions.
- Assessor to provide the average plant population per hectare.
- Internet access is **not** permitted for this task.
- The time allocated for this task is **1.5 hours**.
- Ratio of candidates to assessor:
 - up to 6:1

Additional evidence

Assessor observations

- Detailed, accurate and differentiating notes on performance must be captured on the Assessor Observation form:
 - collection and assessment of the crop sample
 - calculation of the yield
 - disposes of waste appropriately
 - the candidate's findings must reflect the actual status of the crop.

Photo/video evidence

- This task must be photographed by the assessor to support the marking and moderation process, as a minimum:
 - collection and assessment of the crop sample: cutting, weighing.

Question and answer session

- n/a

Resources

- Assignment brief 1.
- Area of forage maize crop – minimum of two representative plants to assess per candidate.
- Spring balance for weighing sample crop.
- Suitable equipment for cutting the sample crop.
- *Crop assessment in preparation for harvest template (Figure 1)*.
- PPE
- Computer for completing template digitally (**no** internet access).
- Camera equipment for the assessor.
- Camera equipment for the candidate.

1b) Plan a field-based crop

Assessor guidance

- Candidates must carry out the task independently, under controlled conditions.
- Each candidate must start their germination test and then leave it securely; then revisit one week later.
- A technician to water trays as required during the one-week period.
- Internet access is **not** permitted for this task.
- The time allocated for this task is **1.5 hours**:
 - i) 0.5 hours
 - ii) 1 hour.
- Ratio of candidates to assessor:
 - group invigilation

Additional evidence

Assessor observations

- Detailed, accurate and differentiating notes on performance must be captured on the Assessor Observation form:
 - prepare equipment and germinating media
 - accurately count and place 100 seeds
 - following germination count the germinated seeds to work out seed viability.

Photo/video evidence

- This task must be photographed by the assessor to support the marking and moderation process, as a minimum:
 - count of seeds
 - the seed tray showing the level of the growing media
 - the completed tray showing the evenness of sowing.

Question and answer session

- n/a

Resources

- Assignment brief 1.
- Trays and germinating media for a traditional germination test.
- Winter combinable cereal (undressed wheat, barley, oats – selected by assessor) crop seed with the 1,000-grain weight provided by the assessor.
- PPE
- Computer with software for producing the report (**no** internet access).
- Camera equipment for the assessor.

1c) Establish a field-based crop

Assessor guidance

- Candidates must carry out the task independently, under controlled conditions.
- Assessor to decide whether candidates are assessed on a cultivator and drill, or a combination drill.
- Sub task i) assessment set-up as follows:
 - Each candidate must carry out the set-up of the cultivator, and set-up and calibration of the drill. The assessor is expected to make alterations to the set-up to facilitate this.
 - The cultivator is **not** attached to the tractor by the assessor, because the candidate will attach it as part of the assessment.
 - The drill must already be attached to the tractor and filled with a suitable quantity of seed (dressed or undressed) in preparation by the assessor.
 - If a combination drill is to be used, the candidate must attach it to the tractor and carry out the set-up and calibration of the combination drill.
- Sub task ii) assessment set-up as follows:
 - The cultivator and drill are attached and pre-set by the assessor, including pre-filling with a suitable quantity of seed (dressed or undressed).
 - If a combination drill is to be used, the combination drill is attached and pre-set by the assessor.
 - The machinery and equipment can be in the field ready for use.
- Internet access is **not** permitted for this task.
- The time allocated for this task is **3 hours**, excluding travel between the yard and the field:
 - i) 1.5 hours
 - ii) 1.5 hours.
- Ratio of candidates to assessor:
 - up to 2:1 depending on availability of machinery and equipment
- Candidates must be given a copy of their report from sub task 1b (for reference only).

Additional evidence

Assessor observations

- Detailed, accurate and differentiating notes on performance must be captured on the Assessor Observation form:
 - machinery:
 - attachment (cultivator only), calibration (drill only), pre-use checks and set-up (both)
 - or combination drill – attachment, calibration, pre-use checks and set-up.
 - use of machinery including accuracy of driving, efficient operation and post-use checks for 3 passes and 2 turns (both cultivator and drill, or 3 passes and 2 turns for the combination drill)
 - safely park the machinery and equipment
 - undertake post-use checks to the machinery and equipment
 - cultivation depth (task i) including required adjustments (task ii)
 - sowing depth (task i) including required adjustments (task ii)
 - tramlining does not need to be assessed.

Photo/video evidence

- This task must be photographed by the assessor to support the marking and moderation process, as a minimum:
 - pre-use checks and set-up (both pieces of machinery/combination drill)
 - calibration (drill/combination drill only)
 - collecting and weighing the seed
 - attachment (cultivator/combination drill only – connections)
 - cultivation depth
 - sowing depth
 - post-use checks (photos of what the candidate is checking).
- This task must be videoed by the assessor to support the marking and moderation process, as a minimum:
 - i) attachment (cultivator only/combination drill – reversing) – typically 2–3 minutes
 - ii) accuracy of driving for a minimum of 1 pass and 1 turn (condition of ground) – typically 2 minutes each (cultivator and drill/combination drill).

Question and answer session

- Assessors should ask all the questions as provided below at the natural point during and/or at the end of the assessment, ensuring it is safe to do so.
- Assessors must make notes of responses from the questioning on the Assessor Observation form.
- Assessors must make an audio recording of the responses for moderation purposes.
- Questions
 - i):
 - What are the responsibilities of the employer and the employee under current health and safety regulations and legislation relevant to the preparation and use of machinery for crop establishment?
 - Name and describe two relevant pieces of health and safety legislation in relation to the preparation and use of machinery for crop establishment.
 - Why is it important for you to follow the regulations and legislation?
 - Explain how to limit damage to soil structure during cultivation and drilling.
 - How can soil structure be improved between crops?
 - Explain the establishment stage of the winter combinable cereal crop in relation to its lifecycle.

Resources

- Assignment brief 1.
- Suitable area of field which requires a minimum of 3 passes and 2 turns
- Suitable tractor (with or without GPS), cultivator and cereal drill (or a combination drill) – assessor to reset each piece of machinery so that each candidate must adjust the machinery in task ii) (candidates must not be able to see the reset).
- Access to machinery data for set-up and calibration.
- Winter combinable cereal crop seed with the 1,000-grain weight provided.
- Weigh scales (measure in kilograms).
- PPE
- *Risk assessment template (Figure 2).*
- *Field record template (Figure 3).*
- Computer with software for completing templates digitally (**no** internet access).

- Camera, video and audio recording equipment for the assessor.
- Candidates must be given a copy of their report from sub task 1b (for reference only).

Task 2 – Business, crop, and estate planning

2a) Plan production of a container-based crop

Assessor guidance

- Candidates must carry out the task independently, under controlled conditions.
- Internet access is **not** permitted for this task.
- The time allocated for this task is **3 hours**.
- Ratio of candidates to assessor:
 - group invigilation

Additional evidence

Assessor observations

- n/a

Photo/video evidence

- n/a

Question and answer session

- n/a

Resources

- Assignment brief 2.
- Computer with software for producing the report (**no** internet access).
- Calculator or spreadsheet software.

2b) Plan the harvest of a field-based crop

Assessor guidance

- Candidates must carry out the task independently, under controlled conditions.
- Internet access is **not** permitted for this task.
- The time allocated for this task is **1 hour**.
- Ratio of candidates to assessor:
 - group invigilation

Additional evidence

Assessor observations

- n/a

Photo/video evidence

- n/a

Question and answer session

- n/a

Resources

- Assignment brief 2.
- Computer with software for producing the timeline (**no** internet access).
- Calculator or spreadsheet software.

2c) Cost the harvest of a field-based crop

Assessor guidance

- Candidates must carry out the task independently, under controlled conditions.
- Internet access is **not** permitted for this task.
- The time allocated for this task is **2 hours**.
- Ratio of candidates to assessor:
 - group invigilation

Additional evidence

Assessor observations

- n/a

Photo/video evidence

- n/a

Question and answer session

- n/a

Resources

- Assignment brief 2.
- Information on *Existing field-based crops (Figure 4)*.
- Clean, hard copy of the current *John Nix Pocketbook for Farm Management*, which must be returned at the end of the assessment. Extracts are not permitted.
- Computer with software for creating the report (**no** internet access).
- Calculator or spreadsheet software.

2d) Business review

Assessor guidance

- Candidates must carry out the task independently, under controlled conditions.
- The time allocated for this task is **2 hours**.
- Ratio of candidates to assessor:
 - group invigilation

Additional evidence

Assessor observations

- n/a

Photo/video evidence

- n/a

Question and answer session

- n/a

Resources

- Assignment brief 2.
- Information on *Existing field-based crops (Figure 4)*.
- *Field-based crop gross margin template (Figure 6)*.
- Computer with software for producing the report and completing templates digitally (**no** internet access).
- Calculator or spreadsheet software.

2e) Plan a permanent stock proof boundary

Assessor guidance

- Candidates must carry out the task independently, under controlled conditions.
- Internet access is **not** permitted for this task.
- The time allocated for this task is **1.5 hours**.
- Ratio of candidates to assessor:
 - group invigilation

Additional evidence

Assessor observations

- n/a

Photo/video evidence

- n/a

Question and answer session

- n/a

Resources

- Assignment brief 2.
- *Estate materials list (Figure 5)*.
- Computer with software for producing the report (**no** internet access).
- Calculator or spreadsheet software.

Task 3 – Produce container-based crops

3a) Establish indoor container-based crops

Assessor guidance

- Candidates must carry out the task independently, under controlled conditions.
- Internet access is not permitted for this task.
- The time allocated for this task is **2 hours**.
- Ratio of candidates to assessor:
 - up to 6:1

Additional evidence

Assessor observations

- Detailed, accurate and differentiating notes on performance must be captured on the Assessor Observation form:
 - selection and preparation of resources
 - safe, accurate and efficient work, using appropriate tools and equipment avoiding wastage and working at appropriate speed
 - preparation of site, fill and make ready six standard cress punnets/trays and broadcast sow with fine (small) seeds (rate specified with the seeds)
 - collection and preparation of 30 soft stem cuttings; prepare one or more suitable containers for insertion of cuttings; undertake trimming and other applicable treatment and insert cuttings
 - place completed propagation into appropriate environment and carry out immediate post-propagation maintenance
 - disposes of waste appropriately
 - complete relevant records and labelling as applicable eg, what sown, growing medium, date, source plant (for cuttings).

Photo/video evidence

- This task must be photographed by the assessor to support the marking and moderation process, as a minimum:
 - photo of all the trays **after** sowing: showing evenness of sowing, levels of finished growing medium
 - photo of propagules:
 - **after** preparation: trimming of leaves, position of basal cut, size of cutting, one photo of all of the propagules
 - **after** insertion: appropriate spacing in the container, and depth of insertion.

Question and answer session

- Assessors should ask all the questions as provided below at the natural point during and/or at the end of the assessment, ensuring it is safe to do so.
- Assessors must make notes of responses from the questioning on the Assessor Observation form.
- Assessors must make an audio recording of the responses for moderation purposes.
- Questions:
 - What regulations apply to propagation and sale?
 - Explain the advantages of a glasshouse compared to a polytunnel for vegetative propagation.
 - Compare mist units with polythene covers for the rooting environment for vegetative propagation.

Resources

- Assignment brief 2.
- Plain cress seeds with sowing rate.
- *Osteospermum* source plants for cuttings.
- Knives/cuttings scissors.
- Growing media and punnets/trays.
- Precision scales for weighing small quantities of seeds.
- Labels and labelling materials.
- Dibber or equivalent.
- Rooting powders or gels.
- Propagation environment (covered).
- Irrigation equipment.
- PPE
- *Risk assessment template (Figure 2)*.
- *Container-based crop propagation record template (Figure 7)*.
- Computer for completing templates digitally (**no** internet access).
- Camera and audio recording equipment for the assessor.

3b) Manage container-based crop performance

Assessor guidance

- Candidates must carry out the task independently, under controlled conditions.
- It is acceptable for a technician to monitor the crop during holiday periods during the assessment window, eg half term, easter break. The technician should undertake the minimum to keep the crop alive.
- It is not expected that pesticides or biological controls will be applied by the candidate.
- Internet access is **not** permitted for this task.
- The time allocated for this task is **16 hours**:
 - 2 hours per week over two 4-week periods, including question and answer; the timeframe and frequency should allow progress of growth to be monitored; frequency to be set by the assessor appropriate to the crop, growing conditions and to allow candidates to provide evidence of the requirements of the task.
- Ratio of candidates to assessor:
 - 1:1 for observation of irrigation and liquid feeding and questioning
 - up to 6:1 for transplanting/potting
- Candidates must be given a copy of their diary and photos from previous visits (for reference only).

Additional evidence

Assessor observations

- Detailed, accurate and differentiating notes on performance must be captured on the Assessor Observation form:
 - safe, accurate and efficient work, using appropriate tools and equipment, avoiding wastage and working at appropriate speed
 - irrigation
 - liquid feed
 - transplanting/potting up
 - disposes of waste appropriately.
- The candidate's findings must reflect the **actual** status of the crop when they visit, so the assessor must observe and record the status of the crop on each visit.

Photo/video evidence

- This task must be photographed by the assessor to support the marking and moderation process, as a minimum:
 - **completed** potting up/transplanting.

Question and answer session

- Assessors should ask all the questions as provided below at the natural point during and/or at the end of the assessment, ensuring it is safe to do so.
- Assessors must make notes of responses from the questioning on the Assessor Observation form.
- Assessors must make an audio recording of the responses for moderation purposes.
- Responses should reflect the diary entries.
- Questions:
 - Weeds, pests, diseases, and disorders within the cropping environment:
 - Why did you recommend particular control measures?
 - Why is accurate timing of control measures important?
 - Irrigation: What factors did you consider to irrigate the crop when you did?
 - Feeding: Why did you feed the crop when you did?
 - Transplanting: How did you decide when to transplant the crop?

Resources

- Assignment brief 2.
- Established container based *Osteospermum* crop growing under protected conditions; the crop area must be a minimum of one commercial glasshouse bench (this does not have to be the crop from sub task 3a).
- Irrigation and feeding equipment.
- Growing medium and appropriate containers for transplanting.
- PPE
- *Container-based crop diary template (Figure 8)*.
- Computer for completing template digitally (**no** internet access).
- Camera and audio recording equipment for the assessor.
- Camera equipment for the candidate.
- Candidates must be given a copy of their diary and photos from previous visits (for reference only).

3c) Collect and prepare a container-based crop for sale

Assessor guidance

- Candidates must carry out the task independently, under controlled conditions.
- The assessor must prepare and provide the order sheet relevant to the crop and point of sale, setting the specification at Grade 1 condition.
- Internet access is **not** permitted for this task.
- The time allocated for this task is **1 hour**.
- Ratio of candidates to assessor:
 - up to 6:1

Additional evidence

Assessor observations

- Detailed, accurate and differentiating notes on performance must be captured on the Assessor Observation form:
 - grading, preparation, pre-treatment, and packing ready for despatch or sale
 - select and prepare appropriate resources for the task
 - the candidate must carry out relevant preparation prior to packing into appropriate carry trays or onto Danish trolley shelves, eg remove dead leaves, weeding, watering, final feed, deadheading, pest and disease removal/rejection of crop
 - disposes of waste appropriately.

Photo/video evidence

- This task must be photographed by the assessor to support the marking and moderation process, as a minimum:
 - one plant **before** the candidate starts the task to show example of plant condition
 - one plant once **ready for sale** showing detail of preparation eg dead leaves removed, deadheaded and other treatments as required.

Question and answer session

- n/a

Resources

- Assignment brief 2.
- *Container-based crop collection order sheet (Figure 9)*; specification at Grade 1 condition provided by assessor.
- Plant materials.
- Packing materials.
- Plant labels.
- Growing media for top dressing.
- Carry trays.
- Danish trolley.
- Irrigation equipment.
- PPE
- Computer for completing templates digitally (**no** internet access).
- Camera equipment for the assessor.

Task 4 – Produce field-based crops

4a) Manage field-based crop performance

Assessor guidance

- Candidates must carry out the task independently, under controlled conditions.
- Assessor must provide candidate with information on the previous crop and this crop (expected yield).
- Internet access is **not** permitted for this task.
- The time allocated for this task is **4.5 hours**:
 - monitoring the crop: 3 hours total over 3 visits; It is expected this is carried out prior to stem extension; the timeframe and frequency should allow progress of growth to be monitored; frequency to be set by the assessor appropriate to the crop, season, growing conditions and location.
 - report on monitoring and treatments: 1.5 hours.
- Ratio of candidates to assessor:
 - group invigilation
- Candidates must be given a copy of their notes and photos from previous visits (part i) and for the report writing (part ii) (for reference only).

Additional evidence

Assessor observations

- The candidate's findings must reflect the **actual** status of the crop when they visit, so the assessor must observe and record the status of the crop on each visit.

Photo/video evidence

- n/a by assessor (photos by the candidate as part of their evidence)

Question and answer session

- n/a

Resources

- Assignment brief 2.
- A field-based combinable crop (wheat, barley, oats) for monitoring; selected by the assessor; it does not need to be the same crop as sub task 1b; assessor to tell the candidate what the previous crop was and the sowing density (seeds per metre squared) and expected yield for this crop.
- Quadrat.
- Computer with software for producing the report (**no** internet access).
- Camera equipment for the candidate.
- Candidates must be given a copy of their notes and photos from previous visits (part i) and for the report writing (part ii) (for reference only).

4b) Apply nutrients to a field-based crop

Assessor guidance

- Candidates must carry out the task independently, under controlled conditions.
- Application of nutrients: analysis and application rates to be predetermined and equipment pre-calibrated by the assessor.
- Internet access is **not** permitted for this task.
- The time allocated for this task is **2 hours**, excluding travel between the yard and the field:
 - i) 1 hour
 - ii) 1 hour.
- Ratio of candidates to assessor:
 - up to 2:1 depending on availability of machinery and equipment

Additional evidence

Assessor observations

- Detailed, accurate and differentiating notes on performance must be captured on the Assessor Observation form:
 - check safety, suitability and cleanliness of machinery and equipment
 - safe and accurate operation: even application of nutrients, assessment is of the accuracy of application using either a slurry tanker/manure spreader or fertiliser spreader/sprayer, for 3 bouts and 2 turns
 - safely park the machinery and equipment after the nutrient application.

Photo/video evidence

- This task must be videoed by the assessor to support the marking and moderation process, as a minimum:
 - safe and accurate operation for a minimum of 1 bout and 1 turn (typically 2–3 minutes).

Question and answer session

- Assessors should ask all the questions as provided below at the natural point during and/or at the end of the assessment, ensuring it is safe to do so.
- Assessors must make notes of responses from the questioning on the Assessor Observation form.
- Assessors must make an audio recording of the responses for moderation purposes.
- Questions:
 - i)
 - What are the potential environmental impacts that may arise when inorganic fertiliser is applied?
 - Explain how to set-up and calibrate a fertiliser spreader.
 - Explain how modern technology can assist in the application of fertiliser.
 - How is the machinery and equipment cleaned, checked, and stored after use?
 - ii)
 - Explain the vegetative and reproductive growth stages of the crop in relation to its lifecycle.
 - Explain the potential end uses of this crop.

Resources

- Assignment brief 2.
- A field-based crop for nutrient application which requires a minimum of 3 bouts and 2 turns. This can be a different crop to the crop which has been monitored.
- A suitable tractor (with or without GPS) and tanker/spreader/sprayer for the task, set-up according to manufacturer's guidance.
- Nutrient for application (slurry tanker/manure spreader or fertiliser spreader/sprayer) – pre-filled by the assessor or a centre technician.
- *Field record (inorganic/organic fertiliser applications) template (Figure 10)*; seed sowing date and seed rate provided by the assessor.
- Data on analysis of the fertiliser being applied.
- Computer with software for completing template digitally (**no** internet access).
- Video and audio recording equipment for the assessor.

4c) Harvest a field-based crop

Assessor guidance

- Candidates must carry out the task independently, under controlled conditions.
- Assessors should ensure that the silage storage area is safe for the next candidate to offload.
- Internet access is **not** permitted for this task.
- The time allocated for this task is **1.5 hours**, excluding travel between the yard and the field:
 - i) 0.5 hours
 - ii) 1 hour.
- Ratio of candidates to assessor:
 - 2:2, typically two assessors: one in the field and one at the store

Additional evidence

Assessor observations

- Detailed, accurate and differentiating notes on performance must be captured on the Assessor Observation form:
 - Prepare tractor and trailer to harvest and store a grass silage crop:
 - assess the safety and suitability of the tractor and trailer for the task: walk around check
 - set-up the tractor and trailer according to manufacturer's recommendations: hitch on, connect external services.
 - Operate the tractor and trailer to harvest a grass silage crop and transport to store:
 - safely and efficiently operate tractor and trailer to offload the crop from the harvester: one full load
 - safely and legally transport the crop to a specified location – if travelling on a public highway, it is acceptable for a licensed driver to assist if the candidate does not hold a licence
 - safely offload the crop at the store
 - safely park the machinery and equipment
 - apply precise and controlled movements of equipment to show physical dexterity
 - monitor quality of their work, making adjustments as required, to meet objectives.

Photo/video evidence

- This task must be videoed by the assessor to support the marking and moderation process, as a minimum:
 - safely and efficiently operate tractor and trailer to offload the crop from the harvester:
 - drive up to the harvester (typically 2 minutes)
 - last 1–2 minutes of a trailer loading.
 - safely offload one load of the crop at the store (reversing, tipping the load).

Question and answer session

- Assessors should ask all the questions as provided below at the natural point during and/or at the end of the assessment, ensuring it is safe to do so.

- Assessors must make notes of responses from the questioning on the Assessor Observation form.
- Assessors must make an audio recording of the responses for moderation purposes.
- Questions
 - i):
 - What parts of the trailer need regular lubrication?
 - What could make the tractor and trailer incompatible?
 - Explain how to minimise soil damage when harvesting crops.
 - Explain the considerations at harvesting to produce good quality grass silage.

Resources

- Assignment brief 2.
- Grass silage crop ready for harvesting and of sufficient area to provide one full load per candidate.
- Suitable tractor and trailer for a grass silage crop (appropriate to the age of the candidate and the licence that they hold eg weight capacity):
 - trailer not attached for part i) (assessor/technician unhitch after each candidate)
 - trailer pre-attached by the assessor for part ii).
- Storage facility for a grass silage crop eg silage clamp.
- *Field-based crop harvest record template (Figure 11).*
- Computer for completing template digitally (**no** internet access).
- Video and audio recording equipment for the assessor.

4d) Assess a stored field-based combinable crop

Assessor guidance

- Candidates must carry out the task independently, under controlled conditions.
- Assessor to provide typical crop specification in the template for the combinable crop at the time of the assessment (temperature, moisture, hectolitre weight).
- Internet access is **not** permitted for this task.
- The time allocated for this task is **1 hour**.
- Ratio of candidates to assessor:
 - up to 3.1 depending on space and availability of equipment

Additional evidence

Assessor observations

- Detailed, accurate and differentiating notes on performance must be captured on the Assessor Observation form:
 - correct use of sampling equipment
 - assessment of representative samples of the crop
 - disposes of waste appropriately.

Photo/video evidence

- This task must be photographed by the assessor to support the marking and moderation process, as a minimum:
 - collection and assessment of the crop sample: visual assessment, use of meter, probe and weigher.

Question and answer session

- n/a

Resources

- Assignment brief 2.
- Stored combinable crop with insect traps.
- Moisture meter, temperature probe and sampling spear; already set-up ready for use.
- Hectolitre weigher; already set-up ready for use.
- *Field-based combinable crop storage monitoring template (Figure 12)*; typical crop specification provided by the assessor.
- PPE
- Computer for completing template digitally (**no** internet access).
- Camera equipment for the assessor.

Task 5 – Estate maintenance

5a) Maintain a stock-proof boundary

Assessor guidance

- This task must be completed under controlled conditions.
- The assessor must advise the candidate on the location of the installation.
- Strainers must be pre-installed.
- Candidates can assist each other with the post driving and rolling out of the wire during the task. The candidate being observed must direct the actions of their assistant. The first candidate must have assistance from a technician or other member of staff.
- Internet access is **not** permitted for this task.
- The time allocated for this task is **1.5 hours**.
- Ratio of candidates to assessor:
 - up to 4:1 depending on space and availability of equipment

Additional evidence

Assessor observations

- Detailed, accurate and differentiating notes on performance must be captured on the Assessor Observation form:
 - demonstrate safe and efficient use of hand, power and/or mechanical tools appropriate to the task, including pre-use checks
 - post placement: depth, vertical, spacing, in line with marker
 - netting: tensioned, attachment (number and depth of staples)
 - barbed wire: tensioned, attachment (number, position, and depth of staples)
 - disposes of waste appropriately.

Photo/video evidence

- This task must be photographed by the assessor to support the marking and moderation process, as a minimum:
 - photos of the finished boundary: full section, sample of post (vertical), sample of wire attachment (including staple), strainer (how wire has been wound).

Question and answer session

- n/a

Resources

- Assignment brief 2.
- Level area for installing 6 metres of fence per candidate.
- Tools, materials, and equipment for installing a stock-proof boundary, including a hand-operated post driver.
- Stock netting and two strands of barbed wire for a distance of 6 metres per candidate (strainers pre-installed).
- Suitable straining facility eg strainer clamp, additional post for straining against.
- PPE
- Camera equipment for the assessor.

5b) Maintain a hedge

Assessor guidance

- Candidates must carry out the task independently, under controlled conditions.
- The assessor must advise the candidate on the location of the planting and planting requirements (spacing, number of rows).
- Internet access is **not** permitted for this task.
- The time allocated for this task is **2 hours**.
- Ratio of candidates to assessor:
 - up to 4:1 depending on space and availability of equipment

Additional evidence

Assessor observations

- Detailed, accurate and differentiating notes on performance must be captured on the Assessor Observation form:
 - demonstrate safe and efficient use of tools, including pre-use checks
 - planting: spacing, depth, heeled-in, no damage
 - guarding
 - disposes of waste appropriately.

Photo/video evidence

- This task must be photographed by the assessor to support the marking and moderation process, as a minimum:
 - photos of the finished hedge: full hedge (in line), individual guarded plant (depth).

Question and answer session

- n/a

Resources

- Assignment brief 2.
- Prepared area for installing 20 hedging plants (cleared area, ready for planting); this may be gap-filling in an existing hedge or a simulated exercise.
- Tools, materials, and equipment for planting a hedge.
- 20 plants per candidate – species appropriate to the location (selected by assessor).
- Guards appropriate to the plants.
- PPE
- Camera equipment for the assessor.

5c) Maintain a ditch/drain

Assessor guidance

- Candidates must carry out the task independently, under controlled conditions.
- The assessor must advise the candidate on the location of the ditch/drain.
- The ditch and associated drain must require remedial work, such as clearing vegetation or outfall.
- Internet access is **not** permitted for this task.
- The time allocated for this task is **1 hour**.
- Ratio of candidates to assessor:
 - up to 4:1 depending on space and availability of equipment

Additional evidence

Assessor observations

- Detailed, accurate and differentiating notes on performance must be captured on the Assessor Observation form:
 - checking the ditch and drain outfalls:
 - carry out remedial work to ensure free flow of water:
 - correct selection of tools, equipment and machinery
 - correct pre-use checks on tools, equipment and machinery
 - safe and efficient use of tools, equipment and machinery as appropriate to the task
 - disposes of waste appropriately.

Photo/video evidence

- This task must be photographed by the assessor to support the marking and moderation process, as a minimum:
 - photos of 'before' and 'after' the candidate has undertaken the task: whole area.

Question and answer session

- n/a

Resources

- Assignment brief 2.
- Ditch and associated drain which requires remedial work eg vegetation clearance, or de-silting.
- Tools, materials, and equipment as appropriate to the task and site.
- PPE
- Camera equipment for the assessor.

4. Tasks

Task 1 – Field-based crop establishment and assessing a crop for harvest

1a) Assess a field-based crop in preparation for harvest

Candidates must take a representative sample of a forage maize crop, assess it for quality and suitability for harvest, and complete the *Crop assessment in preparation for harvest template (Figure 1)* provided by the assessor:

- Calculate the fresh weight yield of two plants using an appropriate method based on the plant population density provided by the assessor.
- Record the crop condition (including readiness for harvest, evidence of pests, disease etc.), ground conditions, and weather conditions.
- Dispose of waste appropriately.
- Justify whether to harvest the crop.
- Take photos that can be used to support the findings.

Conditions of assessment

- The time allocated for this task is **1.5 hours**.
- Candidates must carry out the task on their own, under **controlled conditions**.
- Internet access is **not** permitted for this task.

Controlled conditions

- Candidates must only work on the task in the allocated times.
- Assessment evidence must be handed in at the end of each session for secure storage.
- Candidates must not share or discuss their work with other candidates.
- Candidates are not permitted to bring any additional materials into the assessment session.

What must be produced for marking

- Completed *Crop assessment in preparation for harvest*
- Photos by the candidate

Additional evidence for this task

- Assessor observation
- Photo evidence by the assessor

1b) Plan a field-based crop

Candidates must plan a field-based crop:

- i) Use an appropriate method to sow 100 seeds to work out the seed viability (first stage of a germination test of the cereal seeds).
- ii) After one week observe the outcome of the germination test.
 - Complete a written report to establish a winter combinable cereal crop with:
 - calculation of the germination percentage
 - calculation of the seed sowing rate based on the germination percentage and 1,000-grain weight of the seed for an autumn sowing; include their working
 - seed bed requirements
 - sowing depth
 - planting density.

Conditions of assessment

- The time allocated for this task is **1.5 hours**:
 - i) 0.5 hours
 - ii) 1 hour.
- Candidates must carry out the task on their own, under **controlled conditions**.
- Internet access is **not** permitted for this task.

Controlled conditions

- Candidates must only work on the task in the allocated times.
- Assessment evidence must be handed in at the end of each session for secure storage.
- Candidates must not share or discuss their work with other candidates.
- Candidates are not permitted to bring any additional materials into the assessment session.

What must be produced for marking

- Report (typically 500 words including calculations)

Additional evidence for this task

- Assessor observation
- Photo evidence by the assessor

1c) Establish a field-based crop

Candidates must establish the winter combinable cereal crop:

- i) Set-up machinery and equipment to establish the winter combinable cereal crop:
 - Attach, carry out pre-use checks and set-up the cultivator.
 - Carry out pre-use checks, set-up and calibrate the drill based on the seed sowing rate from sub task 1b.
 - If a combination drill is to be used, the candidate must attach, carry out pre-use checks, set-up and calibrate the combination drill based on the seed sowing rate from sub task 1b.
 - Answer questions from the assessor during the task.

- ii) Operate machinery and equipment accurately and efficiently to establish the winter combinable cereal crop for 3 passes and 2 turns for both cultivator and drill:
 - Complete a risk assessment for the site, equipment and following tasks using the *Risk assessment template (Figure 2)* provided by the assessor.
 - For separate cultivator and drill:
 - operate the pre-set cultivator in the area of the field as directed by the assessor; the candidate can make adjustments as required
 - operate the pre-set drill in the area of the field as directed by the assessor, the candidate can make adjustments as required.
 - **Or** for a combination drill:
 - operate the pre-set combination drill for three passes and two turns in the area of the field as directed by the assessor, the candidate can make adjustments as required.
 - Safely park the machinery and equipment.
 - Undertake post-use checks to the machinery and equipment.
 - Complete the *Field record template (Figure 3)* provided by the assessor.

Conditions of assessment

- The time allocated for this task is **3 hours**:
 - i) 1.5 hours
 - ii) 1.5 hours.
- Candidates must carry out the task on their own, under **controlled conditions**.
- Candidates must be given a copy of their report from sub task 1b (for reference only).
- Internet access is **not** permitted for this task.

Controlled conditions

- Candidates must only work on the task in the allocated times.
- Assessment evidence must be handed in at the end of each session for secure storage.
- Candidates must not share or discuss their work with other candidates.
- Candidates are not permitted to bring any additional materials into the assessment session.

What must be produced for marking

- Completed *Risk assessment*
- Completed *Field record*

Additional evidence for this task

- Assessor observation
- Photo and video evidence by the assessor
- Responses to questions, including audio recording

Task 2 – Business, crop, and estate planning

2a) Plan production of a container-based crop

Candidates must create a report showing a schedule of activities for one container-based crop of *Osteospermums*, including:

- activities against week numbers for one container-based crop of *Osteospermums* from propagation to point of sale:
 - The crop will be vegetatively propagated within weeks 5–10 of the calendar year.
 - The crop must be available for sale in 10.5cm pots between weeks 19 and 25.
 - They should plan to have 5,000 10.5cm pots ready for sale.
 - Approximate timing of activities shown in a spreadsheet/Gantt chart.
- resources required, including labour, materials, equipment, and growing space (no costing is required)
- explanation of why the activities are being carried out and their timing
- explanation of the temperature and light conditions required for the crop growth to meet the schedule
- justification of how the activities consider sustainability and environmental issues.

Conditions of assessment

- The time allocated for this task is **3 hours**.
- Candidates must carry out the task on their own, under **controlled conditions**.
- Internet access is **not** permitted for this task.

Controlled conditions

- Candidates must only work on the task in the allocated times.
- Assessment evidence must be handed in at the end of each session for secure storage.
- Candidates must not share or discuss their work with other candidates.
- Candidates are not permitted to bring any additional materials into the assessment session.

What must be produced for marking

- Report (typically 500–1,000 words, plus the spreadsheet/Gantt chart)

Additional evidence for this task

- n/a

2b) Plan the harvest of a field-based crop

Candidates must plan the harvesting of the 60 hectares of winter oilseed rape with uneven ripening:

- Produce a sequenced timeline of the steps to be taken from 1 month pre-harvest through to storage of the harvested crop, including:
 - prioritised steps within the crop rotation, with reasons
 - estimated total number of hours to complete each of the steps
 - equipment required for preparation and harvesting.

The timeline can be in the format of the candidate's choice.

No costings are required for this task.

Conditions of assessment

- The time allocated for this task is **1 hour**.
- Candidates must carry out the task on their own, under **controlled conditions**.
- Internet access is **not** permitted for this task.

Controlled conditions

- Candidates must only work on the task in the allocated times.
- Assessment evidence must be handed in at the end of each session for secure storage.
- Candidates must not share or discuss their work with other candidates.
- Candidates are not permitted to bring any additional materials into the assessment session.

What must be produced for marking

- A sequenced timeline

Additional evidence for this task

- n/a

2c) Cost the harvest of a field-based crop

Candidates must report on the cost of harvesting the 60-hectare block of winter barley, including weighing, sampling, tipping, and recording of each load:

- Calculate and report on the most cost-effective approach to the harvest, stating:
 - the number of tractors required with justifications
 - the number of trailers required with justifications
 - the cost per hectare showing their workings
 - the cost per tonne showing their workings.

Candidates do not need to consider availability of staff or machinery.

The farm owns and operates one combine harvester which has a six-metre cut and 20 tonne-per-hour average output when harvesting winter barley with an average yield of eight tonnes per hectare.

Refer to Assignment brief 2 for additional information about the *layout of the estate (Figure 4)*. *John Nix Pocketbook for Farm Management* data may be used for reference.

Conditions of assessment

- The time allocated for this task is **2 hours**.
- Candidates must carry out the task on their own, under **controlled conditions**.
- *John Nix Pocketbook for Farm Management* data may be used for reference.
- Internet access is **not** permitted for this task.

Controlled conditions

- Candidates must only work on the task in the allocated times.
- Assessment evidence must be handed in at the end of each session for secure storage.
- Candidates must not share or discuss their work with other candidates.
- Candidates are not permitted to bring any additional materials into the assessment session.

What must be produced for marking

- Report showing their calculations of costings (typically 1,000 words including calculations)

Additional evidence for this task

- n/a

2d) Business review

Candidates must calculate the gross margin and recommend changes which can be made in future to improve the gross margin:

i) Use the *Field-based crop gross margin template (Figure 6)* provided by the assessor and *Figure 4* in the brief to calculate the gross margin for each of the following crops grown in 60-hectare blocks:

- winter wheat
- spring barley
- winter barley
- winter oilseed rape.

ii) Produce a report:

- Compare their gross margin data with the benchmark data provided in *Figure 4* of the brief and explain why the gross margin differs to the benchmark data.
- Recommend and justify changes which can be made in future to improve the gross margin of the arable enterprise.

Conditions of assessment

- The time allocated for this task is **2 hours**.
- Candidates must carry out the task on their own, under **controlled conditions**.
- Internet access is **not** permitted for this task.

Controlled conditions

- Candidates must only work on the task in the allocated times.
- Assessment evidence must be handed in at the end of each session for secure storage.
- Candidates must not share or discuss their work with other candidates.
- Candidates are not permitted to bring any additional materials into the assessment session.

What must be produced for marking

- Completed *Field-based crop gross margin* for each crop using the template provided
- Report recommending and justifying changes (typically 1,000 words)

Additional evidence for this task

- n/a

2e) Plan a permanent stock-proof boundary

Candidates must produce a written report to plan the maintenance of a permanent stock-proof boundary to keep sheep out, which must include:

- a justified plan for and costing of the materials for a replacement 200 metre length of fence using the *Estate materials list (Figure 5)* of the brief. Labour does not need to be costed. To be installed on a level site with a 90° turn after 50 metres.
- a labelled side elevation diagram of the proposed maintenance. This can be handwritten or digital. It does not need to be to scale.
- the environmental considerations, legislation and codes of practice which are relevant to the task, including disposal of waste materials.

Conditions of assessment

- The time allocated for this task is **1.5 hours**.
- Candidates must carry out the task on their own, under **controlled conditions**.
- Internet access is **not** permitted for this task.

Controlled conditions

- Candidates must only work on the task in the allocated times.
- Assessment evidence must be handed in at the end of each session for secure storage.
- Candidates must not share or discuss their work with other candidates.
- Candidates are not permitted to bring any additional materials into the assessment session.

What must be produced for marking

- Report on the maintenance plan (typically 500 words, plus diagram)

Additional evidence for this task

- n/a

Task 3 – Produce container-based crops

3a) Establish indoor container-based crops

Candidates must establish two crops: plain cress from seed and *Osteospermum* from cuttings:

- Select and prepare:
 - resources
 - the site required to ensure successful establishment.
- Undertake propagation accurately and efficiently:
 - Complete a risk assessment for the vegetative propagation process using the *Risk assessment template (Figure 2)* provided by the assessor.
 - Broadcast sow plain cress seeds by hand at the specified rate into six standard cress punnets/trays.
 - Collect, trim and insert 30 soft-stem cuttings of *Osteospermum*.
 - Place both crops into the propagation environment.
 - Undertake immediate post-propagation maintenance.
- Dispose of waste appropriately.
- Answer questions from the assessor during the task.
- Complete the *Container-based crop propagation record template (Figure 7)* provided by the assessor.

Conditions of assessment

- The time allocated for this task is **2 hours**.
- Candidates must carry out the task on their own, under **controlled conditions**.
- Internet access is **not** permitted for this task.

Controlled conditions

- Candidates must only work on the task in the allocated times.
- Assessment evidence must be handed in at the end of each session for secure storage.
- Candidates must not share or discuss their work with other candidates.
- Candidates are not permitted to bring any additional materials into the assessment session.

What must be produced for marking

- *Risk assessment* for the vegetative propagation
- Completed *Container-based crop propagation record*

Additional evidence for this task

- Assessor observation.
- Photo evidence by the assessor.
- Responses to questions, including audio recording.

3b) Manage container-based crop performance

Candidates must monitor and care for a container-based crop:

i) Monitor and care for an established *Osteospermum* container-based crop over two 4-week periods to ensure that the crop is ready for sale in weeks 19–25, which must include:

- monitoring of growth and development to schedule
- transplanting (potting up)
- liquid feeding
- weed, pest, disease and disorder identification for those present within the cropping environment
- irrigation
- pinching out, if required
- dispose of waste appropriately
- answering questions from the assessor during the task.

ii) Complete a diary covering the two 4-week periods using the *Container-based crop diary template (Figure 8)* provided by the assessor, which must include:

- their monitoring activity and findings
- the crop requirements monitored
- considerations, decisions, and recommendations, including justifications, about care of the crop to ensure quality and yield
- identification of weeds, pests, diseases, disorders and, if required, the need for pesticide application and/or use of biological controls
- supporting photo evidence of the monitoring and maintenance, for review by the assessor. The photos should be of pests, diseases, growth of cuttings at regular intervals, crop condition etc. and can be submitted digitally.

Conditions of assessment

- The time allocated for this task is **16 hours**:
 - **2 hours** per week over two 4-week periods.
- Candidates must carry out the task on their own, under **controlled conditions**.
- Candidates must be given a copy of their diary and photos from previous visits (for reference only).
- Internet access is **not** permitted for this task.

Controlled conditions

- Candidates must only work on the task in the allocated times.
- Assessment evidence must be handed in at the end of each session for secure storage.
- Candidates must not share or discuss their work with other candidates.
- Candidates are not permitted to bring any additional materials into the assessment session.

What must be produced for marking

- Completed *Container-based crop diary*, with candidate's photos

Additional evidence for this task

- Assessor observation
- Photo evidence by the assessor
- Responses to questions, including audio recording

3c) Collect and prepare a container-based crop for sale

Candidates must collect and efficiently prepare ten 10.5cm pots of *Osteospermum* for sale in the estate farm shop as required by the *Container-based crop collection order sheet template (Figure 9)* provided by the assessor:

- Select and prepare appropriate resources for the task.
- Dispose of waste appropriately.
- Complete the *Container-based crop collection order sheet template (Figure 9)*.

Conditions of assessment

- The time allocated for this task is **1 hour**.
- Candidates must carry out the task on their own, under **controlled conditions**.
- Internet access is **not** permitted for this task.

Controlled conditions

- Candidates must only work on the task in the allocated times.
- Assessment evidence must be handed in at the end of each session for secure storage.
- Candidates must not share or discuss their work with other candidates.
- Candidates are not permitted to bring any additional materials into the assessment session.

What must be produced for marking

- Completed *Container-based crop collection order sheet*

Additional evidence for this task

- Assessor observation
- Photo evidence by the assessor

Task 4 – Produce field-based crops

4a) Manage field-based crop performance

Candidates must monitor the growth of a field-based crop during three visits and produce a report. The location and time periods for the visits will be chosen by the assessor.

i) Carry out the visits, making observations and taking notes on the following:

- soil type, soil condition and structure, weather conditions
- assess crop emergence
- calculate the establishment percentage
- assess root establishment
- identify and quantify weeds, pests, diseases, and disorders
- methods used during observation.

Supporting photo evidence to be submitted with the report. The photos should be of weeds, pests, diseases, and disorders, growth stage at each visit, and general crop condition.

The notes are submitted at the end of each session and returned at the start of the next session. The candidate can refer to them when writing the report in ii).

ii) Produce the written report, including:

- their findings from the monitoring activity, including methods used
- evaluations of their findings
- a fertiliser plan for the crop which must include nitrogen with justifications. Assessor to provide details of the previous crop and expected yield for analysis as part of the fertiliser plan. Include the impact of environmental legislation and codes of practice on the plan.
- making recommendations for Integrated Pest Management (IPM) techniques and timings that may be required to ensure quality and yield.

Conditions of assessment

- The time allocated for this task is **4.5 hours**:
 - i) 3 hours
 - ii) 1.5 hours.
- Candidates must carry out the task on their own, under **controlled conditions**.
- Candidates must be given a copy of their notes from previous visits (for reference only).
- Internet access is **not** permitted for this task.

Controlled conditions

- Candidates must only work on the task in the allocated times.
- Assessment evidence must be handed in at the end of each session for secure storage.
- Candidates must not share or discuss their work with other candidates.
- Candidates are not permitted to bring any additional materials into the assessment session.

What must be produced for marking

- Report (typically 1,000 words, plus candidate's photos)

Additional evidence for this task

- Assessor observation

4b) Apply nutrients to a field-based crop

Candidates must safely and accurately apply nutrients to a growing crop:

- i) Prepare for application of nutrients to the growing crop:
 - Assess the safety, suitability and cleanliness of the provided machinery and equipment.
 - Answer questions from the assessor during the task.
- ii) Apply nutrients in the field selected by the assessor for 3 bouts and 2 turns, and:
 - safely park the machinery and equipment after the nutrient application
 - complete the *Field record (inorganic/organic fertiliser applications) template (Figure 10)* to meet legislative requirements; template provided by the assessor
 - answer questions from the assessor during the task.

Conditions of assessment

- The time allocated for this task is **2 hours**:
 - i) 1 hour
 - ii) 1 hour.
- Candidates must carry out the task on their own, under **controlled conditions**.
- Internet access is **not** permitted for this task.

Controlled conditions

- Candidates must only work on the task in the allocated times.
- Assessment evidence must be handed in at the end of each session for secure storage.
- Candidates must not share or discuss their work with other candidates.
- Candidates are not permitted to bring any additional materials into the assessment session.

What must be produced for marking

- Completed *Field record (inorganic/organic fertiliser applications)*

Additional evidence for this task

- Assessor observation
- Video evidence by the assessor
- Responses to questions, including audio recording

4c) Harvest a field-based crop

Candidates must harvest and store a grass silage crop in the area directed by the assessor:

- i) Prepare a tractor and trailer to harvest a grass silage crop and deliver to store:
 - Assess the safety and suitability of the tractor and trailer for the task.
 - Ensure the equipment is clean.
 - Attach and set-up the tractor and trailer according to manufacturer's recommendations.
 - Answer questions from the assessor during the task.

- ii) Operate the tractor and trailer to harvest and store one full load of a grass silage crop:
 - Safely and efficiently operate tractor and trailer to offload the crop from the harvester.
 - Safely and legally transport the crop to a specified location.
 - Safely offload the crop at the store.
 - Safely park the machinery and equipment.
 - Apply precise and controlled movements of equipment to show physical dexterity.
 - Monitor quality of their work to meet objectives.
 - Complete the *Field-based crop harvest record template (Figure 11)* provided by the assessor with estimated load weight.

Conditions of assessment

- The time allocated for this task is **1.5 hours**:
 - i) 0.5 hours
 - ii) 1 hour.
- Candidates must carry out the task on their own, under **controlled conditions**.
- Internet access is **not** permitted for this task.

Controlled conditions

- Candidates must only work on the task in the allocated times.
- Assessment evidence must be handed in at the end of each session for secure storage.
- Candidates must not share or discuss their work with other candidates.
- Candidates are not permitted to bring any additional materials into the assessment session.

What must be produced for marking

- Completed *Field-based crop harvest record*

Additional evidence for this task

- Assessor observation
- Video evidence by the assessor
- Responses to questions, including audio recording

4d) Assess a stored field-based combinable crop

Candidates must assess a stored combinable crop for quality:

- Collect and visually assess samples of a harvested combinable crop for quality.
- Determine the causes, and acceptable levels, of any damage or contamination.
- Use appropriate equipment and methods to determine the moisture content, temperature, and specific weight of representative samples throughout the store of the crop post-harvest.
- Dispose of waste appropriately.
- Analyse their findings compared with typical crop specification provided.
- Record their findings, comments, and recommendations for further actions on the *Field-based combinable crop storage monitoring template (Figure 12)* provided by the assessor.

Conditions of assessment

- The time allocated for this task is **1 hour**.
- Candidates must carry out the task on their own, under **controlled conditions**.
- Internet access is **not** permitted for this task.

Controlled conditions

- Candidates must only work on the task in the allocated times.
- Assessment evidence must be handed in at the end of each session for secure storage.
- Candidates must not share or discuss their work with other candidates.
- Candidates are not permitted to bring any additional materials into the assessment session.

What must be produced for marking

- Completed *Field-based combinable crop storage monitoring*

Additional evidence for this task

- Assessor observation
- Photo evidence by the assessor

Task 5 – Estate maintenance

5a) Maintain a stock-proof boundary

Candidates must safely undertake the installation of a 6 metre section of stock-proof fence with stock netting and two strands of barbed wire above the stock netting.

Candidates must check the tools and equipment prior to use and dispose of waste appropriately after completing the task.

Candidate can assist each other with the post driving and rolling out of the wire during the task. The candidate being observed must direct their assistant.

Conditions of assessment

- The time allocated for this task is **1.5 hours**.
- Candidates must carry out the task, under **controlled conditions**.
- Internet access is **not** permitted for this task.

Controlled conditions

- Candidates must only work on the task in the allocated times.
- Candidates are not permitted to bring any additional materials into the assessment session.

What must be produced for marking

- n/a

Additional evidence for this task

- Assessor observation
- Photo evidence by the assessor

5b) Maintain a hedge

Candidates must safely plant a length of hedge with 20 plants which are guarded. Spacing must be appropriate to the species and local setting and planting requirements (as advised by the assessor).

Candidates must check the tools and equipment prior to use and dispose of waste appropriately after completing the task.

Note: This task may be gap-filling in an existing hedge or a simulated exercise.

Conditions of assessment

- The time allocated for this task is **2 hours**.
- Candidates must carry out the task on their own, under **controlled conditions**.
- Internet access is **not** permitted for this task.

Controlled conditions

- Candidates must only work on the task in the allocated times.
- Candidates must not share or discuss their work with other candidates.
- Candidates are not permitted to bring any additional materials into the assessment session.

What must be produced for marking

- n/a

Additional evidence for this task

- Assessor observation
- Photo evidence by the assessor

5c) Maintain a ditch/drain

Candidates must safely maintain a ditch/drain specified by the assessor:

- Check a ditch and drain outfalls to ensure free flow of water.
- Safely carry out remedial work using appropriate tools and equipment.

Candidates must check the tools and equipment prior to use and dispose of waste appropriately after completing the maintenance.

Conditions of assessment

- The time allocated for this task is **1 hour**.
- Candidates must carry out the task on their own, under **controlled conditions**.
- Internet access is **not** permitted for this task.

Controlled conditions

- Candidates must only work on the task in the allocated times.
- Candidates must not share or discuss their work with other candidates.
- Candidates are not permitted to bring any additional materials into the assessment session.

What must be produced for marking

- n/a

Additional evidence for this task

- Assessor observation
- Photo evidence by the assessor

5. Centre guidance

Guidance provided in this document supports the administration of this assessment.

The following documents, available on the City & Guilds website, provide essential generic guidance for centres delivering T Level technical qualifications and **must** be referred to alongside this guidance:

- *T level technical qualifications – marking*
- *T level technical qualifications – moderation (updated annually)*
- *T level technical qualifications – teaching, learning and assessment.*

This assessment is designed to require the candidate to make use of their core knowledge, understanding and the practical skills they have built up over the course of their learning to tackle tasks/problems/challenges.

This approach to assessment emphasises to candidates the importance and applicability of the full range of their learning to practice in their industry area and supports them in learning to take responsibility for transferring their knowledge, understanding and skills to the practical situation, fostering independence, autonomy and confidence.

Candidates are provided with an assignment brief. They then have to draw on their knowledge and skills and independently select the correct processes, tools, equipment, materials and approaches to take, to complete the brief.

During the learning programme, it is expected that tutors will have taken the opportunity to set shorter, formative tasks that allow candidates to be supported to independently use the learning they have so far covered, drawing this together in a similar way, so they are familiar with the format, conditions and expectations of the assessment.

Candidates should be made aware during learning what the assessment themes are and how they are implemented in marking the assignment, so they will understand the level of performance that will achieve them high marks.

Candidates should not be entered for the assessment until the end of the course of learning for the qualification, so they are in a position to complete the assignment successfully.

Health and safety

Candidates must not be entered for assessment without being clear of the importance of working safely and having attended sufficient practical training to be able to work safely. The assessor must immediately stop an assessment if a candidate works unsafely. At the discretion of the assessor, depending on the severity of the incident, the candidate may be given a warning. If they continue to work unsafely, risking the safety of themselves or others, their assessment must be ended for that specific task. Candidates are permitted to progress to the other tasks/sub tasks in the assessment. The candidates will only be awarded marks based on the evidence they produced within the task and any subsequent tasks which link to the assessment theme. If a candidate does not gain enough marks from other tasks then the candidate will have the opportunity to retake another version of the Occupational Specialism (OS) assessment in a future series. Any warnings issued to a candidate must be considered as part of the marking process and recorded on the candidate record form (CRF). Any actions that have led to that warning must be detailed on the CRF so they can be considered along with the other evidence when applying the descriptors in the mark scheme.

Compliance with timings

Due to the nature of this assessment, the maximum time allowances provided must be adhered to. They refer directly to assessment time, not any additional setting up times the centre needs to create an appropriate assessment environment.

It is the centre's responsibility to plan sufficient assessment sessions as stated in each of the tasks, under the appropriate conditions, within the assignment window, to allow candidates the opportunity to complete the assessment tasks.

Where candidates are required to plan their work, they should have their plans confirmed for appropriateness in relation to the time allocated for each task, to ensure their planning has not left them with too short a time to complete the tasks safely. Any planning that is not appropriate must be recorded on the candidate record form (CRF) as part of the marking process.

Candidates should be allowed sufficient time to fully demonstrate the range of their skills, however this also needs to be reasonable and practicable. Candidates should be allowed to overrun their own planned timings in order for evidence of a range of their skills to be captured. If, however, the time required exceeds the maximum time allowance for the task, the centre must stop the assessment and base the marking on the evidence up to that point.

Any guidance or feedback relating to timings/planning should follow the guidance provided in the section *Guidance and feedback* below.

Word counts

Typical word counts, where indicated, are to be used as approximates for guidance to support the production of sufficient evidence. The marking will relate to the quality of the evidence produced and not whether the word count has been met.

Assessor candidate ratios

The number of candidates an assessor will be able to observe at one time will vary depending on local conditions relating to:

- monitoring and maintaining safety during assessment
 - any specific hazards related to the task that pose a risk of harm in relation to the competence of the learners
 - availability of supervisory staff to support the assessor.
- the practicalities of collecting evidence
 - the complexity of evidence collection for the task
 - whether there are any peak times where there is a lot of evidence to collect that will need additional support or any that are quieter which may be eased through staggered starts etc.
 - local conditions eg
 - layout of the assessment environment and sufficient assessor line of sight to task activity throughout the assessment period
 - amount of additional support available (eg to capture image/video evidence)
 - availability of suitable workspaces/bays or of shared resources and equipment.

Centres are advised to trial the planned arrangements during formative assessment, reviewing the quality of evidence captured and manageability. It is expected that for straight forward observations, with favourable local conditions and support, (and unless otherwise specified) no more than six candidates will be observed by a single assessor at one time, and the number will usually be fewer than this maximum. The key factors to consider are the logistics of collecting sufficient evidence and remain working safely in the assessment environment. A timetable of assessments and layout of the workspaces, detailing:

- the candidates being assessed at each workstation,
- the assessor(s) and
- support staff present

must be available for the moderator on request.

Observation evidence

Observation notes form part of the candidate's evidence and must capture evidence of candidate performance during the practical tasks describing how well the activity has been carried out, rather than stating the steps/actions, the candidate has taken. The notes must be very descriptive and focus on the quality of the performance in relation to the quality indicators in the marking grid. They must provide sufficient, appropriate evidence that can be used by the assessor (and moderator) to mark the performance using the marking grid. These descriptions will be used, along with eg photo and video evidence to choose the relevant marking band and mark within the band so that candidates can be reliably and validly differentiated based on their performance. Evidence captured in the observation form must give the necessary information to enable the final assessment of the task at a later date. This is to allow a holistic judgement to be carried out after all evidence for the task is available, at which point full consideration of how the candidate has applied both their skills and their knowledge during the practical can be given.

Identifying what it is about the performances that is different between candidates can clarify the qualities that are important to record. Each candidate is likely to carry out the same steps, so a checklist of this information would not help differentiate between them. However, qualitative comments on how well they do it, and quantitative records of accuracy and tolerances would.

The assessor should refer to the marking grid to ensure appropriate aspects of performance are recorded. These notes will be used for marking and moderation purposes and so must be detailed, accurate and differentiating.

Assessors should refer to *The T Level technical qualifications guides on marking and moderation* and the *Guide Standard Exemplification Materials* to support with the collection of evidence through observation.

Assessors should ensure that any required additional supporting evidence including eg photos or video can be easily matched to the correct candidate, are clear, well-lit and show the areas of particular interest in sufficient detail and clarity for assessment (ie taken at appropriate points in production, showing accuracy of measurements where appropriate).

Assessor marking and justification is completed on a separate form (CRF) to differentiate this evidence from the judgement, since in some cases the observation form will provide evidence relating to the judgement for more than one assessment theme.

As far as possible candidates must not be distracted, or their performance affected by the process of observation and evidence collection.

The T Level technical qualifications guides on marking and moderation are essential guidance documents and are available on the City & Guilds website. These provide further information on preparing for assessment, evidence gathering, standardisation, marking and moderation, and must be referred to when planning and carrying out assessment.

Video and photo evidence in T Level Technical qualifications

The assessment materials for each assignment identify the minimum candidate and assessor evidence requirements to support marking and moderation. Where ephemeral evidence (eg areas of candidate performance that may be hard to capture with photos and assessor notes alone) plays a significant part of the practical assessment, City & Guilds will prescribe the type/capture where the use of video is necessary for practical assessment components (eg specifying exactly which elements of the practical must be videoed, or photographed), and any technical specifications for these forms of evidence (eg length of videos, maximum file sizes etc) will also be supplied. Photo and video evidence will be submitted along with the written candidate evidence and assessor evidence (AO forms) as described in the additional evidence section of the task.

If this is the case then the video evidence must meet these minimum requirements, in order to be considered by moderators:

- as per the guidance in section 2.3.2 of the *Marking and Moderation Guide for Centres*, assessors must ensure that this evidence can be easily matched to the correct candidate and task, is clearly shot, well-lit and shows the areas of particular interest in sufficient detail and clarity for assessment (ie filmed at appropriate points in production, showing accuracy of measurements where appropriate)
- the qualitative written evidence provided by assessors must
 - clearly identify the parts of the video that are being referred to, when used as supporting evidence. Using a timecode for this is recommended.
 - include their judgement on the performance being demonstrated
- Section 6.5 of the *Centre Manual* also contains general information about the requirements for video evidence submission.

Please note that centres must ensure that video evidence is clear and meets the minimum requirements. The ability of the moderators to take this evidence into account may be impaired and delay the moderation process if the requirements are not met.

Minimum evidence requirements for marking and moderation

The sections in the assignment:

- ***What must be produced for marking***, and
- ***Additional evidence for this task***

These list the minimum requirements of evidence to be submitted for marking and the moderation sample.

Evidence produced during assessment above and beyond this may be submitted, as long as it provides useful information for marking and moderation and has been produced under appropriate conditions.

While technological methods which support the capturing or creating of evidence can be helpful, eg pin board style websites for creating mood boards, the final evidence must be converted to a suitable format for marking and moderation which cannot be lost/deleted or amended after the end of the assessment period (eg screen prints, pdf files). Considerations around tracking authenticity

and potential loss of material hosted on such platforms during assessment is the centre's responsibility.

Note: Combining candidates' individual pieces of evidence into single files or zip files may make evidence management during internal marking more efficient and will greatly simplify the uploading of the moderation sample.

Where the minimum requirements have not been submitted for the moderation sample by the final moderation deadline, or the quality of evidence is insufficient to make a judgement, the moderation, and therefore any subsequent adjustment, will be based on the evidence that has been submitted. Where this is insufficient to provide a mark on moderation, a mark of zero must be given.

File names for evidence

All electronic files submitted must be given a clear file name to support the moderation process, that allows the candidate work to be identified.

Evidence must have a file name that clearly indicates the content of the document including: City & Guilds enrolment number/candidate name/qualification number/task/type of evidence.

We strongly recommend the following file name convention style:

- XYZ1234_Firstname_Surname_0123-012_Task_1a_Assessor_observation_form
- XYZ1234_Firstname_Surname_0123-012_Task_1b_Written_report

Centres must include the candidate's name and enrolment number in the filename as above. This helps the moderator reconcile the evidence.

File names should be consistent throughout the cohort, with each candidate's evidence using the same file naming convention.

Preparation of candidates

Candidates should be aware of which aspects of their performance will give them good marks in assessment. This is best carried out through routinely pointing out good or poor performance during the learning period, and through formative assessment. Although candidates will not have access to the marking grids during the assessment, candidates should be made aware of what they need to do to achieve a pass or distinction by referring to and being formatively assessed against grade descriptors as part of their formal learning programme.

During the learning programme, direct tutor instruction in how to approach tasks through modelling, support, guidance and feedback are critical. However, gradual removal of this support is necessary in preparation for summative assessment. This supported approach is not valid for summative assessment.

The purpose of summative assessment is to confirm the standard the candidate has reached as a result of participating in the learning process. Candidates should be encouraged to do the best they can and be made aware of the difference between these summative assessments and any formative assessments they have been subject to. Candidates will not have access to the marking grids. Refer to the *T Level Technical qualifications – teaching, learning and assessment* centre guidance document, available on the City & Guilds website for further information on preparing candidates for Technical qualification assessment.

Guidance on assessment conditions

The assessment conditions that are in place for this assignment are to:

- ensure the rigour of the assessment process
- provide fairness for candidates
- give confidence in the outcome.

They can be thought of as the rules that ensure that all candidates who take an assessment are being treated fairly, equally and in a manner that ensures their result reflects their true ability.

Conditions outlined within the tasks in this assignment do not affect any formative assessment work that takes place, although it is advised that candidates are prepared for the conditions they will need to work under during summative assessment.

The evidence for the tasks that make up this assignment must be completed under the specified conditions. This is to ensure authenticity and prevent malpractice as well as to assess and record candidate performance for assessment in the practical tasks. It is the centre's responsibility to ensure that local administration and oversight gives the assessor sufficient confidence to be able to confirm the authenticity of the candidate's work.

Security and authentication of candidate work

Candidate evidence must be kept secure to prevent unsupervised access by the candidate or others. Where evidence is produced over a number of sessions, the assessor must ensure learners and others cannot access the evidence without supervision. This might include storing written work or artefacts in locked cupboards and collecting memory sticks of evidence produced electronically at the end of each session.

Candidates are required to sign declarations of authenticity, as is the assessor. The relevant form is included in this assignment pack and must be signed after the production of all evidence.

Where the candidate or assessor is unable to or does not confirm authenticity through signing the declaration form, the work will not be accepted at moderation and a mark of zero will be given. If any question of authenticity arises eg at moderation, the centre may be contacted for justification of authentication.

Accessibility and fairness

Where a candidate has special requirements, assessors should refer to the *Access arrangements and reasonable adjustments* section of the City & Guilds website.

Assessors can support access where necessary by providing clarification to any candidate on the requirements or timings of any aspect of this assignment. Assessors should not provide more guidance than the candidate needs as this may impact on the candidate's grade, see the guidance and feedback section below.

All candidates must be provided with an environment, time frame and resources that allows them reasonable access to the full range of marks available.

Where candidates have worked in groups to complete one or more tasks for this assessment, the assessor must ensure that no candidate is disadvantaged as a result of the performance of any other team member. If a team member is distracting or preventing another team member from fully demonstrating their skills or knowledge, the assessor must intervene.

Guidance and feedback

Guidance must only support access to the assignment brief and must not provide feedback for improvement. The level and frequency of clarification and guidance must be

- recorded fully on the candidate record form (CRF)
- taken into account along with the candidate's final evidence during marking
- made available for moderation.

Assessors must not provide feedback on the quality of the performance or how the quality of evidence can be improved. This would be classed as malpractice. However, this does not apply if the assessor asks questions as part of the assessment process. Such requirements will be specifically stated within task centre guidance.

Assessors should however provide general reminders to candidates throughout the assessment period to check their work thoroughly before submitting it, and to be sure that they are happy with their final evidence as it may not be worked on further after submission.

Candidates can rework any evidence that has been produced for each task during the time allowed.

Assessors should check and be aware of the candidates' plans to ensure management of time and resources is appropriate, and so any allowed intervention can take place at an appropriate time.

The information on the guidance given and captured on the CRF is part of the evidence that must be taken into account along with the other evidence for the task when marking. It is up to the assessor to decide if the guidance the candidate has required suggests they are lacking in any performance outcome and consider the severity of the issue when applying the marking criteria. The assessor must record where and how guidance has had an impact on the marks given, so this is available should queries arise at moderation or appeal.

What is, and is not, an appropriate level of guidance

- The assessor should intervene with caution if a candidate has taken a course of action that will result in them not being able to submit the full range of evidence for assessment. However, this should only take place once the assessor has prompted the candidate to check that they have covered all the requirements. Where the assessor has to be explicit as to what the issue is, this is likely to demonstrate a lack of understanding on the part of the candidate rather than a simple error, and full details should be recorded on the CRF.
- The assessor should not provide guidance if the candidate is thought to be able to correct the issue without it, and a prompt would suffice. In other words, only the minimum support the candidate actually needs should be given, since the more assessor guidance provided, the less of the candidate's own performance is being demonstrated and therefore the larger the impact on the marks awarded.
- The assessor must not provide guidance that the candidate's work is not at the required standard or how to improve their work. In this way, candidates are given the chance to identify and correct any errors on their own, providing valid evidence of knowledge and skills that will be credited during marking.
- The assessor must not produce any templates, pro-formas, work logs etc. If templates are provided by City & Guilds as part of the assignment, these should not be adapted but can be provided to candidates either electronically or on paper. Compliance with this requirement will be checked at moderation.

All specific prompts and details of the nature of any further guidance must be recorded on the relevant form and reviewed during marking and moderation.

6. Marking

Guidance on marking

Please refer to the *T Level Technical qualifications – marking and moderation* centre guidance documents for further information on gathering evidence suitable for marking and moderation, and on using the marking grid and forms.

The Candidate Record Form (CRF) is used to record:

- details of any guidance or the level of prompting the candidate has received during the assessment period
- rough notes bringing together relevant evidence from across tasks during marking
- summary justifications when holistically coming to an overall judgement of the mark for each assessment objective and overall
- if an assessment has to be stopped on the grounds of Health and Safety or if a candidate has been working in an unsafe manner.

The Assessor Observation form is used to record:

- descriptive information and evidence of candidate performance during an observation.

Carrying out marking using assessment themes

The process of marking each assessment theme is iterative and should follow the process below which will become more embedded over time as the descriptors become familiar. It is recommended to refer back to these frequently however, so the standard does not unintentionally drift over the marking period.

The indicative content gives an indication of the expected content parameters the responses are likely to cover, and which aspects of the evidence are relevant. It is not exhaustive, and an acceptable answer may concentrate more on depth rather than fully cover the range indicated or deviate into relevant topics not listed.

The specific task evidence listed within the assessor guide and marking grid must be used to make a judgement on performance in relation the specific assessment theme.

The assessment tasks guide the production of valid evidence under appropriate conditions for assessment. Candidate evidence from a range of tasks may contribute to the marking of a single assessment theme, or from a single task to more than one assessment theme. In this case different aspects of the evidence are being considered for each theme and need to be judged against the marking descriptors specified in the assessment themes independently of each other.

In some cases, the quality indicators looked for in the judgement may naturally be more strongly evidenced in one piece of evidence than another. For instance, more formulaic/prescriptive forms of evidence may not be able to generate evidence of higher levels of performance, so this evidence would need to be looked for in the other forms of evidence. This means that where a range of evidence is to be assessed, it should be treated as a single package of evidence for the purposes of marking even if generated through different tasks.

Timing of marking

As some assessment themes require the triangulation of a number of pieces of evidence, marking cannot take place until after all of these are available. This does not however mean that all marking

needs to take place after all candidates have completed the whole assessment. Assessors can start marking against an assessment theme once all contributing evidence has been collected for that assessment theme.

Also, it is possible to begin recording the notes that will justify the marking for some assessment themes as evidence is produced, with the final mark only being decided once the complete array of evidence is available. This is particularly the case if later evidence is more confirmatory, and the earlier evidence is sufficiently informative for the qualities being assessed to make this a useful exercise.

Through planning, it should be possible to identify any evidence that can start being reviewed earlier, and the assessment themes which could be scheduled for earlier completion of marking eg while observation evidence is fresh in the mind should this be helpful. Care must of course be taken to ensure any evidence required by candidates to progress with another task are available for that task to take place. In addition, a sense check must take place across marking for each assessment theme, and across assessors, at the end to ensure marking has not drifted during the period. This may take the form of comparing candidate work to check that the ranking of quality of evidence matches the ranking of marks – where there are discrepancies marking should be checked for accuracy. These checks should be the responsibility of the Internal Quality Assurer and undertaken as part of the centre's Internal Quality Assurance strategy.

Process for each assessment theme:

- Select the range of evidence relevant for making the judgement – this is indicated in the mark scheme for each assessment theme.
- Scan/read the candidate evidence, any notes on the CRF eg regarding level of support/guidance recorded, evidence captured by the assessor and the indicative content and band descriptors in the mark scheme.
 - Note: for any warnings given during the assessment, the actions that have led to that warning must be detailed on the CRF so they can be considered along with the other evidence when applying the descriptors in the mark scheme.
 - Note: the evidence contained on the CRF must be considered and a judgement made on the level of performance the candidate has independently demonstrated – this will vary depending on the level of support detailed on the CRF – ie consider all relevant evidence and then judge the appropriate mark following the process below.
- Make an initial assessment of the required evidence as a whole (acknowledging uneven performance across evidence), considering each band in turn and considering the level of performance described in the context of the knowledge and skills in the indicative content to make a balanced judgement of the best band to use as a starting point.
- Read the evidence and review it against the band descriptor in more detail,
 - deciding if the response is securely sitting within the band, ie all quality characteristics described by the band descriptor are seen, and strongly meets the level of performance described by the descriptor holistically (ie across the range of relevant evidence):
 - check the descriptor for the level above
 - if the evidence clearly shows some of the characteristics of the higher band, select a suitable mark at the bottom of that band
 - if *not* showing characteristics of the higher band revert to the original band, select a mark at the higher end of that mark range.
 - If the response is not securely in the band, but *is partially* showing the characteristics of the band,
 - check the descriptor of the level below

- decide on a suitable mark either at the bottom of the original band as some characteristics shown, or top of the lower band if it better describes the quality of the characteristics being shown.
 - If the response is largely meeting the band, with only a few concerns, and is not showing characteristics aligning with the higher or lower bands, the appropriate mark is likely to be in the middle range.
 - If there is no alignment with the descriptor, reassess the starting band, and begin again.
- Based on the level of alignment with the descriptor, confirm the final mark within the band, bearing in mind that the available marks form an *evenly distributed scale*:
 - if the quality of response fully aligns with the performance described by the descriptor – assign a high mark within the band
 - if the quality of the response partially aligns with the performance described by the descriptor – assign a low to medium mark within the band
 - consider the quality compared to a range of similar responses (eg relevant annotated training material exemplars, responses reviewed during standardisation, and through experience) choose a mark on the point on the scale that would give an appropriate ranking for the assessed piece of evidence in relation to this information and in comparison with that of the rest of the cohort for that assessment theme.

7. Marking grid

There is a marking grid for each assessment theme that must be assessed, within each Performance Outcome as part of this occupational specialism assessment.

Performance Outcome 2 – Establish crops in field and container-based systems for optimum yield and quality

Assessment theme – Preparing for field-based crop establishment

Guidance for markers

The following evidence must be used to assess performance against this assessment theme, within the context of the performance outcome:

Task 1b:

- Assessor Observation form: assessor observation
- Photo evidence
- Report

Task 1c:

- Assessor Observation form: response to question (with audio recording)

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

Indicative content

Typical evidence for Task 1b may include:

Assessor observation

- Prepare equipment and germinating media. Accurately count and place 100 seeds. Following germination count the germinated seeds to work out seed viability.

Photo evidence

- This task must be photographed by the assessor to support the marking and moderation process, as a minimum:
 - count of seeds
 - the seed tray showing the level of the growing media
 - the completed tray showing the evenness of sowing.

Report

- Calculation of and reporting on the seed sowing rate based on the germination test results and 1,000-grain weight of the seed for an autumn sowing.
- Calculation of seed sowing rate to include: target plant population, 1,000-grain weight, germination percentage.
- Plan sowing:
 - seed bed requirements for successful establishment: cultivation techniques
 - planting spacing for a winter combinable cereal crop: uniformity/specification
 - depth of sowing depending on the crop requirements.

Typical evidence for Task 1c may include:

Response to question

- Explain the establishment stage of the winter combinable cereal crop in relation to its lifecycle. E.g. planting depth, seed contact with soil, moisture to start germination, how it germinates (radical/root first, then root system establishes), shoot emergence (plumule), monocotyledon, start photosynthesising, warmer the soil, the faster emergence happens (from 7 days).

Assessment theme: Preparing for field-based crop establishment	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks per sub-theme	Total marks for assessment theme
Marks per band	1–2	3–4	5–6	n/a	6
	<p>Limited knowledge and understanding of crops and growing requirements, resulting in limited accuracy in planning of establishment. Lacks relevant detail, breadth and depth.</p> <p>Limited calculations/measurements/estimations. Lacks detail, breadth and depth with several/significant errors.</p>	<p>Good knowledge and understanding of crops and growing requirements, resulting in good accuracy in planning of establishment. Some areas not relevant, or not fully considered.</p> <p>Good calculations/measurements/estimations. Some breadth and depth with only minor errors.</p>	<p>Excellent knowledge and understanding of crops and growing requirements, resulting in comprehensive, accurate and detailed planning of establishment.</p> <p>Comprehensive calculations/measurements/estimations with no errors.</p>		

Assessment theme – Health and safety in field-based crop establishment

Guidance for markers

The following evidence must be used to assess performance against this assessment theme, within the context of the performance outcome:

Task 1c:

- Risk assessment
- Assessor Observation form: assessor observation, responses to questions (with audio recording)

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

Indicative content

Typical evidence for Task 1c may include:

Risk assessment

- Complete a pro-forma risk assessment accurately with relevant hazards, risks and control measures applicable to the site, task and equipment eg operator/other personnel contact with machinery (crushing, entanglement), safe stop procedure followed, exclusion area in place when attaching the machinery.
- Major hazards would include any hazard likely to cause serious injury or fatality.

Assessor observation

- Compliance with risk assessment.
- All work completed safely.

Responses to questions

- What are the responsibilities of the employer and the employee under current health and safety regulations and legislation relevant to the preparation and use of machinery for crop establishment? Employer – maintain safe equipment, instruct employees in safe use. Employee – follow instructions, work in a safe way as instructed, report any problems and damage.
- Name and describe **two** relevant pieces of health and safety legislation in relation to the preparation and use of machinery for crop establishment:

- eg Health & Safety at Work Act, Management of Health and Safety at Work Regulations, Lifting Operations and Lifting Equipment Regulations (LOLER), Provision and Use of Work Equipment Regulations (PUWER), Wildlife & Countryside Act, Control of Substances Hazardous to Health (COSHH), The Personal Protective Equipment at Work Regulations, Control of Noise at Work Regulations, Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR), The Health and Safety (First-Aid) Regulations, Manual Handling Operations Regulations.
- eg Health & Safety at Work Act sets out the framework for managing workplace health and safety in the UK, covering the responsibilities of employers, employees, and other parties for maintaining health and safety within most workplace: for crop production this could mean providing suitable PPE and equipment, and a safe working environment for undertaking machinery preparation, and ensuring that machinery is safe to use and suitable for the task. The Control of Substances Hazardous to Health Regulations require employers to control substances that are hazardous to health: for crop production this could include clear labelling and suitable storage for detergents and disinfectants for cleaning machinery, and fertilisers and pesticides.
- Why is it important for you to follow the regulations and legislation? E.g. so that the employer can rectify problems/damage, so that the operator and others are safe, to avoid unnecessary damage to machinery and hence costs.

Assessment theme: Health and safety in field-based crop establishment	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks per sub-theme	Total marks for assessment theme
Marks per band	1–2	3–4	5–6	n/a	6
	<p>Risk assessment and control measures cover the major hazards and risks, but with limited knowledge and understanding of relevant legislation.</p> <p>Health and safety is followed so that work is completed safely but when working some low-risk hazards that occur are missed, and limited controls are applied.</p>	<p>Risk assessment and control measures have been identified and cover a good range of hazards and risks, but not all, with good knowledge and understanding of relevant legislation.</p> <p>Health and safety is followed, and all work is completed safely. All low-risk hazards that occur are recognised but not always controlled as they arise.</p>	<p>Risk assessment and control measures are comprehensive and clearly identify associated hazards and risks, with comprehensive knowledge and understanding of relevant legislation.</p> <p>Health and safety is followed throughout, and all work is completed safely. All low-risk hazards that occur are correctly controlled as they arise.</p>		

Assessment theme – Field-based crop establishment

Guidance for markers

The following evidence must be used to assess performance against this assessment theme, within the context of the performance outcome:

Task 1b:

- Report

Task 1c:

- Assessor Observation form: assessor observation, responses to questions (with audio recording)
- Photo and video evidence
- Field record

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

Indicative content

Typical evidence for Task 1b may include:

Report

- Plan sowing:
 - planting density for a winter combinable cereal crop: uniformity/specification.

Typical evidence for Task 1c may include:

Assessor observation

- Suitability of the available machinery, equipment, and technology for establishing the crop eg compatibility, in good working order, GPS working.
- Undertake machinery attachment (cultivator only), pre-use checks set-up (both) and calibration (drill only):

- pre-use checks: eg compatible hitch/linkage types, guards in place, test overload/safety features, check for wear/damage/security, test controls and components are functioning correctly
- calibration includes weighing the seed
- set cultivation depth including required adjustments appropriate to the machinery and equipment being used
- set sowing depth including required adjustments appropriate to the machinery and equipment being used.
- Demonstrate efficient and effective use of equipment and machinery for three passes and two turns, following manufacturer's guidance as appropriate: demonstrate accurate driving and efficient operation, correcting own operation as required to ensure accuracy of depth of sowing, and accuracy of driving to match up with the adjacent sown row.
- Safely park the machinery and equipment.
- Undertake post-use checks to the machinery and equipment: checking for any damage.
- Cultivation: even ground within the limitations of the soil type, weather and ground conditions, protecting soil structure.
- Sowing: correct depth, protecting soil structure.

Photo and video evidence

- This task must be photographed by the assessor to support the marking and moderation process, as a minimum:
 - pre-use checks and set-up (both pieces of machinery/combination drill)
 - calibration (drill/combination drill only)
 - collecting and weighing the seed
 - attachment (cultivator/combination drill only – connections)
 - cultivation depth
 - sowing depth
 - post-use checks (photos of what the candidate is checking).
- This task must be videoed by the assessor to support the marking and moderation process, as a minimum:
 - i) attachment (cultivator only/combination drill – reversing) – typically 2–3 minutes
 - ii) accuracy of driving for a minimum of 1 pass and 1 turn (condition of ground) – typically 2 minutes each (cultivator and drill/combination drill).

Responses to questions

- How can soil structure be improved between crops? Eg adding organic matter (eg stubble, straw, green crops, catch cropping, cover cropping, manure, slurry, lime), sub-soiling (breaking up plough pans), mole ploughing, regenerative farming (crop rotation).

- Explain how to limit damage to soil structure during cultivation and drilling. eg working in the correct conditions (soil condition, weather), knowing when not to cultivate or drill, compatibility of machinery power to equipment, correct speed, correct gear, set-up (tyre pressure, machinery settings (eg depth)).

Field record

- Template completed with details of observed activity.
- Certification standards/ home saved seed details on the seed label recorded on the field record.

Assessment theme: Field-based crop establishment	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks per sub-theme	Total marks for assessment theme
Marks per band	1–4	5–8	9–12	n/a	12
	<p>Basic knowledge and its application in set-up/checking or maintenance of machinery and equipment resulting in limited effectiveness when operated.</p> <p>Limited accuracy of safe operation when preparing the site for sowing/planting (lifting and lowering the machinery, and bout matching).</p> <p>Safe operation with limited accuracy when sowing/planting (lifting and lowering the machinery, bout matching and seed depth).</p> <p>Limited evaluation of own or others' planting operation.</p>	<p>Good knowledge and its application in set-up/checking or maintenance of machinery and equipment resulting in good effectiveness when operated.</p> <p>Good accuracy of safe operation when preparing the site for sowing/planting (lifting and lowering the machinery, and bout matching).</p> <p>Safe operation with good accuracy when sowing/planting (lifting and lowering the machinery, bout matching and seed depth).</p> <p>Good evaluation of own or others' planting operation.</p>	<p>Comprehensive knowledge and its application in set-up/checking or maintenance of machinery and equipment resulting in excellent effectiveness when operated.</p> <p>Excellent accuracy of safe operation when preparing the site for sowing/planting (lifting and lowering the machinery, and bout matching).</p> <p>Safe operation with excellent accuracy when sowing/planting (lifting and lowering the machinery, bout matching and seed depth).</p> <p>Excellent evaluation of own or others' planting operation.</p>		

Assessment theme – Health and safety in container-based crop establishment

Guidance for markers

The following evidence must be used to assess performance against this assessment theme, within the context of the performance outcome:

Task 3a:

- Risk assessment
- Assessor Observation form: assessor observation

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

Indicative content

Typical evidence for Task 3a may include:

Risk assessment for the vegetative propagation

- Complete pro-forma accurately with relevant hazards, risks and control measures applicable to the site, task and equipment. Eg chemicals (hormone rooting agent), lifting and movement of materials, PPE, low risk hazards eg sharps.
- Major hazards would include any hazard likely to cause serious injury or fatality.

Assessor observation

- Compliance with risk assessment.
- All work completed safely.

Assessment theme: Health and safety in container-based crop establishment	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks per sub-theme	Total marks for assessment theme
Marks per band	1–2	3–4	5–6	n/a	6
	<p>Risk assessment and control measures cover the major hazards and risks.</p> <p>Health and safety requirements are followed so that work is completed safely but when working some low-risk hazards that occur are missed, and limited controls are applied.</p>	<p>Risk assessment and control measures have been identified and cover a good range of hazards and risks, but not all.</p> <p>Health and safety requirements are followed, and all work completed safely. All low-risk hazards that occur are recognised but not always controlled as they arise.</p>	<p>Risk assessment and control measures are comprehensive and clearly identify associated hazards and risks.</p> <p>Health and safety requirements are followed throughout, and all work completed safely. All low-risk hazards that occur are correctly controlled as they arise.</p>		

Assessment theme – Container-based crop establishment

Guidance for markers

The following evidence must be used to assess performance against this assessment theme, within the context of the performance outcome:

Task 2a:

- Report, with spreadsheet/Gantt chart

Task 3a:

- Assessor Observation form: assessor observation, responses to questions (with audio recording)
- Photo evidence
- Container-based crop propagation record

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

Indicative content

Typical evidence for Task 2a may include:

Report (including the spreadsheet/Gantt)

- Produce a report and spreadsheet covering:
 - schedule of activities against week numbers: showing the activities and approximate timings, with starting point weeks 5–10, and conclusion in weeks 19–25:
 - readying of containers
 - insertion of cuttings.
 - quantity of stock plants required, calculation of number of cuttings appropriate to crop to produce required quantities, realistic anticipated success rate of cuttings take, taking cuttings on multiple occasions (within weeks 5–10) and from pinching out
 - resources required including labour, materials (eg growing media, hormone rooting agent, crop covers), equipment (containers, cuttings scissors) and growing space (appropriate to the quantity and containers the candidate selects)
 - report with reasons for each activity eg use of technical language and terminology, such as apical dominance
 - show workings eg number of cuttings, volume of growing medium

- requirements of temperature and light conditions: to manage the growth to meet the planned schedule to have the plants ready for sale on time
- justifying how the activities consider sustainability and environmental issues: efficiency and low environmental impact: eg suitable water sources, water use, and water wastage; efficiently managing heat requirement and appropriate cropping temperatures; sources and types of nutrients; supplementary lighting, source if needed; best practice waste management to meet environmental standards; planning for potential pest and disease issues and best practice in control measures, eg IPM.

Typical evidence for Task 3a may include:

Assessor observation

- Prepare the site to ensure successful establishment: clean, hygienic, adequate size.
- Select and prepare correct:
 - suitable growing media for the crops
 - propagation material (healthy plant)
 - hormone rooting agent
 - containers – cress punnets/trays for seeds, modules/cells for cuttings
 - irrigation equipment – hose and lance or watering can and rose.
- Safely manually lift bags of seed, compost bags, boxes of pots, trays etc.
- Safe, accurate and efficient work, using appropriate tools and equipment, avoiding wastage and working at appropriate speed.
- Broadcast sow plain cress seeds by hand into six standard cress punnets/trays – uniform filling, firming into trays, even spread of seeds (at the rate specified with the seeds).
- Collect, trim, and insert 30 soft-stem cuttings of *Osteospermum* – candidate selects healthy source plant, cuttings are approximately 4–6cm, trimmed below a node, leaving two or three fully developed leaves in place, inserted into growing media.
- Complete relevant records and labelling appropriately eg what sown, growing medium, date, source plant (for cuttings), legal limitations for propagation, label containers.
- Place both crops into the post-propagation environment pot-thick.
- Undertake immediate post-propagation maintenance: irrigation (watering), apply liquid feed only if required (controlled release fertiliser may be in the compost).
- Appropriate disposal of waste (from taking cuttings).

Photo evidence

- This task must be photographed by the assessor to support the marking and moderation process, as a minimum:

- photo of all the trays **after** sowing: showing evenness of sowing, levels of finished growing medium
- photo of propagules:
 - **after** preparation: trimming of leaves, position of basal cut, size of cutting, one photo of all of the propagules
 - **after** insertion: appropriate spacing in the container, and depth of insertion.

Responses to questions

- What regulations apply to propagation and sale? Legal limitations for propagation eg plant breeder's rights, plant passport when selling commercially.
- Explain the advantages of a glasshouse compared to a polytunnel for vegetative propagation. Eg temperature control is more effective and efficient, light transmission is better.
- Compare mist units with polythene covers for the rooting environment for vegetative propagation. Mist unit's vs polythene cover – mist units modify the environment throughout the period when needed but have a tendency to mechanical failure/ reliability issues. Polythene cover is cheap and reliable (can't break down) but doesn't adjust and there's a need to ventilate manually.

Container-based crop propagation record

- Template completed with details of observed activity.
- Records environmental requirements for germination and propagation.

Assessment theme: Container-based crop establishment	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks per sub-theme	Total marks for assessment theme
Marks per band	1–4	5–8	9–12	n/a	12
	Limited planning, calculations and record keeping for establishment. Lacks relevant detail, breadth and depth, resulting in several/significant errors and limited	Good planning, calculations and recording keeping for establishment. Some areas not relevant, or not fully considered, resulting in minor inaccuracies and	Comprehensive , relevant and detailed planning, calculations and record keeping for establishment, resulting in excellent accuracy, appropriate technical language, and		

	<p>technical language, and incomplete/in appropriate container labelling.</p> <p>Limited knowledge and understanding of crops and growing media applied, resulting in potentially limited establishment levels.</p> <p>Limited understanding, accuracy and care when selecting, preparing and handling propagation material, tools and equipment, resulting in significant wastage and slow speed.</p> <p>Aftercare is inconsistent and does not fully meet needs, with significant wastage/damage occurs.</p>	<p>technical language errors/omissions, and container labelling which is not fully clear.</p> <p>Good knowledge and understanding of crops and growing media applied, resulting in potentially acceptable establishment levels.</p> <p>Good understanding, accuracy and careful selection, preparation and handling propagation material, tools and equipment, resulting in minimal wastage and good speed.</p> <p>Aftercare is mostly consistent and appropriate to meet needs with minimal wastage/damage.</p>	<p>appropriately and clearly labelled containers.</p> <p>Excellent knowledge and understanding of crops and growing media applied, resulting in potentially effective establishment levels.</p> <p>Excellent understanding, accuracy and careful selection, preparation and handling propagation material, tools and equipment, resulting in no wastage and industry standard speed.</p> <p>Aftercare is consistent and appropriate to meet needs, with no wastage/damage.</p>		
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Performance Outcome 3 – Manage crops in field and container-based systems to optimise yield and quality

Assessment theme – Field-based crop monitoring

Guidance for markers

The following evidence must be used to assess performance against this assessment theme, within the context of the performance outcome:

Task 4a:

- Report
- Assessor Observation form: assessor observation

Task 4b:

- Assessor Observation form: responses to questions (with audio recording)

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

Indicative content

Typical evidence for Task 4a may include:

Report

- Monitor the crop and record findings:
 - assess crop emergence – whether seedlings viable and healthy, even emergence across the field
 - calculate the establishment percentage
 - assess root establishment – visual assessment
 - soil type, condition and structure (moisture, compaction), weather conditions
 - identify and quantify common weeds, pests, diseases, and disorders.
- Methods used:
 - use of a quadrat so that can observe a representative area of the crop
 - soil – visual inspection/ crop walk eg waterlogged or dry

- crop emergence and establishment – calculate emergence based on sowing density, count shoots
- root establishment – dig a plant up for visual inspection
- visual inspection for weeds, pests, diseases and disorders; and identification of these.
- Use of correct technical language and terminology for weeds, pests, diseases, and disorders.
- Use of data from monitoring to make recommendations for treatments that would be required to ensure quality and yield, including Integrated Pest Management (IPM) techniques.
- Use of data from assessment of crop emergence and establishment to make recommendations for ensuring quality and yield, including application of nutrients, noting adherence to closed periods during application of nutrients, with use of appropriate language and terminology.
- A fertiliser plan for the crop, which must include nitrogen, with justifications. Analysis of previous crop, and expected yield is required to prepare the plan. Application rate before planting/during growth, growth stage, number of applications (plan should reflect the crop).
- Photos to support observations.

Assessor observation

- Assessor to record the status of the crop, and the candidate's findings must reflect the **actual** status of the crop when they visit.

Typical evidence for Task 4b may include:

Responses to questions

- Explain the vegetative and reproductive growth stages of the crop in relation to its lifecycle. eg tillering, stem elongation, flowering, formation and ripening of the seed head (depends on the crop). Response should reflect the crop provided.
- Explain the potential end uses of this crop. Depends on the crop eg sugar beet: sugar, animal feed; barley: biofuel, anaerobic digester, malting, distilling, animal feed; wheat: flour, animal feed; oats: porridge, animal feed.

Assessment theme: Field-based crop monitoring	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks per sub-theme	Total marks for assessment theme
Marks per band	1–3	4–6	7–9	n/a	9
	<p>Limited accuracy of observations and data/information collection, resulting in a limited assessment of crop development and record keeping with limited accuracy and detail.</p> <p>Limited accuracy of identification and quantification of weeds, pests, diseases, and disorders.</p> <p>Limited analysis of findings against knowledge and understanding of crops to support decision making, resulting in basic recommendations with limited justifications.</p>	<p>Good accuracy of observations and data/information collection, resulting in a good assessment of crop development and record keeping, with minimal inaccuracy and detail missing.</p> <p>Good accuracy of identification and quantification of weeds, pests, diseases, and disorders.</p> <p>Good analysis of findings against knowledge and understanding of crops to support decision making, resulting in mostly appropriate, justified recommendations.</p>	<p>Excellent accuracy of observations and data/information collection, resulting in a comprehensive and accurate assessment of crop development and record keeping.</p> <p>Excellent accuracy of identification and quantification of weeds, pests, diseases, and disorders.</p> <p>Excellent analysis of findings against knowledge and understanding of crops to support decision making, resulting in comprehensive, justified recommendations.</p>		

Assessment theme – Field-based crop management

Guidance for markers

The following evidence must be used to assess performance against this assessment theme, within the context of the performance outcome:

Task 4a:

- Report (fertiliser plan)

Task 4b:

- Assessor Observation form: assessor observation, responses to questions (with audio recording)
- Video evidence
- Field record

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

Indicative content

Task evidence for Task 4a may include:

Report

- Explains the impact environmental legislation and codes of practice have had on the fertiliser plan: awareness and locations of nitrate vulnerable zones – timing and amount of application, inorganic and organic, record keeping; Control of Pollution Act – maintenance of water quality, discharge into streams, rivers and sea; Countryside stewardship scheme – field margin and habitat protection; Protecting our Water Soil and Air – codes for each, eg reducing run-off, impact on traffic safety.

Typical evidence for Task 4b may include:

Assessor observation

- Checks the safety, suitability and cleanliness of machinery and equipment provided for applying nutrients eg all guards in place, test overload/safety features, check components for wear, test controls are functioning correctly, checks tyre pressures if applicable.

- Safely and accurately applies nutrients to the growing crop at predetermined rates with pre-calibrated equipment:
 - Performs safe, efficient, and effective use of equipment and machinery, following manufacturer's guidance as appropriate.
 - Accuracy of driving:
 - for 3 bouts and 2 turns
 - use of buffer zone
 - minimal soil structure damage
 - correcting own operation as required to ensure accuracy of application, and accuracy of driving to match up with the adjacent bout.
 - Safely parks the machinery and equipment after the nutrient application.

Video evidence

- This task must be videoed by the assessor to support the marking and moderation process, as a minimum:
 - safe and accurate operation for a minimum of 1 bout and 1 turn (typically 2–3 minutes).

Responses to questions:

- What are the potential environmental impacts that may arise when inorganic fertiliser is applied? Inorganic: Positive: increased yield and quality, carbon sequestration; Negative: depletion of worm population, potential run-off polluting waterways, eutrophication, plant more susceptible to disease (over application).
- Explain how to set-up and calibrate a fertiliser spreader:
 - Set-up as per the handbook – level, correct height of discs/spout relative to the crop height, top link setting, spreading width and angle of discs/spout, and what fertiliser is being used.
 - Calibration – refer to charts in the handbook for the settings based on the weight by volume of the fertiliser, some manufacturers may recommend collecting and weighing fertiliser. Considering forward speed of the tractor, application rate, width of spread. Modern spreaders often have an app to support this activity. Spreader may have variable rate technology.
- Explain how modern technology can assist in the application of fertiliser: Autosteer to enable following of tramlines. GPS spreader including varying application rate, and section control. Drones to monitor the crop for agronomy (planning application). Robotics and remote controls, autonomous vehicles save on staff costs and reduce impact of human error. Electronic mapping of fields to show soil nutrient status and therefore fertiliser requirement, and transfer data to the GPS spreader for fertiliser application resulting in less wastage.
- How is the machinery and equipment cleaned, checked, and stored after use? Cleaning site, method, where washings are stored, nitrogen fertiliser can cause corrosion if not removed, equipment stored safely and securely, protect from weather.

Field record

- Completed field record with application information, and to meet legislative and environmental requirements. Eg adherence to closed periods for spreading.

Assessment theme: Field-based crop management	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks per sub-theme	Total marks for assessment theme
Marks per band	1–4	5–8	9–12	n/a	12
	<p>Limited understanding of the impact of crop production on the environment, resulting in a high level of potential impact by crop management.</p> <p>Basic knowledge and its application in set-up/checking or maintenance of machinery and equipment resulting in limited effectiveness when operated.</p> <p>Safe operation with limited accuracy of operation when applying nutrients (bout matching, forward speed, headland on/off application).</p> <p>Basic record keeping with several technical inaccuracies/missing relevant information.</p>	<p>Good understanding of the impact of crop production on the environment, resulting in an acceptable level of potential impact by crop management.</p> <p>Good knowledge and its application in set-up/checking or maintenance of machinery and equipment resulting in good effectiveness when operated.</p> <p>Safe operation with good accuracy when applying nutrients (bout matching, forward speed, headland on/off application).</p> <p>Good record keeping which is detailed and mostly technically accurate.</p>	<p>Comprehensive understanding of the impact of crop production on the environment, resulting in a minimal level of potential impact by crop management.</p> <p>Comprehensive knowledge and its application in set-up/checking or maintenance of machinery and equipment resulting in excellent effectiveness when operated.</p> <p>Safe operation with excellent accuracy when applying nutrients (bout matching, forward speed, headland on/off application).</p> <p>Comprehensive record keeping which is highly detailed and technically accurate.</p>		

Assessment theme – Container-based crop monitoring

Guidance for markers

The following evidence must be used to assess performance against this assessment theme, within the context of the performance outcome:

Task 2a:

- Report, with spreadsheet/Gantt chart

Task 3b:

- Crop monitoring and management diary
- Assessor Observation form: assessor observation, responses to questions (with audio recording)

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

Indicative content

Typical evidence for Task 2a may include:

Report (including the spreadsheet/Gantt)

- Produce a report and spreadsheet covering:
 - schedule of activities against week numbers: showing the activities and approximate timings, with starting point weeks 5–10, and conclusion in weeks 19–25:
 - pinching out
 - feeding
 - potting up.
 - resources required including labour, materials (eg growing media, crop covers), equipment (containers, cuttings scissors) and growing space (appropriate to the quantity and containers the candidate selects)
 - report with reasons for each activity eg why pinching out is needed (when and why), what types of feed are required (when and why), use of technical language and terminology, use of nitrates to encourage leaf expansion, increase potassium to regulate water loss

- requirements of temperature and light conditions: to manage the growth to meet the planned schedule to have the plants ready for sale on time.

Typical evidence for Task 3b may include:

Crop monitoring and management diary

- Monitor the crop over an 8-week period:
 - monitoring of growth and development to schedule including size, number of leaves, readiness for pinching out (considerations of quality and yield)
 - transplanting: assess root establishment of cuttings – visual assessment without damaging cuttings
 - assess irrigation and liquid feeding requirements (considerations of quality and yield)
 - pinching out, if required (considerations of quality and yield)
 - timing of pinching out
 - photos support observations
 - identify and quantify common weeds, pests, diseases, and disorders with supporting photos.
- Analysis of data from monitoring to justify recommendations or apply control measures for weeds, pests, diseases, and disorders; depending on applicable legislation/health and safety (considerations of quality and yield).
- Use of correct technical language and terminology for weeds, pests, diseases, and disorders.
- Justified actions and recommendations appropriate to observations, supported by photo evidence eg weed control which they can't undertake.

Assessor observation

- Assessor to record the status of the crop, and the candidate's findings must reflect the **actual** status of the crop when they visit.

Responses to questions

- Why did you recommend particular control measures? Eg need for weeds to be removed manually, application of pesticides or fungicides, introduction of IPM methodology, based on identification and quantifying the problems.
- Why is accurate timing of control measures important? Eg early intervention within crop cycle, appropriate timing according to life cycles, biosecurity (dealing with waste, notifiable problem), outbreaks spread.
- Responses should reflect the diary entries.

Assessment theme: Container-based crop monitoring	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks per sub-theme	Total marks for assessment theme
Marks per band	1–4	5–8	9–12	n/a	12
	<p>Limited accuracy of observations and data/information collection, resulting in a limited assessment of crop development and record keeping, with limited accuracy and detail.</p> <p>Limited understanding and analysis of findings to support decision making, resulting in basic recommendations with limited justifications.</p> <p>Limited accuracy of identification and quantification of weeds, pests, diseases, and disorders.</p> <p>Limited control measures recommended for weeds, pests, diseases, and disorders.</p>	<p>Good accuracy of observations and data/information collection, resulting in good assessment of crop development and record keeping, with minimal inaccuracy and detail missing.</p> <p>Good understanding and analysis of findings to support decision making, resulting in mostly appropriate, justified recommendations.</p> <p>Good accuracy of identification and quantification of weeds, pests, diseases, and disorders.</p> <p>Good control measures recommended for weeds, pests, diseases, and disorders.</p>	<p>Excellent accuracy of observations and data/information collection, resulting in a comprehensive and accurate assessment of crop development and record keeping.</p> <p>Excellent understanding and analysis of findings to support decision making, resulting in, comprehensive, justified recommendations.</p> <p>Excellent accuracy of identification and quantification of weeds, pests, diseases, and disorders.</p> <p>Comprehensive control measures recommended for weeds, pests, diseases, and disorders.</p>		

Assessment theme – Container-based crop management

Guidance for markers

The following evidence must be used to assess performance against this assessment theme, within the context of the performance outcome:

Task 3b:

- Assessor Observation form: assessor observation, responses to questions (with audio recordings)
- Photo evidence
- Crop monitoring and management diary

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

Indicative content

Typical evidence for Task 3b may include:

Assessor observation

- Carry out accurate and effective appropriate maintenance to meet the needs of the crops, to include:
 - transplanting/potting up, removal of foliage, and transfer of labelling
 - irrigation as required, using hose and lance
 - liquid feeding as required, including setting up dilutor to correct rate.
- Safe, accurate and efficient work, using appropriate tools and equipment, avoiding wastage and working at appropriate speed.
- Cleanliness in working (biosecurity).
- Appropriate disposal of waste – affected materials (eg pests and weeds).

Photo evidence

- This task must be photographed by the assessor to support the marking and moderation process, as a minimum:
 - **completed** potting up/transplanting.

Responses to questions

- Irrigation: What factors did you consider to irrigate the crop when you did? eg dry soil, time of day, hot weather expected, manipulate growth to optimise yield.
- Feeding: Why did you feed the crop when you did? eg because not ready to transplant yet, so needed top up feed, growth not meeting specification requirements, manipulate growth to optimise yield.
- Transplanting: How did you decide when to transplant the crop? eg size and shape of top growth and root system, development, growth rate.
- Responses should reflect the diary entries and use appropriate language and terminology.

Crop monitoring and management diary

- Records actions taken eg irrigation, transplanting/potting up.

Assessment theme: Container-based crop management	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks per sub-theme	Total marks for assessment theme
Marks per band	1–3	4–6	7–9	n/a	9
	<p>Limited understanding, accuracy and care in plant handling, and using tools and equipment, resulting in significant wastage and slow speed. Works safely.</p> <p>Limited understanding, accuracy and care when irrigating which does not fully meet needs, resulting in significant wastage/damage.</p> <p>Limited understanding, accuracy and care when applying nutrients which does not fully meet needs, resulting in low potential crop yield/quality.</p>	<p>Good understanding, accuracy and careful plant handling and use of appropriate tools and equipment, resulting in minimal wastage and good speed. Works safely.</p> <p>Good understanding, accuracy and careful irrigation mostly appropriate to meet needs, resulting in minimal wastage/damage.</p> <p>Good understanding, accuracy and careful application of nutrients mostly appropriate to meet needs, resulting in good potential crop yield/quality.</p>	<p>Excellent understanding, accuracy and careful plant handling, and use of appropriate tools and equipment, resulting in no wastage and industry standard speed. Works safely.</p> <p>Excellent understanding, accuracy and careful irrigation consistently appropriate to meet needs, resulting in no wastage/damage.</p> <p>Excellent understanding, accuracy and careful application of nutrients consistently appropriate to meet needs, resulting in excellent potential crop yield/quality.</p>		

Performance Outcome 4 – Harvest crops for commercial markets

Assessment theme – Business planning

Guidance for markers

The following evidence must be used to assess performance against this assessment theme, within the context of the performance outcome:

Task 2b:

- Sequenced timeline

Task 2c:

- Report showing calculations of costings

Task 2d:

- Completed gross margin for each crop
- Report recommending and justify changes

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

Indicative content

Typical evidence for Task 2b may include:

Sequenced timeline

- Planning of the harvesting of a winter oilseed rape crop from 1 month pre-harvest through to storage of the harvested crop to include:
 - sequencing, timeline and prioritisation of steps within the crop rotation: inspect/assess the crop, spraying/swathing, harvest, transport to store
 - reasons for steps: planning desiccation timing, application of desiccant to even up ripening, silicon pod sealant to protect crop from adverse weather, moisture content to decide when to harvest
 - estimation of the total number of hours to complete each of the steps
 - equipment required for preparation and harvesting eg tractors, sprayers, chemicals, trailers.

Typical evidence for Task 2c may include:

Report

- Costing the harvesting of a crop: a report showing the candidate calculations of the most cost-effective approach to the harvest, including:
 - the number of tractors and trailers required eg one or two tractors and trailers
 - the cost per hectare showing the candidate's workings (based on current *John Nix* data)
 - the cost per tonne showing candidate's workings (based on current *John Nix* data)
 - show sources eg *John Nix* data.
- Number of tractors and trailers are realistic for industry; justifications support a cost-effective approach, balancing the different requirements (eg speed, value for money, time).

Typical evidence for Task 2d may include:

Gross margin forms

- Correct calculation of the gross margin for **each** crop using the template and data provided:
 - gross margin (GM) = output (yield/ha x selling price/t) minus total variable costs (seed, fertiliser and spray).
 - the budgeted gross margin (for this year):
 - Field 1 WOSR: 2,295 – 736 = GM of £1,532/ha
 - Field 2 SB: 1,729 – 414 = GM of £1,315/ha
 - Field 3 WB: 1,976 – 584 = GM of £1,392/ha
 - Field 4 WW: 2,740 – 827 = GM of £1,913/ha
 - benchmark GM data (assuming same yield/ha and same selling price/t as the budgeted GM):
 - Field 1 WOSR: 2295 – 608 = GM of £1,687/ha
 - Field 2 SB: 1,729 – 470 = GM of £1,259/ha
 - Field 3 WB: 1,976 – 541 = GM of £1,435/ha
 - Field 4 WW: 2,740 – 643 = GM of £2,097/ha

Report

- Explanation of why the gross margin differs to the benchmark data provided eg change in costs, inflation.

- A report recommending and justifying changes to improve the gross margin of the arable enterprise, eg different sources for fixed costs eg fertilisers, entering different markets which might offer higher selling price eg barley for brewing.
- Correct use of technical and financial language.

Assessment theme: Business planning	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks per sub-theme	Total marks for assessment theme
Marks per band	1–2	3–4	5–6	n/a	6
	<p>Limited accuracy and basic planning and costing of harvesting. Lacks relevant detail, breadth and depth.</p> <p>Limited understanding and analysis of financial and management records resulting in poor decisions/recommendations.</p>	<p>Good accuracy and good planning and costing of harvesting. Some areas not relevant/ fully considered.</p> <p>Good understanding and analysis of financial and management records resulting in sound decisions/recommendations.</p>	<p>Excellent accuracy and comprehensive planning and costing of harvesting.</p> <p>Excellent understanding and analysis of financial and management records resulting in comprehensive decisions/recommendations.</p>		

Assessment theme – Assessing a crop for harvest

Guidance for markers

The following evidence must be used to assess performance against this assessment theme, within the context of the performance outcome:

Task 1a:

- Assessor Observation form: assessor observation
- Photo evidence
- Crop assessment in preparation for harvest

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

Indicative content

Typical evidence for Task 1a may include:

Assessor observation

- Taking a representative sample of a forage maize crop and assessing it for quality and suitability for harvest eg correct height of cut from appropriate part of the field (not in a gateway or under trees), sample of two plants.
- Using an appropriate method (eg cut and weigh) and the provided plant population density to calculate the fresh weight yield.
- Appropriate disposal of waste (forage maize samples).

Photo evidence

- This task must be photographed by the assessor to support the marking and moderation process, as a minimum:
 - collection and assessment of the crop sample: cutting, weighing.

Crop assessment in preparation for harvest template

- Record completed:
 - the candidate's comments reflect the actual status of the crop and conditions:
 - fresh weight, cob maturity, calculated yield accuracy, readiness for harvest, evidence of pests/diseases/disorders noted, ground conditions, weather conditions.

- analysis and justification of whether to harvest: considers weather, soil condition and crop status.
- The candidate's findings must reflect the **actual** status of the crop.

Assessment theme: Assessing a crop for harvest	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks per sub-theme	Total marks for assessment theme
Marks per band	1–2	3–4	5–6	n/a	6
	<p>Basic/inappropriate methods used, resulting in limited accuracy in assessment of conditions for harvesting, and record keeping with limited accuracy and detail.</p> <p>Limited understanding and analysis to support decision making, resulting in limited, unjustified decisions.</p>	<p>Good use of appropriate methods, resulting in mostly accurate assessment of conditions for harvesting, and record keeping with minimal inaccuracy and detail missing.</p> <p>Good understanding and analysis to support decision making, resulting in mostly appropriate, justified decisions.</p>	<p>Excellent use of appropriate methods resulting in detailed, accurate assessment of conditions for harvesting, and comprehensive and accurate record keeping.</p> <p>Comprehensive understanding and analysis to support decision making, resulting in comprehensive, justified decisions.</p>		

Assessment theme – Harvesting field-based crop

Guidance for markers

The following evidence must be used to assess performance against this assessment theme, within the context of the performance outcome:

Task 4c:

- Assessor Observation form: assessor observation, responses to questions (with audio recording)
- Video evidence
- Harvest record

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

Indicative content

Typical evidence for Task 4c may include:

Assessor observation

- Prepare machinery and equipment to harvest and deliver to store a grass silage crop:
 - Assess the safety and suitability of the machinery and equipment for the task: eg guards in place, test controls and components, ensure equipment is clean.
 - Attach and set-up the equipment and machinery according to manufacturer's recommendations eg hitch on, connect external services, check all components for wear and damage, check tyre pressures.
- Operate the machinery and equipment to harvest and deliver to store of **one full load** of a grass silage crop:
 - Safely and efficiently operate tractor and trailer to offload the crop from the harvester.
 - Safely transport the crop to a specified location eg appropriate speed.
 - Safely offload one full load of the crop at the store eg awareness of surroundings, correct placement of the load.
 - Apply precise and controlled movements of equipment to show physical dexterity eg working in harmony with the harvester.
 - Monitor quality of their work, making adjustments as required, to meet objectives: operation of the tractor, time to do the operation, careful operation, appropriate speed.
 - Safely park the machinery and equipment.

Video evidence

- This task must be videoed by the assessor to support the marking and moderation process, as a minimum:
 - safely and efficiently operate tractor and trailer to offload the crop from the harvester:
 - drive up to the harvester (typically 2 minutes)
 - last 1–2 minutes of a trailer loading.
 - safely offload one load of the crop at the store (reversing, tipping the load).

Responses to questions

- What parts of the trailer need regular lubrication? eg Draw bar, lift rams, tail gate, axles, brake linkage, hubs.
- What could make the tractor and trailer incompatible? eg External service fittings, hydraulic handbrakes, electrics, pick-up hitch type, size (ratio) of machinery and equipment eg tractor isn't large enough for the trailer in some locations (eg sloped field).
- Explain how to minimise soil damage when harvesting crops. Avoid soil contamination of the silage crop by cutting/tedding/raking too low. Use harvester, tractors, and trailers with wide tyres and lower tyre pressure to reduce compaction. Use trailers with triaxles to spread the load across three axles. Use steering axles to reduce scuffing of the ground. Keep to tramlines. Use a harvester with tracks. Use machinery with offset rear wheels to reduce compaction in one area eg sugar beet harvester.
- Explain the considerations at harvesting to produce good quality silage. Quality required by the customer: dry matter. Sugar levels – highest when sunny weather. May sacrifice quantity for the better quality. Relative to when the grass is going to seed, typically before the grass goes to seed.

Harvest record

- Updated with estimated load weight.

Assessment theme: Harvesting field-based crop	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks per sub-theme	Total marks for assessment theme
Marks per band	1–4	5–8	9–12	n/a	12
	<p>Basic knowledge and its application in set-up/checking or maintenance of machinery and equipment resulting in limited effectiveness when operated.</p> <p>Safe operation with limited understanding of harvesting requirements and limited accuracy of driving, resulting in significant wastage of crop.</p> <p>Limited accuracy of offloading, resulting in significant wastage/crop damage.</p> <p>Limited accuracy and detail of record keeping.</p>	<p>Good knowledge and its application in set-up/checking or maintenance of machinery and equipment resulting in good effectiveness when operated.</p> <p>Safe operation with good understanding of harvesting requirements and mostly accurate driving, resulting in minimal wastage of crop.</p> <p>Good accuracy of offloading, resulting in minimal wastage/crop damage.</p> <p>Good accuracy and detail of record keeping.</p>	<p>Comprehensive knowledge and its application in set-up/checking or maintenance of machinery and equipment resulting in excellent effectiveness when operated.</p> <p>Safe operation with excellent understanding of harvesting requirements and accuracy of driving, resulting in no wastage of crop.</p> <p>Excellent accuracy of offloading, resulting in no wastage/crop damage.</p> <p>Excellent accuracy and detail of record keeping.</p>		

Assessment theme – Harvesting container-based crop

Guidance for markers

The following evidence must be used to assess performance against this assessment theme, within the context of the performance outcome:

Task 3c:

- Assessor Observation form: assessor observation
- Photo evidence
- Order sheet

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

Indicative content

Typical evidence for Task 3c may include:

Assessor observation

- Site, materials, and equipment selected and prepared correctly eg equipment is clean, Danish trolley, shelf positions, carrying trays, irrigation equipment.
- Collect and effectively prepare ten 10.5cm pots of Osteospermum for sale in the estate farm shop as required by the order sheet provided.
- Efficiency: selection of most suitable plants (closest to specification), materials and equipment (set-up correctly).
- Specified grading criteria (order requirements) met including:
 - preparation eg remove dead leaves, deadheading, trimming, pest and disease removal/rejection of crop
 - pre-treatment eg weeding, watering, pot cleaning
 - labelling
 - packing into appropriate carry trays and/or onto Danish trolley shelves ready for sale (depends on the pot/pack size which the crops are in).
- Appropriate disposal of waste (eg trimmings, dead leaves etc).

Photo evidence

- This task must be photographed by the assessor to support the marking and moderation process, as a minimum:
 - one plant **before** the candidate starts the task to show example of plant condition
 - one plant once **ready for sale** showing detail of preparation eg dead leaves removed, deadheaded and other treatments as required.

Order sheet completed

- All necessary parts of sheet completed.

Assessment theme: Harvesting container-based crop	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks per sub-theme	Total marks for assessment theme
Marks per band	1–2	3–4	5–6	n/a	6
	<p>Limited accuracy of selection and organisation of site, materials, tools and equipment resulting in poor preparation, with corrections required throughout working.</p> <p>Basic understanding of order requirements, resulting in poor accuracy of crop preparation, pre-treatment and packing. Fails to fully meet the required specification with significant wastage/damage and inaccurate record keeping, with limited detail. Works safely.</p>	<p>Good accuracy of selection and organisation of site, materials, appropriate tools and equipment resulting in adequate preparation.</p> <p>Good understanding of order requirements, resulting in good accuracy of crop preparation, pre-treatment and packing. Meets the required specification with minimal wastage/damage and good accuracy and detail of record keeping. Works safely.</p>	<p>Excellent accuracy of selection and organisation of site, materials, appropriate tools and equipment resulting in efficient preparation.</p> <p>Excellent understanding of order requirements, resulting in excellent crop preparation, pre-treatment and packing to industry standards. Meets the required specification with no wastage/damage and excellent accuracy of record keeping, with comprehensive detail. Works safely.</p>		

Assessment theme – Crop storage

Guidance for markers

The following evidence must be used to assess performance against this assessment theme, within the context of the performance outcome:

Task 4d:

- Assessor observation form: assessor observation
- Photo evidence
- Storage monitoring record

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

Indicative content

Typical evidence for Task 4d may include:

Assessor observation

- Assess the stored crop for quality:
 - Collect and assess a sample of a harvested combinable crop for quality using appropriate methods, tools and equipment:
 - Visual assessment eg colour, pest damage, contaminants, presence of pests.
 - Correct use of sampling equipment and methods: moisture meter, temperature probe and hectolitre weigher.
 - Representative samples from throughout the store (number depends on size of store, depth of sample in the store).
- Determine the causes of, and acceptable levels of any damage or contamination, if present.
- Appropriate disposal of waste (stored crop samples).

Photo evidence

- This task must be photographed by the assessor to support the marking and moderation process, as a minimum:
 - collection and assessment of the crop sample: visual assessment, use of meter, probe and weigher.

<p>Storage monitoring record</p> <ul style="list-style-type: none"> Compare findings to the typical crop specification provided to make recommendations for further actions eg pests, other problems, climate control.
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Assessment theme: Crop storage	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks per sub-theme	Total marks for assessment theme
Marks per band	1–2	3–4	5–6	n/a	6
	<p>Limited understanding and accuracy in the use of tools and equipment for storage preparation or stored crop assessment, some inappropriate choice of tools/equipment, resulting in inaccurate data with limited detail/poorly prepared storage.</p> <p>Limited understanding and analysis of observations/ readings against quality standards/specifications resulting in potential wastage.</p>	<p>Good understanding and accuracy in the use of appropriate tools and equipment for storage preparation or stored crop assessment, resulting in acceptable accuracy of data with sufficient detail/ adequately prepared storage.</p> <p>Good understanding and analysis of observations/ readings against quality standards/specifications resulting in minimal potential wastage.</p>	<p>Excellent understanding and accuracy in the use of appropriate tools and equipment for storage preparation or stored crop assessment, resulting in highly detailed accuracy of data/comprehensively prepared storage.</p> <p>Excellent understanding and analysis of observations/readings against quality standards/specifications resulting in no potential wastage.</p>		

Performance Outcome 5 – Maintain the areas surrounding the crop production environment

Assessment theme – Business management

Guidance for markers

The following evidence must be used to assess performance against this assessment theme, within the context of the performance outcome:

Task 2e:

- Report

Task 5b:

- Assessor Observation form: assessor observation

Task 5b:

- Assessor Observation form: assessor observation

Task 5c:

- Assessor Observation form: assessor observation

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

Indicative content

Typical evidence for Task 2e may include:

Report

- Plan the maintenance of a permanent stock-proof boundary:
 - justifications for plan eg spacing of barbed wire and netting to prevent sheep getting their heads through the fence, position of staples on posts to prevent splitting of the post
 - labelled diagram showing a site plan of the permanent stock-proof boundary:
 - posts – size, type, spacing

- consumables – eg staples (including quantity required)
- wire/netting – gauge, structure, length, spacing.
- environmental considerations, legislation and codes of practice eg treated posts, blocking rights of way
- waste disposal and recycling strategy
- costs – calculations must show workings.

Typical evidence for Task 5a may include:

Assessor observation

- Appropriate disposal of waste (off cuts of wire etc) eg classify and segregate waste for appropriate storage and disposal.

Typical evidence for Task 5b may include:

Assessor observation

- Appropriate disposal of waste (if any).
- Appropriate use of hand, power or mechanical tools demonstrated: enhancement of boundaries.

Typical evidence for Task 5c may include:

Assessor observation

- Appropriate disposal of waste (vegetation, debris from the drains).
- Appropriate use of hand, power or mechanical tools demonstrated: clearance of waterway, removal of unwanted vegetation, control of weeds (avoiding damage to boundaries).

Assessment theme: Business management	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks per sub-theme	Total marks for assessment theme
Marks per band	1–2	3–4	5–6	n/a	6
	<p>Limited accuracy of planning/ calculations/ communication/ waste disposal, resulting in a limited meeting of the required standard.</p> <p>Limited consideration of environmental impact, resulting in significant potential negative impacts.</p>	<p>Good accuracy of planning/ calculations/ communication/ waste disposal, resulting in adequately meeting the required standard.</p> <p>Good consideration of environmental impact, resulting in minimal potential negative impacts.</p>	<p>Excellent accuracy of planning/ calculations/ communication/ waste disposal resulting in comprehensively meeting the required standard.</p> <p>Comprehensive consideration of environmental impact resulting in no potential negative impacts/ mitigation of unavoidable negative impacts.</p>		

Assessment theme – Estate maintenance

Guidance for markers

The following evidence must be used to assess performance against this assessment theme, within the context of the performance outcome:

Task 2e:

- Report

Task 5a:

- Assessor Observation form: assessor observation
- Photo evidence

Task 5b:

- Assessor Observation form: assessor observation
- Photo evidence

Task 5c:

- Assessor Observation form: assessor observation
- Photo evidence

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

Indicative content

Typical evidence for Task 2e may include:

Report

- Construction techniques used to maintain and repair boundaries: plan of fence maintenance fulfils requirement using posts, wire and netting.

Typical evidence for Task 5a may include:

Assessor observation

- Install a 6 metres of stock-proof fence:
 - correct selection of tools, equipment and machinery
 - correct pre-use checks on tools and machinery
 - posts spaced appropriately to length and undulation of the land, vertical, in-line and to correct depth for the netting and barbed wires
 - stock netting sufficiently and suitably attached
 - barbed wire correctly strained
 - use of appropriate hand, power or mechanical tools demonstrated.

Photo evidence

- This task must be photographed by the assessor to support the marking and moderation process, as a minimum:
 - photos of the finished boundary: full section, sample of post (vertical), sample of wire attachment (including staple), strainer (how wire has been wound).

Typical evidence for Task 5b may include:

Assessor observation

- Plant 20 hedging plants:
 - correct selection of tools, equipment and machinery
 - correct pre-use checks on tools and machinery eg handles securely attached, cutting edges
 - safe and efficient use of tools eg planting spade, mallet
 - plants at correct spacing, depth, heeled in, no damage, guarded
 - appropriate use of hand, power or mechanical tools demonstrated.

Photo evidence

- This task must be photographed by the assessor to support the marking and moderation process, as a minimum:
 - photos of the finished hedge: full hedge (in line), individual guarded plant (depth).

Typical evidence for Task 5c may include:

Assessor observation

- Check a ditch and drain outfalls.
- Carry out remedial work to ensure free flow of water
 - correct selection of tools, equipment and machinery
 - correct pre-use checks on tools and machinery
 - appropriate use of hand, power or mechanical tools demonstrated.

Photo evidence

- This task must be photographed by the assessor to support the marking and moderation process, as a minimum:
 - photos of 'before' and 'after' the candidate has undertaken the task: whole area.

Assessment theme: Estate maintenance	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks per sub-theme	Total marks for assessment theme
Marks per band	1–4	5–8	9–12	n/a	12
	<p>Limited knowledge and understanding of estate maintenance methods and techniques, resulting in selection of basic tools and equipment.</p> <p>Basic knowledge and its application in set-up/checking or maintenance of machinery and equipment, resulting in limited effectiveness when operated.</p> <p>Basic use of tools, equipment and appropriate techniques, resulting in incomplete work/significant wastage of materials.</p> <p>Maintenance safely completed to basic specified requirements.</p>	<p>Good knowledge and understanding of estate maintenance methods and techniques, resulting in selection of mostly appropriate required tools and equipment.</p> <p>Good knowledge and its application in set-up/checking or maintenance of machinery and equipment, resulting in good effectiveness when operated.</p> <p>Good use of tools, equipment, and appropriate techniques, resulting in completion of work to an acceptable standard/minimal wastage of materials.</p> <p>Maintenance safely completed to adequate specified requirements.</p>	<p>Excellent knowledge and understanding of estate maintenance methods and techniques, resulting in in comprehensive selection of tools and equipment.</p> <p>Comprehensive knowledge and its application in set-up/checking or maintenance of machinery and equipment, resulting in excellent effectiveness when operated.</p> <p>Excellent use of tools, equipment and appropriate techniques, resulting in completion of work to an excellent standard/no wastage of materials.</p> <p>Maintenance safely and comprehensively completed to specified requirements.</p>		

8. Links to Maths, English and Digital Skills

The table below indicates where each of the General Maths, English and Digital Competencies have been integrated into the assignment tasks.

Task	Skills
1 Field-based crop establishment and assessing a crop for harvest	EC1, EC2, EC3, EC4, EC5, EC6 MC1, MC2, MC4, MC5, MC8 DC1, DC4
2 Business, crop, and estate planning	EC1, EC2, EC3, EC4, EC5 MC1, MC2, MC4, MC5, MC8, MC9, MC10 DC1, DC4
3 Produce container-based crops	EC1, EC2, EC3, EC4, EC5, EC6 MC1, MC2, MC4, MC5 DC1, DC4
4 Produce field-based crops	EC1, EC2, EC3, EC4, EC5, EC6 MC1, MC2, MC4, MC5 DC1, DC4
5 Estate management	MC1, MC2, MC4, MC5 DC4

9. Declaration of authenticity

Assessment ID	Qualification number
Candidate name	Candidate number
Centre name	Centre number

Additional Support

Has the candidate received any additional support in the production of this work?

No **Yes** (Please tick appropriate)

If yes, give details below (and on a separate sheet if necessary).

--

Candidate:

I confirm that all work submitted is my own, and that I have acknowledged all sources I have used.

Candidate signature	Date

Assessor:

I confirm that all work was conducted under conditions designed to assure the authenticity of the candidate's work, and am satisfied that, to the best of my knowledge, the work produced is solely that of the candidate.

Assessor signature	Date

Note: Where the candidate and/or assessor is unable to or does not confirm authenticity through signing this declaration form, the work will be returned to the centre, and this will delay the moderation process. If any question of authenticity arises, the assessor may be contacted for justification of authentication.

10. Candidate Record Form (CRF)

T Level Technical Qualifications

T Level Technical Qualification – Crop Production Occupational Specialism

Candidate name	Candidate number
Centre name	Centre number

Marker Notes – Please always refer to the relevant marking grid for guidance on allocating marks and make notes which describe the quality of the evidence and justification of marks.

Please record any guidance, intervention (including Health and Safety) or feedback that is given to a candidate.

Expand fields as required.

Assessment window – October to November

PO2 Establish crops in field and container-based systems for optimum yield and quality												
Preparing for field-based crop establishment												
	1	2	3	4	5	6						
Mark	Notes and justification											
Health and safety in field-based crop establishment												
	1	2	3	4	5	6						
Mark	Notes and justification											
Field-based crop establishment												
	1	2	3	4	5	6	7	8	9	10	11	12
Mark	Notes and justification											

PO4 Harvest crops for commercial markets						
Assessing a crop for harvest						
	1	2	3	4	5	6
Mark	Notes and justification					

Assessment window – January to May

PO2 Establish crops in field and container-based systems for optimum yield and quality

Health and safety in container-based crop establishment												
	1	2	3	4	5	6						
Mark	Notes and justification											
Container-based crop establishment												
	1	2	3	4	5	6	7	8	9	10	11	12
Mark	Notes and justification											

PO3 Manage crops in field and container-based systems to optimise yield and quality												
Field-based crop monitoring												
	1	2	3	4	5	6	7	8	9			
Mark	Notes and justification											
Field-based crop management												
	1	2	3	4	5	6	7	8	9	10	11	12
Mark	Notes and justification											
Container-based crop monitoring												
	1	2	3	4	5	6	7	8	9	10	11	12
Mark	Notes and justification											
Container-based crop management												
	1	2	3	4	5	6	7	8	9			
Mark	Notes and justification											

PO4 Harvest crops for commercial markets												
Business planning												
	1	2	3	4	5	6						
Mark	Notes and justification											
Harvesting field-based crop												
	1	2	3	4	5	6	7	8	9	10	11	12
Mark	Notes and justification											
Harvesting container-based crop												
	1	2	3	4	5	6						

Mark	Notes and justification					
Crop storage						
	1	2	3	4	5	6
Mark	Notes and justification					

PO5 Maintain the areas surrounding the crop production environment												
Business management												
	1	2	3	4	5	6						
Mark	Notes and justification											
Estate maintenance												
	1	2	3	4	5	6	7	8	9	10	11	12
Mark	Notes and justification											

Internal assessor signature	Date

Total

11. Assessor observation forms

Assessor Observation Form (1a Assess a field-based crop in preparation for harvest)

Task	Assessment component number
1a) Assess a field-based crop in preparation for harvest	8717-400
Candidate name	Candidate number
Centre name	Assessment themes
	PO4: Assessing a crop for harvest

Complete the table below referring to the relevant marking grid, found in the assessment pack. Do not allocate marks at this stage.

Assessor observation	Notes – <i>detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.</i>
<ul style="list-style-type: none"> Collection and assessment of the crop sample. Calculation of the yield. Disposes of waste appropriately. The candidate's findings must reflect the actual status of the crop. 	

Assessor signature	Date

Assessor Observation Form (1b Plan a field-based crop)

Task	Assessment component number
1b) Plan a field-based crop	8717-400
Candidate name	Candidate number
Centre name	Assessment themes
	PO2: Preparing for field-based crop establishment PO2: Field-based crop establishment

Complete the table below referring to the relevant marking grid, found in the assessment pack. Do not allocate marks at this stage.

Assessor observation	Notes – detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.
<ul style="list-style-type: none"> • Prepare equipment and germinating media. • Accurately count and place 100 seeds. • Following germination count the germinated seeds to work out seed viability. 	

Assessor signature	Date

Assessor Observation Form (1c Establish a field-based crop)

Task	Assessment component number
1c) Establish a field-based crop	8717-400
Candidate name	Candidate number
Centre name	Assessment themes
	PO2: Preparing for field-based crop establishment PO2: Health & safety in field-based crop establishment PO2: Field-based crop establishment

Complete the tables below referring to the relevant marking grid, found in the assessment pack. Do not allocate marks at this stage.

Assessor observation	Notes – detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.
<ul style="list-style-type: none"> • Machinery: <ul style="list-style-type: none"> ○ Attachment (cultivator only), calibration (drill only), pre-use checks and set-up (both). ○ If a combination drill: attachment, calibration, pre-use checks and set-up. • Use of machinery including accuracy of driving, efficient operation and post-use checks for 3 passes and 2 turns (both cultivator and drill (both cultivator and drill, or 3 passes and 2 turns for the combination drill)). • Safely park the machinery and equipment. • Undertake post-use checks to the machinery and equipment. • Cultivation depth including required adjustments. • Sowing depth including required adjustments. 	

Tramlining does not need to be assessed.	
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Responses to questions	Notes – <i>detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.</i>
<ul style="list-style-type: none"> • What are the responsibilities of the employer and the employee under current health and safety regulations and legislation relevant to the preparation and use of machinery for crop establishment? • Name and describe two relevant pieces of health and safety legislation in relation to the preparation and use of machinery for crop establishment. • Why is it important for you to follow the regulations and legislation? • Explain how to limit damage to soil structure during cultivation and drilling. • How can soil structure be improved between crops? • Explain the establishment stage of the winter combinable cereal crop in relation to its lifecycle. 	Assessors must make an audio recording of the responses for moderation purposes.

Assessor signature	Date

Assessor Observation Form (3a Establish indoor container-based crops)

Task	Assessment component number
3a) Establish indoor container-based crops	8717-400
Candidate name	Candidate number
Centre name	Assessment themes
	PO2: Health & safety in container-based crop establishment PO2: Container-based crop establishment

Complete the tables below referring to the relevant marking grid, found in the assessment pack. Do not allocate marks at this stage.

Assessor observation	Notes – detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.
<ul style="list-style-type: none"> • Selection and preparation of resources. • Safe, accurate and efficient work, using appropriate tools and equipment, avoiding wastage and working at appropriate speed. • Preparation of site, fill and make ready six standard cress punnets/trays and broadcast sow with fine (small) seeds (rate specified with the seeds). • Collection and preparation of 30 soft-stem cuttings; prepare one or more suitable containers for insertion of cuttings; undertake trimming and other applicable treatment and insert cuttings. • Place completed propagation into appropriate environment and carry out immediate post-propagation maintenance. • Disposes of waste appropriately. • Complete relevant records and labelling as applicable eg what sown, growing medium, date, source plant (for cuttings). 	

Responses to questions	Notes – <i>detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.</i>
<ul style="list-style-type: none"> • What regulations apply to propagation and sale? • Explain the advantages of a glasshouse compared to a polytunnel for vegetative propagation. • Compare mist units with polythene covers for the rooting environment for vegetative propagation. 	<p>Assessors must make an audio recording of the responses for moderation purposes.</p>

Assessor signature	Date

Assessor Observation Form (3b Manage container-based crop performance)

Task	Assessment component number
3b) Manage container-based crop performance	8717-400
Candidate name	Candidate number
Centre name	Assessment themes
	PO3: Container-based crop monitoring PO3: Container-based crop management

Complete the tables below referring to the relevant marking grid, found in the assessment pack. Do not allocate marks at this stage.

Assessor observation	Notes – detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.
<ul style="list-style-type: none"> • Safe, accurate and efficient work, using appropriate tools and equipment, avoiding wastage and working at appropriate speed. • Irrigation. • Liquid feed. • Transplanting/potting up. • Disposes of waste appropriately. 	<p>The candidate’s findings must reflect the actual status of the crop when they visit, so the assessor must observe and record the status of the crop on each visit</p>

Responses to questions	Notes – <i>detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.</i>
<ul style="list-style-type: none"> • Weeds, pests, diseases, and disorders within the cropping environment: <ul style="list-style-type: none"> ○ Why did you recommend particular control measures? ○ Why is accurate timing of control measures important? • Irrigation – what factors did you consider to irrigate the crop when you did? • Feeding – why did you feed the crop when you did? • Transplanting – how did you decide when to transplant the crop? 	<p>assessors must make an audio recording of the responses for moderation purposes.</p>

Assessor signature	Date

Assessor Observation Form (3c Collect and prepare a container-based crop for sale)

Task	Assessment component number
3c) Collect and prepare a container-based crop for sale	8717-400
Candidate name	Candidate number
Centre name	Assessment themes
	PO4: Harvesting container-based crop

Complete the table below referring to the relevant marking grid, found in the assessment pack. Do not allocate marks at this stage.

Assessor observation	Notes – detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.
<ul style="list-style-type: none"> • Grading, preparation, pre-treatment, and packing ready for despatch or sale. • Select and prepare appropriate resources for the task. • The candidate must carry out relevant preparation prior to packing into appropriate carry trays or onto Danish trolley shelves, eg remove dead leaves, weeding, watering, final feed, deadheading, pest and disease removal/rejection of crop. • Disposes of waste appropriately. 	

Assessor signature	Date

Assessor Observation Form (4a Manage field-based crop performance)

Task	Assessment component number
4a) Manage crops in field and container-based systems to optimise yield and quality	8717-400
Candidate name	Candidate number
Centre name	Assessment themes
	PO3: Field-based crop monitoring PO3: Field-based crop management

Complete the tables below referring to the relevant marking grid, found in the assessment pack. Do not allocate marks at this stage.

Assessor observation	Assessor notes
<ul style="list-style-type: none"> The candidate's findings must reflect the actual status of the crop when they visit, so the assessor must observe and record the status of the crop on each visit. 	

Assessor signature	Date

Assessor Observation Form (4b Apply nutrients to a field-based crop)

Task	Assessment component number
4b) Apply nutrients to a field-based crop	8717-400
Candidate name	Candidate number
Centre name	Assessment themes
	PO3: Field-based crop monitoring PO3: Field-based crop management

Complete the tables below referring to the relevant marking grid, found in the assessment pack. Do not allocate marks at this stage.

Assessor observation	Notes – <i>detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.</i>
<ul style="list-style-type: none"> • Check safety, suitability and cleanliness of machinery and equipment. • Safe and accurate operation: application of nutrients, assessment is of the accuracy of application using either a slurry tanker/manure spreader or fertiliser spreader/sprayer, 3 bouts and 2 turns. • Safely park the machinery and equipment after the nutrient application. 	

Responses to questions	Notes – <i>detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.</i>
<p>i)</p> <ul style="list-style-type: none"> • What are the potential environmental impacts that may arise when inorganic fertiliser is applied? • Explain how to set-up and calibrate a fertiliser spreader. • Explain how modern technology can assist in the application of fertiliser. • How is the machinery and equipment cleaned, checked, and stored after use? <p>ii)</p> <ul style="list-style-type: none"> • Explain the vegetative and reproductive growth stages of the crop in relation to its lifecycle. • Explain the potential end uses of this crop. 	<p>Assessors must make an audio recording of the responses for moderation purposes.</p>

Assessor signature	Date

Assessor Observation Form (4c Harvest a field-based crop)

Task	Assessment component number
4c) Harvest a field-based crop	8717-400
Candidate name	Candidate number
Centre name	Assessment themes
	PO4: Harvesting field-based crop

Complete the tables below referring to the relevant marking grid, found in the assessment pack. Do not allocate marks at this stage.

Assessor observation	Notes – detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.
<p>Prepare tractor and trailer to harvest and store a grass silage crop:</p> <ul style="list-style-type: none"> • Assess the safety and suitability of the tractor and trailer for the task: walk around check. • Ensure the equipment is clean. • Set up the tractor and trailer according to manufacturer’s recommendations: hitch on, connect external services. <p>Operate the tractor and trailer to harvest a grass silage crop and transport to store:</p> <ul style="list-style-type: none"> • Safely and efficiently operate tractor and trailer to offload the crop from the harvester: one full load. • Safely and legally transport the crop to a specified location – if travelling on a public highway, it is acceptable for a licensed driver to assist if the candidate does not hold a licence. • Safely offload the crop at the store. 	

<ul style="list-style-type: none"> • Safely park the machinery and equipment. • Apply precise and controlled movements of equipment to show physical dexterity. • Monitor quality of their work, making adjustments as required, to meet objectives. 	
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Responses to questions	Notes – <i>detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.</i>
<p>i):</p> <ul style="list-style-type: none"> • What parts of the trailer need regular lubrication? • What could make the tractor and trailer incompatible? • Explain how to minimise soil damage when harvesting crops. • Explain the considerations at harvesting to produce good quality grass silage. 	<p>Assessors must make an audio recording of the responses for moderation purposes.</p>

Assessor signature	Date

Assessor Observation Form (4d Assess a stored field-based combinable crop)

Task	Assessment component number
4d) Assess a stored field-based combinable crop	8717-400
Candidate name	Candidate number
Centre name	Assessment themes
	PO4: Crop storage

Complete the table below referring to the relevant marking grid, found in the assessment pack. Do not allocate marks at this stage.

Assessor observation	Notes – detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.
<ul style="list-style-type: none"> • Correct use of sampling equipment. • Assessment of representative samples of the crop. • Disposes of waste appropriately. 	

Assessor signature	Date

Assessor Observation Form (5a Maintain a stock proof boundary)

Task	Assessment component number
5a) Maintain a stock proof boundary	8717-400
Candidate name	Candidate number
Centre name	Assessment themes
	PO5: Business management PO5: Estate maintenance

Complete the table below referring to the relevant marking grid, found in the assessment pack. Do not allocate marks at this stage.

Assessor observation	Notes – detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.
<ul style="list-style-type: none"> • Demonstrate safe and efficient use of hand, power and/or mechanical tools appropriate to the task, including pre-use checks. • Post placement: depth, vertical, spacing, in line with marker. • Netting: tensioned, attachment (number and depth of staples). • Barbed wire: tensioned, attachment (number, position, and depth of staples). • Disposes of waste appropriately. 	

Assessor signature	Date

Assessor Observation Form (5b Maintain a hedge)

Task	Assessment component number
5b) Maintain a hedge	8717-400
Candidate name	Candidate number
Centre name	Assessment themes
	PO5: Business management PO5: Estate maintenance

Complete the table below referring to the relevant marking grid, found in the assessment pack. Do not allocate marks at this stage.

Assessor observation	Notes – detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.
<ul style="list-style-type: none"> • Demonstrate safe and efficient use of tools, including pre-use checks. • Planting: spacing, depth, heeled in, no damage. • Guarding. • Disposes of waste appropriately. 	

Assessor signature	Date

Assessor Observation Form (5c Maintain a ditch/drain)

Task	Assessment component number
5c) Maintain a ditch/drain	8717-400
Candidate name	Candidate number
Sample Candidate	CG12345
Centre name	Assessment themes
Sample Centre	PO5: Business management PO5: Estate maintenance

Complete the table below referring to the relevant marking grid, found in the assessment pack. Do not allocate marks at this stage.

Assessor observation	Notes – detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.
Carry out remedial work to ensure free flow of water: <ul style="list-style-type: none"> • Correct selection of tools, equipment and machinery. • Correct pre-use checks on tools, equipment and machinery. • Safe and efficient use of tools, equipment and machinery as appropriate to the task. • Disposes of waste appropriately. 	

Assessor signature	Date

12. Annex

Crop assessment in preparation for harvest template (Figure 1)

To be issued to the candidate with sub task 1a

Risk assessment template (Figure 2)

To be issued to the candidate with sub tasks 1c and 3a

Field record template (Figure 3)

To be issued to the candidate with sub task 1c

Existing field-based crops (Figure 4)

Issued in Assessment Brief 2; used in sub tasks 2c and 2d

Estate materials list (Figure 5)

Issued in Assessment Brief 2; used in sub task 2e

Field-based crop gross margin template (Figure 6)

To be issued to the candidate with sub task 2d

Container-based crop propagation record template (Figure 7)

To be issued to the candidate with sub task 3a

Container-based crop diary template (Figure 8)

To be issued to the candidate with sub task 3b

Container-based crop collection order sheet template (Figure 9)

To be issued to the candidate with sub task 3c

Field record – Inorganic/organic fertiliser applications template (Figure 10)

To be issued to the candidate with sub task 4b

Field-based crop harvest record template (Figure 11)

To be issued to the candidate with sub task 4c

Field-based combinable crop storage monitoring template (Figure 12)

To be issued to the candidate with sub task 4d

Crop assessment in preparation for harvest template (Figure 1)

Candidate's name		Enrolment number	
Task/Activity	1a) Assess a field-based crop in preparation for harvest	Location	
Assessor's name		Date of assessment	

Date:	
Crop type and variety: (Provided by assessor)	
Field name:	
Sample location:	
Assessment of cob maturity:	
Number of plants sampled:	
Fresh weight of sample:	
Sowing rate: (Provided by assessor)	
Estimated yield calculation: (Based on current crop maturity)	<i>(Show calculation)</i>
Current conditions: (Crop, ground and weather)	
Decision with justification: (Whether to harvest, including explanation of how photos represent the findings)	

Risk assessment template (Figure 2)

This template may be modified by adding items/rows only.

Candidate's name	_____	Enrolment number	_____
Task / Activity	_____	Location	_____
Assessor's name	_____	Date of assessment	_____

Item no.	What are the hazards?	Who might be harmed and how?	What precautions are already in place?	Risk rating (High/Medium/Low)	What further action is necessary?	Action by who and when?	Residual risk rating (High/Medium/Low/Trivial)

Date of assessment:	Risk assessment carried out by:
---------------------	---------------------------------

Field record template (Figure 3)

Candidate's name		Enrolment number	
Task/Activity	1c) Establish a field-based crop	Location	
Assessor's name		Date of assessment	

Field name/number/ID:	Area (ha.):	Harvest Year:
Current Crop:	Variety:	Seed dressing:
Purchased seed lot number (if applicable):	Home saved seed (if applicable):	Cultivation method:
Sowing date:	Seed rate:	Seed depth:
Comments:		

Field-based crop gross margin template (Figure 6)

Candidate's name		Enrolment number	
Task/Activity	2d) Business review	Location	
Assessor's name		Date of assessment	

	£/ha:	£/Total area grown:	Benchmark Data (£/ha):
Enterprise Output:			
Crop: _____			
Yield: _____ t/ha			
Selling price: _____ £/t			
Total area grown: _____ ha			
TOTAL ENTERPRISE OUTPUT:			
Variable Costs:			
Seed			
Fertiliser			
Spray			
TOTAL VARIABLE COSTS:			
GROSS MARGIN:			

Container-based crop propagation record template (Figure 7)

Candidate's name		Enrolment number	
Task/Activity	3a) Establish indoor container-based crops	Location	
Assessor's name		Date of assessment	

Date:	
Plant name:	
Source material:	
Quantity:	
Glasshouse/tunnel number:	
Bench:	
Required propagation conditions:	

Date:	
Plant name:	
Source material:	
Quantity:	
Glasshouse/tunnel number:	
Bench:	
Required propagation conditions:	

Container-based crop diary template (Figure 8)

(Additional copies of the second page to be provided as required by the candidate)

Candidate's name		Enrolment number	
Task/Activity	3b) Manage container-based crop performance	Location	
Assessor's name		Date of assessment	

Crop:

Glasshouse/tunnel number:

Bench:

Date of crop visit:	Observations:	Recommendation for actions: (with justification)	Actions taken: (with justification)

Date of crop visit:	Observations:	Recommendation for actions: (with justification)	Actions taken: (with justification)

Container-based crop collection order sheet template (Figure 9)

Candidate's name		Enrolment number	
Task/Activity	3c) Collect and prepare a container-based crop for sale	Location	
Assessor's name		Date of assessment	

Customer:	
Crop:	Osteospermum in 10.5cm pots
Quantity ordered:	10x
Specification:	Grade 1 Number of branches/shoots per plant: Number of open flowers: Labelling:
Crop collected to specification: (tick)	

Field record – Inorganic/organic fertiliser applications template (Figure 10)

Candidate's name		Enrolment number	
Task/Activity	4b) Apply nutrients to a field-based crop	Location	
Assessor's name		Date of assessment	

Sowing date:

Seed rate:

Date	Product name & analysis	Product application rate (kg/ha)	Nutrient application rate (kg/ha)				Operator
			N	P	K	S	

Field-based crop harvest record template (Figure 11)

Candidate's name		Enrolment number	
Task/Activity	4c) Harvest a field-based crop	Location	
Assessor's name		Date of assessment	

Field name/number/ID:	Area (ha.):	Harvest year:
Crop:	Variety:	Harvest date:
Load 1 - estimated weight:		
Comments:		

Field-based combinable crop storage monitoring template (Figure 12)

Candidate's name		Enrolment number	
Task/Activity	4d) Assess a stored field-based combinable crop	Location	
Assessor's name		Date of assessment	

Store name/number:	Bin/bulk/bay number:	Crop stored:	Typical crop specification: Temperature: Moisture: Hectolitre weight:
---------------------------	-----------------------------	---------------------	---

Date	Location in store reading taken	Temp °C	Moisture %	Hectolitre weight kg/hl	Insect traps checked	Tick if present		Action taken/Comments/Recommendations
						Rodents	Birds	
					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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