T Level Technical Qualification in Agriculture, Land Management and Production

Crop Production Occupational Specialism

Guide Standard Exemplification Material Threshold Competence – Sample April 2024

Version and date	Change detail	Section
November 2023 v1.0		
April 2024 v1.1	Photo evidence added to task 4a and text amended to reflect the photos. Quantified weeds in task 4a	Task 4

Contents

Introduction

The sample evidence within this document refer to the Crop production Occupational Specialism assignment. The aim of these materials is to provide centres with examples of knowledge, skills and understanding that attest to a threshold competence grade.

The evidence presented here has been developed to reflect a threshold competence grade within each task but is not necessarily intended to reflect the work of a single candidate. It is important to note that in live assessments a candidate's performance is very likely to exhibit a spikey profile and the standard of performance will vary across tasks. The Guide Standard Exemplification Material (GSEM) illustrates linear performance across all pieces of evidence at the grade. Threshold competence grade will be based on a synoptic mark across all tasks.

The evidence in this GSEM is separated into the sections as described below. Evidence is presented against tasks from the assignment. Assessors using the GSEM may find it helpful to review this document along with the sample assessment materials.

Task
This section details the evidence to be submitted for marking and any additional evidence required including any photo/video evidence. Also referenced in this section are the performance outcomes and assessment themes the evidence will be marked against when completing the tasks within it. In addition, evidence that has been included or not been included in this GSEM has been identified within this section.

In this GSEM there is evidence from:

- Task 1
- Task 2
- Task 3
- Task 4
- Task 5

Evidence
This section includes exemplars of evidence, photos/video recordings of the evidence in production (or completed) and assessor observation records of the assessment completed by centre assessors. This will be exemplar evidence that was captured as part of the assessment and then internally marked by the centre assessor.

The items of evidence included in the GSEMs are designed to illustrate the grade at evidence level. They are not intended to reflect the performance of a single candidate across the assignment. Not all items of evidence are included in the GSEM, however a representative sample of evidence from across the assignment has been included to sufficiently illustrate the standard of performance expected for each type of evidence.

Commentary

This section includes detailed comments to demonstrate how the evidence attests to the standard of threshold competence.

It is important to note that the commentary section is not part of the evidence or assessment but are evaluative statements on how and why that piece of evidence meets a particular standard.

Grade descriptors

To achieve a pass (threshold competence), a candidate will typically be able to:

Demonstrate an adequate level of performance that meets minimum industry requirements, demonstrating sound technical skills and techniques to safely carry out work to adequate quality standards within time constraints.

Carry out practical tasks applying adequate industry knowledge and understanding of establishing, managing and harvesting field-based and container-based crops, and maintaining the surrounding area to achieve industry standards of crop yield and quality.

Work within relevant environmental and health and safety legislation and regulations, identifying potential risks and applying adequate control measures prior to commencing tasks.

Prepare machinery and equipment to an adequate standard to safely carry out tasks, applying adequate control measures during tasks.

Present information to an adequate standard in appropriate records, such as field and storage records.

Apply knowledge and understanding of financial records and information, markets, and methods of promotion to make adequate decisions.

Mostly use technical terminology accurately.

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

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

Evidence contributes to the following:

Performance outcome	Assessment themes
PO4 Harvest crops for commercial markets	Assessing a crop for harvest

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this GSEM
crop assessment in preparation for harvest	PO4: Assessing a crop for harvest	√		√
assessor observation			√	√
photos		√	√	√

Candidate evidence - crop assessment in preparation for harvest and photos

Date:	20/10/22
Crop type and variety: (Provided by assessor)	Forage maize
Field name:	Six
Sample location:	Start of row (photo 1)
Assessment of cob maturity:	Grain is ripe (photo 2)
Number of plants sampled:	Two
Fresh weight of sample:	0.75 kg for both plants
Sowing rate: (Provided by assessor)	100,000 seeds/hectare
Estimated yield calculation: (Based on current crop maturity)	*(Show calculation)* 0.75 kg/2 x 100,000 = 37,500 kg/ha = 37.5 t/ha
Current conditions: (Crop, ground and weather)	**Crop:** fungal marks on leaves (unidentified) (photo 3). **Ground/soil:** very wet ground. **Weather:** windy.
Decision with justification: (Whether to harvest, including explanation of how photos represent the findings)	Crop is ready (photo 2 of grain), but ground is too wet to go on. Check again when ground is drier. Check what the fungal infection is.

Photo/video evidence

- photos that can be used to support the findings:

Photo 1 (candidate) Sample location

Photo 2 (candidate) Cob maturity

Photo 3 (candidate) Fungal marks on leaves

Commentary

The candidate provided an adequate record of their **assessment of the crop for harvest**, with most sections appropriately completed: their calculation is correct, as is their decision to revisit when the ground is drier. The candidate included photos which support their findings.

Technical terminology is mostly accurately used, eg the unit for calculation of the yield, although it hasn't been stated that this is the fresh weight yield.

The candidate correctly took two plant samples which gave an average, but the samples were from the start of the row which does not give a reliable representation of the crop and resulted in a lower yield weight than a more representative sample would have given.

The candidate's approaches to the task are recorded with some gaps in detail eg they haven't noted the twisted grains, how they decided that the cob is ready for harvest, or the scale of the fungal marks on the leaves. The candidate applied their sound understanding of **crop assessment** to decide to check again when the ground is drier.

Assessor evidence – assessor observation and photos

Task	Assessment component number
1a) Assess a field-based crop in preparation for harvest	8717-400
Candidate name	**Candidate number**
Sample Candidate	CG12345
Centre name	**Assessment themes**
Sample Centre	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 – *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.*
• Collection and assessment of the crop sample.	The candidate took two samples from the start of a row in the headland (adjacent to the gateway). They safely used secateurs to cut the samples; they cut about 10cm lower than a forager would cut (ground level) (photo 1).
• Calculation of the yield.	They used the scales correctly to weigh (photo 2) the fresh weight of the two samples, which they correctly recorded and included in their calculation. Note: the plants were positioned on the scale without resting on the table.
• Disposes of waste appropriately.	They disposed of the waste material (samples) by placing them onto a heap of farmyard manure.
• The candidate's findings must reflect the **actual** status of the crop.	Their record on the *Crop assessment in preparation for harvest form* reflected the actual conditions. They correctly assessed and recorded: • the crop has reached maturity • that a disease was present with fungal marks on leaves • the crop's readiness for harvest: waterlogged ground and weather conditions.

Assessor signature	Date
Sample Assessor	20/10/22

Photo/video evidence

- Photos:
    - collection and assessment of the crop sample: cutting, weighing.

Photo 1 (assessor) Cutting crop sample

Photo 2 (assessor) Weighing crop sample

Commentary

The candidate took an adequate sample for their **assessment of the crop for harvest**, taking two plants as samples using an appropriate method (secateurs), although they could have taken samples from two different areas with different growing conditions away from the gateway. The candidate used the secateurs safely.

The candidate cut the samples at ground level, rather than the height a forager would cut, which gave them a reasonably accurate result when weighing the samples. This resulted in a yield calculation with acceptable accuracy.

Task 1b) Plan a field-based crop

Evidence contributes to the following:

Performance outcome	Assessment themes
PO2 Establish crops in field and container-based systems for optimum yield and quality	Preparing for field-based crop establishment
	Field-based crop establishment

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this GSEM
report	PO2: Preparing for field-based crop establishment PO2: Field-based crop establishment	√		√
assessor observation	PO2: Preparing for field-based crop establishment		√	√
photos			√	√

Candidate evidence - report

(Word count: 262)

The plan is to sow winter wheat in October.

Germination test percentage

A germination test was carried out using a sample of the seed available for sowing. This was carried out by planting 100 seeds into compost. I selected the same size of seed (they were all large seeds).

After one week I counted the number of established seeds, and the result was 85% germination. The calculation was 85/100 x 100 = 85%

Planting density

The thousand grain weight provided by the assessor for the winter wheat seed is 55g.

The required plant establishment for October sowing is 325 plants per m^2.

To calculate the seed sowing rate, I used this calculation:

> Target plant establishment (plants per m^2) x thousand grain weight / germination rate = sowing rate in kilograms per hectare (kg/ha)
>
> 325 x 55/85 = 210.2

The required seed sowing rate is 210kg/ha. (I rounded down)

Seedbed requirements

The seedbed needs to be moist, with level ground conditions. Winter wheat is usually sown in rows by a drill.

There must be good seed to soil contact so the soil may need to be worked before sowing. You must be careful not to damage the soil structure, so must not work when the ground Is wet.

Following the sowing, the seedbed is rolled to help with seed to soil contact and to make sure moisture is kept in the ground to help with germination.

Sowing depth

The best drilling depth for the winter wheat seed is 30mm. If it is too deep or too shallow the seed may not grow properly.

Commentary

The candidate applied adequate knowledge and understanding of **preparing for and undertaking field-based crop establishment** to produce a clear report, although it lacks detail. For example, the candidate applied their knowledge of **field-based crop**

establishment to note the basic seed bed requirements, but they haven't allowed for winter losses when calculating the planting density.

The candidate mostly used technical terminology correctly, for example the seed sowing density is correct for the crop, and mention of 'seed to soil contact,' but they stated 'worked' rather than 'cultivated,' and 'grow' rather than 'germinate.'

The candidate correctly calculated the sowing rate using the findings from their germination test. As noted in the observation, the germination test results were not completely accurate, resulting in a minor error.

Note about typical word counts: Whilst a candidate demonstrating threshold competence may write more descriptively and use more words, this example evidence has used fewer words so that the required standard of work is accessible and clear.

Assessor evidence – assessor observation and photos

Task	Assessment component number
1b) Plan a field-based crop	8717-400
Candidate name	**Candidate number**
Sample Candidate	CG12345
Centre name	**Assessment themes**
Sample Centre	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.*
• Prepare equipment and germinating media. • Accurately count and place 100 seeds.	A standard seed tray was over-filled with multi-purpose compost, and then struck-off with the edge of a presser board. It was then pressed down to create a reasonably level surface 1.5cm below the top of the tray (photo 1). The surface of the compost was watered evenly using a watering can with a fine rose resulting in a suitable amount of water being applied. 100 large seeds were selected from the seed batch; There were a significant number of smaller seeds in the seed batch, so the selection of large seeds meant that they didn't have a fully representative sample (photo 2). They selected and placed the seeds by hand, which was unlikely to do any damage. Seeds were scattered unevenly across the surface of the compost (photo 3). There were a few seeds touching that the candidate separated (photo 4). Following placement of the seeds, an uneven layer (5-10mm) of compost was sieved to cover the seeds. This appeared to be adequate to achieve seed to soil contact. The seed tray was placed into a clear plastic bag. The bagged tray was labelled and placed in a safe area. The daily temperature of the room was confirmed as min 17°C and max 20°C. It was confirmed that this temperature range would be consistent throughout the 7-day germination test period.

	Further watering of the compost took place after day 4. This was carried out by the college technician.
• Following germination count the germinated seeds to work out seed viability.	After 7 full days, the emerged germinated seedlings were counted. Any un-emerged seedlings were not checked. The following calculation was used to establish the germination %: Number of seeds germinated / number of seeds sown x 100 = germination % Non-random seed selection and poor planting technique led to a lower germination percentage than expected.

Assessor signature	**Date**
Sample Assessor	20/10/22 & 27/10/22

Photo/video evidence

- Photos:
  - count of seeds
  - the seed tray showing the level of the growing media
  - the completed tray showing the evenness of sowing

Photo 1 (assessor) Seed tray showing the level of the growing media

Photo 2 (assessor) Count of seeds

Photo 3 (assessor) Sowing the seeds

Photo 4 (assessor) Completed tray showing the evenness of sowing

Commentary

The candidate applied an adequate understanding of **preparing for field-based crop establishment** to undertake the germination test. The candidate's preparation resulted in reasonable germination. For example, they correctly counted out 100 seeds, correctly calculated the germination percentage, and when sowing recognised that the seeds must not touch.

The seeds were not evenly covered with the compost which wasted a small amount of compost, although this was unlikely to impact the germination test results. The counting of germinated seeds risked error because the seeds had not been evenly distributed at sowing.

The candidate missed some details which would have ensured a more representative result: they did not use a fully representative sample of seeds (all large seeds), and the random sowing distribution meant that they couldn't count un-chitted seeds (although they didn't check this).

Task 1c) Establish a field-based crop.

Evidence contributes to the following:

Performance outcome	Assessment themes
PO2 Establish crops in field and container-based systems for optimum yield and quality	Preparing for field-based crop establishment
	Health and safety in field-based crop establishment
	Field-based crop establishment

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this GSEM
risk assessment	PO2: Health and safety in field-based crop establishment	√		√
field record	PO2: Field-based crop establishment	√		√
assessor observation, including Q&A	PO2: Preparing for field-based crop establishment PO2: Health and safety in field-based crop establishment PO2: Field-based crop establishment		√	√
photos			√	√
videos			√	√ (part i only)

Candidate evidence – risk assessment

Candidate's name	Sample Candidate	Enrolment number	CG12345
Task/Activity	1c) Establish a field-based crop	Location	Centre training area
Assessor's name	Sample Assessor	Date	20/10/2022

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)
1	Machinery and equipment.	Self and others. Entanglement with machinery and equipment.	All guards in place. PPE (Safety boots, gloves). Safe stop.	Medium	Take care.	All present. All the time.	Low
2	Handling seed.	Self. Skin contact with coatings.	Wear PPE.	Medium	Take care.	Self. Ongoing.	Low
3	Ground conditions (slopes).	Self. Overturn - injury.	Avoid slope.	Low		Self. Ongoing.	Low

Date of assessment: 20/10/2022	Risk assessment carried out by: Sample candidate

Commentary

The candidate completed an adequate risk assessment which would keep themselves and others safe, showing a sound understanding of the requirements of **health and safety in field-based crop establishment**, and the relevant legislation. For example, requiring PPE when handling treated seed, although the candidate didn't identify the specific PPE.

The candidate applied their sound understanding of field-based crop establishment to identify the main hazards and risks. The risk assessment was completed with an adequate understanding of the difference between hazards, risks and control measures, and correctly categorised risk ratings. For example, the candidate identified brief precautions to minimise the risks, although they could have provided more detail such as how ‘safe stop’ would protect from entanglement.

The candidate considered brief further control measures that could be applied to reduce the risk ratings although they are vague; they could have included what practices should be followed rather than state ‘take care.’

Technical terminology was mostly accurately used eg entanglement is correct, although they could have referred to ‘treated seed’ rather than ‘seed.’

Candidate evidence – field record

Candidate's name	Sample Candidate	Enrolment number	CG12345
Task/Activity	1c) Establish a field-based crop	Location	Centre training area
Assessor's name	Sample Assessor	Date of assessment	20/10/2022

Field name/number/ID: No. 4	**Area (ha.):** 12ha	**Harvest Year:** 2023
Current Crop: Winter Wheat	**Variety:** PGA Wynn	**Seed dressing:** Blue Moon
Purchased seed lot number (if applicable): 22/2H/123/4567	**Home saved seed (if applicable):** N/A	**Cultivation method:** Tine cultivator and Power harrow
Sowing date: 20/10/2022	**Seed rate:** 175 kg/ha	**Seed depth:** 30mm
Comments: Good seedbed.		

Commentary

The candidate completed an adequate field record, showing a sound understanding of how to present information for **field-based crop establishment**. All sections have been completed, including information provided by the assessor. The candidate could have provided more detail eg the candidate only made a brief comment about the seedbed conditions and could have included the purpose of the seed dressing, and the end use of the crop.

Assessor evidence – assessor observation, Q&A, photos and video

Task	Assessment component number
1c) Establish a field-based crop	8717-400
Candidate name	**Candidate number**
Sample Candidate	CG12345
Centre name	**Assessment themes**
Sample Centre	PO2: Preparing for field-based crop establishment PO2: Health and safety in 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.*
• Pre-use checks and set-up (cultivator and drill or combination drill).	Safety boots and non-snag clothing were worn throughout all activities. The following **pre-use checks** were carried out to the combination drill: • power harrow tines • coulters and coulter pipes (photo 1) • land wheel to metering unit drive shaft (photo 2) • drill 'A' frame connection • fan belts (photo 3) • overall condition of machine.
• Calibration (drill only or combination drill).	The **calibration** was carried out for the winter wheat seed as follows: • correct calculation was carried out to determine the seed required for 1/10ha (amount to be collected during calibration) • land wheel drive (metering unit end) was disconnected • calibration handle connected • flexible fan unit connection was removed to allow access to collect seed • bucket was attached to weight scale; scale was set to zero with the bucket attached • bucket was placed back underneath the feed roller outlet in preparation for collecting seed • calibration handle was turned 85 full rotations (photo 4) to deliver the required seed for 1/10ha. Initially a small amount of spillage, but they moved the bucket to stop further loss

	• bucket of seed was weighed (photo 5). The seed was returned to the drill hopper (photo 6) • feed roller opening was adjusted to feed significantly more seed (indicated by light weight of collected seed), and the process repeated twice more • following the third calibration the result was as required for 1/10ha • seed was returned to the hopper • flexible fan unit was reconnected, the calibration handle removed, and the land wheel drive reconnected.
• Attachment (cultivator only or combination drill).	The combination drill was **attached** to the tractor as follows (video & photos): • visual check of all linkages and PTO shaft for condition and security • protective PTO stub cover was removed • tractor was started and reversed to align with the implement. Lower links were aligned and connected on the third attempt at reversing (video time: 0:25) • tractor was exited in the correct direction with the engine left running to facilitate use of external linkage controls • lower link connections were visually checked – found not to be correctly aligned so the tractor was moved and realigned with the lower links • one of the lower link connections was pushed to bring into alignment. Acceptable because it was a small adjustment • external linkage controls were used to lift the arms to connect to the implement lower linkage. A safe position for operation of external controls was observed (time: 2:30) • lower links safety catches were connected (photos 7 & 8), followed by connection of the hydraulic top link (photo 9) • hydraulic connection was inserted into the tractor hydraulic connection (photo 10) • tractor was stopped, the key removed and placed into the candidate's pocket • PTO shaft was connected, and safety chain attached (photo 11) • good all-round observation by the candidate was noted during all machinery operation.
• 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, for 3 passes and 2 turns for the	The in-field **use of the combination drill** was observed as follows: • candidate asked the required seed depth; confirmed as 30mm by the assessor • implement depth and lift height were set. The appropriate gear was selected to give a forward speed (at 1000rpm PTO speed) of 4.5kph • land wheel was carefully moved to 'work position' • drill control box was checked to ensure the tramlining function was turned off. Following this the combination drill was raised slightly (to ensure the power harrow tines and coulters were clear of the ground). PTO was engaged to full working speed (1000rpm) to enable the fan to function at the full required speed • air supply to each coulter was checked using a long cane with a small piece of plastic cable tied to the end. This enabled all coulters to be accessed from behind the drill without the candidate being close to the raised drill or power harrow

combination drill). • Cultivation depth including required adjustments. • Sowing depth including required adjustments. Tramlining does not need to be assessed.	• first pass was started but the tractor was not correctly aligned to the previous bout mark resulting in some overlap of sowing. An adjustment was made, taking 10 metres to correctly align the bout • correct bout marker was lowered into work after a few metres • after approx. 20 metres, the tractor forward motion and PTO was stopped but the implement not raised. They checked the level of the implement 'in work' and made a significant adjustment by shortening the hydraulic top link (photo 12) • cultivation depth was checked as suitable, and no adjustments were made to the power harrow rear roller depth stops, or clod board height • seed depth was checked with a measuring tape, and it was identified that the seed was being drilled too deep (photo 13). Coulter pressure handle was adjusted in the correct direction to reduce depth • PTO engaged to full working speed and drilling restarted • passes were mostly correctly matched by following the centre mark created from the previous pass. They were mostly sitting centrally in the seat and aligning the centre of the bonnet with the bout mark. Turned around in the seat sometimes resulted in driving off-line • lifting of the implement was carried out at the correct points for the turns. Lowering of the implement back into work was 2 metres past the headland mark on the 1st turn. The 2nd turn was correct.
• Safely park the machinery and equipment. • Undertake post-use checks to the machinery and equipment.	Following use of the combination drill, the machinery and equipment was parked in an appropriate place and the safe stop procedure followed. A post-use visual check of both tractor and combination drill was carried out at a distance: • power harrow tines (photo 14) • coulters (photo 15) • overall condition of machine

Responses to questions	***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.*
• 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	**Employer:** Make sure that machinery and equipment is safe to use. Provide suitable PPE. **Employee:** Follow instructions and work in a safe way. Report any problems and damage. Take care of self and others.

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.	**Provision and Use of Work Equipment Regulations (PUWER).** Machinery and equipment are safe to use and maintained and checked for any damage. All guards are in place. The equipment is only used by those who have received training. **Control of Substances Hazardous to Health (COSHH)** is the law that requires employers to control substances that are hazardous to health. Examples of such substances used for crop establishment machinery are fuel and lubricants. Seed dressings are also hazardous to health.
• Why is it important for you to follow the regulations and legislation?	So that operator and all others are kept safe, and the employer can repair damage.
• Explain how to limit damage to soil structure during cultivation and drilling.	Working in the correct soil and weather conditions, compatibility of machinery power to equipment, slow speed, set-up.
• How can soil structure be improved between crops?	Adding organic material like straw, and crop rotation.
• Explain the establishment stage of the winter combinable cereal crop in relation to its lifecycle.	The seed contacts the soil and moisture to start the germination process. The root system germinates first. The next part is shoot emergence. Following emergence, growth will start.

Assessor signature	**Date**
Sample Assessor	20/10/22

Photo/video evidence

- Photos:
  - 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).
- Videos:
  - i) attachment (cultivator only/combination drill – reversing) – typically 2-3 minutes
    Video is a separate file: Task 1c assessor video - preparing machinery (TC).mp4
  - 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).

Note: some video evidence has been taken using a drone to provide a clear overhead view of the standard of work by the candidate. Where video evidence is required by City & Guilds for live assessments, the use of a drone is not required.

Pre-use checks and set-up

Photo 1 (assessor) Pre-use checks: coulters and pipes

Photo 2 (assessor) Pre-use checks: land wheel drive shaft

Photo 3 (assessor) Pre-use checks: fan belts

Calibration, **collecting and weighing the seed**

Photo 4 (assessor) Calibration: turning calibration handle

Photo 5 (assessor) Calibration: weighing seed

Photo 6 (assessor) Calibration: putting seed back into hopper

Attachment

Photo 7 (assessor) Attachment: LH lower link

Photo 8 (assessor) Attachment: RH lower link

Photo 9 (assessor) Attachment: top link

Photo 10 (assessor) Attachment: hydraulic connections

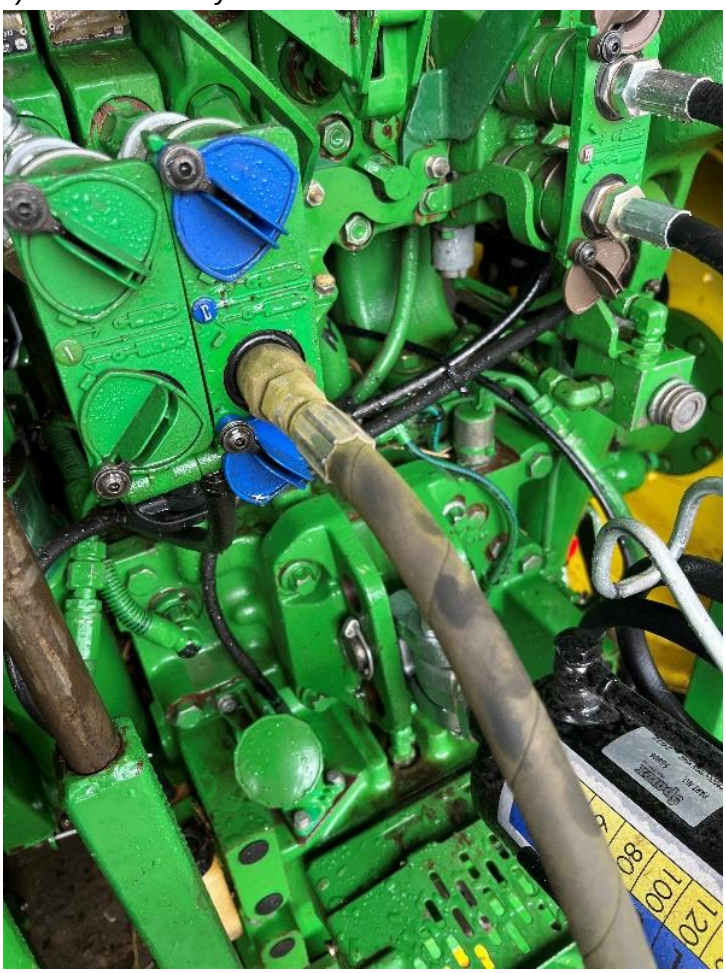


Photo 11 (assessor) Attachment: PTO

Cultivation depth

Photo 12 (assessor) Cultivation depth: hydraulic top link too short

Sowing depth

Photo 13 (assessor) Sowing depth

Post-use checks

Photo 14 (assessor) Post use checks: power harrow tines

Photo 15 (assessor) Post use checks: coulters

Commentary

The candidate demonstrated an adequate level of performance to carry out **field-based crop establishment** to meet minimum industry standards and follow the requirements of **health and safety in field-based crop establishment**. The candidate worked safely throughout the task, mostly following their risk assessment, recognising, and controlling risks such as wearing safety boots. The candidate didn't wear gloves although they had mentioned them in the risk assessment, however it is acceptable for this task.

The candidate applied their sound understanding to **prepare** the machinery **for field-based crop establishment**, considering the main requirements of the task which resulted in work of an acceptable standard. For example, during the calibration process the candidate didn't prime the seed rollers or catch all of the seed; both these small errors impacted the accuracy of the calibration. The candidate didn't set the base kg/ha before the first calibration, so it took longer to calibrate correctly because they had to run three calibration tests.

The candidate completed main pre-use and post-use checks, missing checking the carriers, and only undertaking a visual check after use eg no missing or damaged tines.

The candidate's attachment of the combination drill demonstrated a sound understanding of the machinery and sound technical skills. There were some omissions/errors such as pushing the lower link connections into alignment, and not cleaning the connectors before connection. The candidate showed acceptable skill and dexterity by safely reversing the tractor to align with the combination drill on the third attempt.

In the field, the candidate showed acceptable skill and dexterity when operating the machinery for **field-based crop establishment**: the first bout was not aligned to the bout mark (the bout marker was lowered late), but they made an appropriate correction within 10 metres. The rest of the bouts were mostly aligned. The candidate didn't prime the drill, so there was a short distance without sown seed.

The candidate only stopped to check their work once, stopping after 20 metres. The candidate correctly kept the implement lowered to check it 'in work.' The candidate made a significant adjustment because they had not made an initial check and adjustment.

The candidate's responses to the questions showed adequate knowledge with brief responses mostly using accurate technical terminology eg 'growth' instead of 'photosynthesis' and repeating the title of the legislation when describing it, rather than using their own words.

Task 2 – Business, crop, and estate planning

Task 2a) Plan production of a container-based crop

Evidence contributes to the following:

Performance outcome	Assessment themes
PO2 Establish crops in field and container-based systems for optimum yield and quality	Container-based crop establishment
PO3 Manage crops in field and container-based systems to optimise yield and quality	Container-based crop monitoring

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this GSEM
report	PO2: Container-based crop establishment PO3: Container-based crop monitoring	√		√

Candidate evidence - report

Plan for the production of a crop of 5,000 Osteospermum for sale between weeks 19 and 25, propagated between weeks 5 to 10.

Gantt chart shows what will be done and when, from propagation to ready for sale. (Details follow)

Week	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Delivery																						
Propagate																						
Pinch																						
Pot on																						
Prepare for sale																						
Maintain																						

Propagate by tip cuttings: standard L128 cell trays, 12 trays on week 6 and on week 9.
Pinch out after 3-4 weeks to encourage bushy growth.
Pot on a few days later to give the roots more growing space.
Grow on till ready for sale.

Detailed breakdown for propagation. (Details follow)

Time of day	07.30-12.00	12.30-14.30	14.40-16.00
Tray filling			
Take cuttings			
Insert cuttings			
Take to prop bench			
Water and label			
Cover			

Prepare prop bench in advance, set thermostat for 20˚C, which is the ideal temperature for rooting, water bench, cover with clear polythene to retain moisture and allow light through.

Cuttings taken and put into damp polythene bags and kept cool until trimming and inserting.
Cuttings for weeks 6 & 9 taken from bought-in plants which will need pinching out anyway.

Details
In the autumn, find a propagator nursery that can supply the batches of rooted cuttings needed. Get a price and put orders in for delivery of 12 L128 trays on weeks 6 and 9.

The initial order makes 3,072 plants; pinching out at least the same number of cuttings allows for not having ideal propagation facilities (no mist unit which may lead to some failures) but should still be successful enough to reach the target of 5,000 plants.

Having two batches of plants should mean that the sales can be spread fairly well over the 6 week sales period.

Take the cuttings off the stock plants in the morning, watering well first, as the rooting success should be better that way. Remove lower leaves, trim below nodes, dip in rooting gel and dib into 104-cell trays. Each tray should take about 10-15 minutes to complete.

Resources needed

- 21 trays of rooted cuttings, which will need 31.7sq.m. of bench space in heated glasshouse. Polythene sheeting to cover trays, fleece to cover later crops on sunny days and to retain heat on cold nights for the early batches
- need at least 20 104-cell trays
- need at least 5,000 10.5cm pots
- 50 x 50 litre bags of standard peat-free potting medium with pot-plant Controlled Release Fertiliser added (quantity for the number of pots)
- propagation medium: 75% Standard multi-purpose peat-free mixed with 25% vermiculite, 100 litres will be needed in total (quantity for the number of trays). Fill trays, water well
- tub of rooting gel for dipping cuttings, with added fungicide
- potting machine, scissors, labels, green cane dibber
- cleaning equipment.

Maintenance in the propagation house
Check daily for plant condition, under-bench heating working OK, any signs of pests/diseases which need treatment. Main issue likely to be *Botrytis*, remove any affected cuttings if seen. Use/remove fleece if needed. Check trays daily after a few days for signs of rooting. Begin to wean cuttings by removing polythene sheet for half an hour twice a day for a couple of days, then an hour a day twice each day. Remove covers altogether two days before potting. When weaning begins, water with hose and lance in the morning, probably each day but on grey days might not be needed.

Potting on
Set potting machine up for 10.5cm pots, fill hopper, have Danish trolleys available for taking to standing out beds. Stand out pot thick. Water in with hose and lance to settle in the compost. Maintain growing temperature at 16-18°C in the main plant house.

Routine maintenance
Water according to weather and temperatures, early morning is best. Don’t water in the afternoon.

Liquid feed shouldn't be needed because of the CRF in the potting mix.

Daily check for pests, diseases, disorders, and weeds. Remove weeds and any dead or damaged plant material when seen. If pests or diseases are found tell the manager immediately, isolate plants if there is any delay.

Prepare for sale

The day before they are needed, prepare batches of plants according to the order from the shop. Set Danish trolleys up with 6 shelves, maximum of 36 pots per shelf for transport. Water completed trolleys and leave ready to take to shop before opening. All pots must be labelled.

Commentary

The candidate produced an adequate plan for **container-based crop establishment and monitoring** to a commercial scale, with some explanations, such as having two batches of plants to cover the 6 week sales period. The candidate mostly used technical terminology accurately, for example 'weaning' and *Botrytis* although not using the full name, although they referred to 'bushy growth' rather than 'apical dominance.'

The candidate applied their sound understanding of **container-based crop establishment** to produce a plan that covers the relevant areas of the production process, including **container-based crop monitoring**. The candidate considered the logical plan of work to produce a crop to an appropriate quality, although they did not include the details which could make it an efficient process, such as preparation of the trays, pinching out in two blocks, and better use of space by propagation over a longer period rather than two blocks.

The candidate made adequate calculations but with some errors and omissions: when calculating the number of rooted cuttings to purchase the candidate considered the failure rate but did not quantify it or explain their calculations. The candidate could have thought more about how many cuttings would be available; the candidate could have purchased fewer rooted cuttings if they had spread the order, giving themselves time to take cuttings. The candidate made suitable estimates for the growing media requirements.

The candidate's approach of two deliveries would result in the plants being ready for sale in two blocks, so plants would have to be maintained in suitable condition for longer to achieve the sales period target. This would use additional resources eg time and plant feed.

The candidate applied some understanding of sustainable **container-based crop establishment and monitoring**: they specified peat-free growing media, using polythene sheeting to reduce water loss, but did not explain that fleece could reduce heating requirements.

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

Evidence contributes to the following:

Performance outcome	Assessment themes
PO4 Harvest crops for commercial markets	Business planning

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this GSEM
sequenced timeline	PO4: Business planning	√		√

Candidate evidence - sequenced timeline

Timeline for oilseed rape harvest

Step 1:

Timing:	1 month before harvest date
Task:	Visual inspection of crop for pod development. The sample to be taken from a couple of locations within the cropped area so that it represents the different areas of the crop.
Equipment:	None
Time Taken:	1 hour

Step 2:

Timing:	3 weeks before harvest date
Task:	Visual inspection of crop for crop maturity – comparing seeds for ripeness to assist with planning desiccation timing.
Equipment:	None
Time Taken:	1 hour

Step 3:

Timing:	2 weeks before harvest date
Task:	Application of desiccant (glyphosate) - to help with 'evening up' the uneven ripening of the crop.
Equipment:	Crop sprayer
Time Taken:	5 hours

Step 4:

Timing:	Harvest (minimum 14 days following application of glyphosate (as per product labels))
Task:	Harvest crop (direct cutting) and transport to store.
Equipment:	Combine harvester. 2x tractors and 2x grain trailers
Time Taken:	40 hours (4 days) - assuming 15ha cut per day

Commentary

The candidate produced adequate **business planning** for the preparation and harvesting of the oilseed rape crop. The steps are logically sequenced with sound reasoning, such as comparing seed ripeness prior to planning desiccant application.

The candidate assumed an exact harvest date to plan the steps leading up to this, rather than an approximate date, which doesn't take into account other factors in deciding to harvest.

The candidate recognised that they must use a desiccant due to uneven ripening of the crop and adhered to the legal requirements of the harvest interval by specifying the minimum 14 day period before harvest.

Some detail was missed, such as using industry guidance in steps 1-2, and the candidate's timings reflect this without any flexibility due to the actual crop stage.

The candidate didn’t consider the specifications of the sprayer and combine resulting in potential impact of the equipment on the crop; a high clearance sprayer would cause less shedding to the tall crop, and a combine with a side knife would reduce losses during the harvesting process.

The selection of two tractors and two trailers could cause inefficiencies during the harvest process because this is a relatively low yield crop (compared to wheat, for example) so there would be considerable waiting times.

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

Evidence contributes to the following:

Performance outcome	Assessment themes
PO4 Harvest crops for commercial markets	Business planning

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this GSEM
report	PO4: Business planning	√		√

Candidate evidence - report

(Word count: 506)

Cost to harvest a crop
Crop: Winter Barley
Area: 60 hectares (ha)
Average yield: 8 tonnes per hectare (t/ha)
Distance from grain store: 2 miles

I will look at each operation, with calculations, and then calculate the costs to harvest the field-based crop.

Combine harvesting
The combine has an average output of 20 tonnes per hour (t/hr). Based on a 60ha crop yielding 8t/ha (total tonnage 480t), the combine harvesting will take 24 hours over 2½ days.

The straw is being chopped: John Nix Pocketbook has average cost of £97.30/ha for combine harvesting cereals but doesn't give a farmer's average cost for straw chopping. There is only a contractors cost which is £22.96/ha so I will use this figure.

Assuming the combine has a grain tank capacity of 5 tonnes, it will take 15 minutes to fill the grain tank. (20 t/hr / 60 mins = 0.33 t/min. 5t tank / 0.33 t/min = 15 mins).

Based on the above calculations, a grain trailer is required to fill from the combine every 15 minutes. The trailers will be filled whilst the combine is harvesting.

Grain hauling
I have calculated that two tractors and two trailers are required for grain hauling. The business owns and operates 150hp tractors and 14 tonne grain trailers.

The field of winter barley is 2 miles from the store. I've estimated that the 2 mile journey will take about 6½ minutes (18 miles per hour), so the journey in both directions will be 13 minutes. When arriving at the store it will take 12 minutes to weigh the load, sample the load, unload and record each trailer load.

This gives a total time away from the field of 25 minutes (13 minutes plus 12 minutes).
The total time per offload is 15 minutes (see above).

In the time that one tractor and loaded trailer has travelled to the store, weighed, sampled, emptied, recorded, and travelled back to the field, the other tractor and trailer will have received its first fill and will be waiting for a second fill.

Upon returning to the field, the second tractor and trailer will be idle whilst waiting for an offload, but this is unavoidable.

The grain trailers have a capacity of 14 tonnes which is nearly 3 combine tank fills.

The John Nix Pocketbook has average cost for grain hauling of £55.17/hr. Based on the combine harvesting taking a total of 24hrs, this will mean there will be 48 hours of grain hauling (2 tractors and trailers x 24hrs each).

This approach will offer the most efficient harvesting of the crop as there will not be any reduction in the output of the combine harvester due to waiting for trailers.

Summary and total costs

Operation (Harvesting 480 t)	**Cost/hr**	**Cost/ha**	**Cost/t**	**Total Cost:**
Combine harvesting. Total time = 24 hours		£97.30	£12.16	**£5,838.00**
Straw chopping. Total time = 24 hours		£22.96	£2.87	**£1,377.60**
Grain hauling (two tractors and trailers). Total time = 48hrs	£110.34	£44.14	£5.52	**£2,648.16**
Totals				**£9,863.76**

(Note: some data is from John Nix)

Commentary

The candidate produced an adequate report of their **business planning**, calculating the cost of harvesting the crop. The candidate hasn't fully justified their approach to the number of tractors and trailers, for example when the second tractor and trailer are idle, but it would meet the minimum requirement to cost-effectively harvest the crop.

The candidate considered each part of the harvest process, starting with how long the combine will need to harvest the crop and fill the grain tank, then considering how long the grain hauling will take. The candidate's report lacks the detail of how some calculations were made eg the breakdown of time to weigh, sample, unload and record each load at the store, and how they decided on 2½ days for the harvesting. The candidate made a slightly unrealistic estimation of the average speed of the tractor and trailer between the field and the store.

The candidate considered some details in the harvesting process that affect their calculations, such as the cost of chopping the straw, although they used a contractor's cost rather than a farmer's average cost. The candidate missed some details, so they have not allowed time for some aspects eg the time it takes to offload, the grain tank continuing to fill whilst the tractor is offloading, and the weight of this crop which a 14 tonne trailer can realistically carry.

The candidate calculated the required costs, including reference to their source data, however they rounded some figures which resulted in less precision in the final calculations.

The candidate mostly used technical terminology accurately eg correctly referring to ‘offload’ although sometimes referring to ‘fill,’ and ‘empty’ rather than ‘tipping.’

Note about typical word counts: Whilst a candidate demonstrating threshold competence may write more descriptively and use more words, this example evidence has used fewer words so that the required standard of work is accessible and clear.

Task 2d) Business review

Evidence contributes to the following:

Performance outcome	Assessment themes
PO4 Harvest crops for commercial markets	Business planning

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this GSEM
field-based crop gross margin for each crop	PO4: Business planning	√		√
report		√		√

Candidate evidence – field-based crop gross margin for each crop

	£/ha:	£/Total area grown:	Benchmark Data (£/ha):
Enterprise Output:			
Crop: Winter wheat Yield: 10 t/ha Selling price: 274 £/t Total area grown: 60 ha			Based on 10t/ha @ £225/t
Total Enterprise Output:	**2,740**	**164,400**	**2,740**
Variable Costs:			
Seed	77	4,620	68
Fertiliser	430	25,800	320
Spray	320	19,200	255
Total Variable Costs:	**827**	**49,620**	**643**
Gross Margin:	**1,910**	**114,780**	**2,100**

	£/ha:	£/Total area grown:	Benchmark Data (£/ha):
Enterprise Output:			
Crop: Spring barley Yield: 7 t/ha Selling price: 247 £/t Total area grown: 60 ha			Based on 7t/ha @ £247/t
Total Enterprise Output:	**1,729**	**103,740**	**1,729**
Variable Costs:			
Seed	66	3,960	69
Fertiliser	221	13,260	250
Spray	127	7,620	151
Total Variable Costs:	**414**	**24,840**	**470**
Gross Margin:	**1,320**	**78,900**	**1,260**

	£/ha:	£/Total area grown:	Benchmark Data (£/ha):
Enterprise Output:			
Crop: Winter barley (feed) Yield: 8 t/ha Selling price: 247 £/t Total area grown: 60 ha			Based on 8t/ha @ £247/t
Total Enterprise Output:	**1,976**	**118,560**	**1,976**
Variable Costs:			
Seed	74	4,440	78
Fertiliser	350	21,000	268
Spray	160	9,600	195
Total Variable Costs:	**584**	**35,040**	**541**
Gross Margin:	**1,390**	**83,520**	**1,440**

	£/ha:	£/Total area grown:	Benchmark Data (£/ha):
Enterprise Output:			
Crop: Winter oilseed rape Yield: 4.5 t/ha Selling price: 510 £/t Total area grown: 60 ha			Based on 4.5t/ha @ £510/t
Total Enterprise Output:	**2,295**	**137,700**	**2,295**
Variable Costs:			
Seed	72	4,320	64
Fertiliser	425	25,500	310
Spray	266	15,960	234
Total Variable Costs:	**763**	**45,780**	**608**
Gross Margin:	**1,530**	**91,920**	**1,690**

Commentary

The gross margins have been calculated for **business planning** using the correct method. The candidate calculated the costs for each crop using the data provided in the brief and used these to calculate the gross margin, although the candidate has rounded the gross margin figures rather than provide the accurate numbers.

This evidence in isolation provides minimal differentiation between grades, however it provided reasonably accurate data for the candidate's consideration of how to improve the gross margin of the enterprise in their report.

Candidate evidence – report

(Word count: 579)

Gross margin and benchmark data

Winter Wheat

Seed: The seed costs were £9 more per hectare than the benchmark data. This may be due to an increase in grain price.

Fertiliser: The cost of nitrogen-based fertiliser is directly changed by energy prices. Energy prices have increased considerably resulting in the increase of £110 per hectare for fertilisers. Growing wheat for feed is profitable based on the yield, so additional fertiliser may have been used to ensure a higher yield.

Spray: The spray costs were £65 per hectare more than the benchmark data. This may be because of increased fungicide use. Higher weed presence is typical for a winter wheat crop and herbicides are expensive.

Spring barley

Seed: The seed costs were £3 per hectare lower than the benchmark data. This is similar to benchmark data, so no change would be required.

Fertiliser: The fertiliser costs were £29 per hectare less than the benchmark data. This could be because a different fertiliser was used and possibly from a different supplier. It could also be a lower application rate.

Spray: The spray costs were £24 per hectare less than the benchmark data. This could be because less fungicide was used.

Winter barley (feed)

Seed: The seed costs were £4 per hectare lower than the benchmark data. This is similar to benchmark data, so no change would be required.

Fertiliser: For a winter cereal that will be used for feed it is important to have a high yield, so more fertilisers may be used. The cost of nitrogen-based fertiliser is directly changed by energy prices. Energy prices have increased considerably resulting in the increase of £82 per hectare for fertilisers.

Spray: The spray costs were £35 per hectare less than the benchmark data. This could be because less fungicide was used. Winter barley can outcompete weeds.

Winter Oilseed Rape

Seed: The seed costs were £8 more per hectare than the benchmark data. This is similar to benchmark data, so no change would be required.

Fertiliser: A winter oilseed rape crop sometimes needs autumn fertiliser, so the overall use of fertilisers is higher. The cost of nitrogen-based fertiliser is directly changed by energy prices. Some nutrient deficiencies mean that an additional application is needed. This could mean an increase in the cost and quantity of fertilisers applied, which explains the increase in cost of £115 per hectare.

Spray: The sprays costs were £32 per hectare higher than the benchmark data. This could be because of more fungicide use, or higher weed presence which is expensive to control.

Recommendations

There are some changes which could be considered to improve the gross margins:

- consider home saving seed which can be cheaper than purchasing seed
- use urea-based fertilisers for the early nutrient applications instead of ammonium nitrate-based fertilisers. Urea-based fertilisers are cheaper
- increase application of fertilisers to increase yield, although there is a point where this is not financially viable
- weed control prior to drilling the crop so that the crop has a better chance to grow before the weeds. It is cheaper to do this instead of spraying the weeds in the growing crop
- explore working with other farmers to buy in bulk for a better price
- investigate new markets such as organic produce which have a higher selling price
- investigate new markets which use the crop differently eg milling and malting, and may have a higher selling price
- investigate local markets/purchasers such as local farmers and feed mills, which would save on haulage fees.

Commentary

The candidate produced an adequate **business planning** report considering the differences between the gross margins and making recommendations for increasing the gross margins.

The candidate analysed their data for each crop to provide some sound explanations of the possible reasons for differences between the actual gross margin and the benchmark gross margin eg the influence of gas prices. The candidate considered a sufficient range of the variable costs, although there was some repetition of the explanations where it was appropriate to the crop. The candidate's rounding of figures in their calculations could have led to errors, however their comments were consistent with the differences between actual and benchmark data.

The candidate applied sound understanding of each crop's specific growing requirements and uses, linking these to some of the reasons for differences eg additional fertiliser for the winter wheat.

The candidate justified a brief range of recommendations that could increase the gross margin by reducing costs or increasing yield or selling prices. When making recommendations the candidate considered the variable costs which impact the gross margin: the purchase costs of the products (seed, fertiliser, spray) and the quantities of fertiliser.

The candidate could have provided more detail in the recommendations eg the timing of urea-based fertiliser application. The candidate could have considered technological solutions such as variable rate drilling.

The candidate mostly used technical terminology accurately, for example they could have referred to 'weed pressure' rather than 'weed presence', and they didn't consider insecticides and plant growth regulators.

Note about typical word counts: Whilst a candidate demonstrating threshold competence may write more descriptively and use more words, this example evidence has used fewer words so that the required standard of work is accessible and clear.

Task 2e) Plan a permanent stock-proof boundary

Evidence contributes to the following:

Performance outcome	Assessment themes
PO5 Maintain the areas surrounding the crop production environment	Business management
	Estate maintenance

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this GSEM
report, with diagram	PO5: Business management PO5: Estate maintenance	√		√

Candidate evidence - report, with diagram

(Word count: 345)

Fence repair

The fence installation on a level site will consist of stock netting, a strand of plain wire and a strand of barbed wire, to ensure that the fence is sheep proof. The stock netting, plain wire and barbed wire will be attached on the outer side of the boundary (neighbouring property side) because the stock will push from that side.

Materials and specification

The strand of plain wire will be positioned close to the top of the stock netting (50mm above).

The strand of barbed wire provides additional height to the fence and will be positioned 100mm above the strand of plain wire and 50mm down from the top of the post. This will prevent the top of the post from splitting when the staples are inserted.

Barbed staples will be used to attach the stock netting, plain wire and barbed wire. These will have better retention than non-barbed staples.

The following materials will be required for the installation (all prices excluding VAT):

Item:	Quantity:	Price Each:	Total Price:
Straining post	3	£30.81	£92.43
Strut	4	£8.00	£32.00
Intermediate post	50	£4.10	£205.00
Stock netting (100m roll)	2	£76.67	£153.34
Plain wire (100m roll)	2	£37.87	£75.74
Barbed wire (200m roll)	1	£27.43	£27.43
Staples (20kg tub)	20kg	£38.39	£38.39
Total:			**£624.33**

The specification for the materials is provided on the plan on the next page.

Environmental considerations, legislation and codes of practice

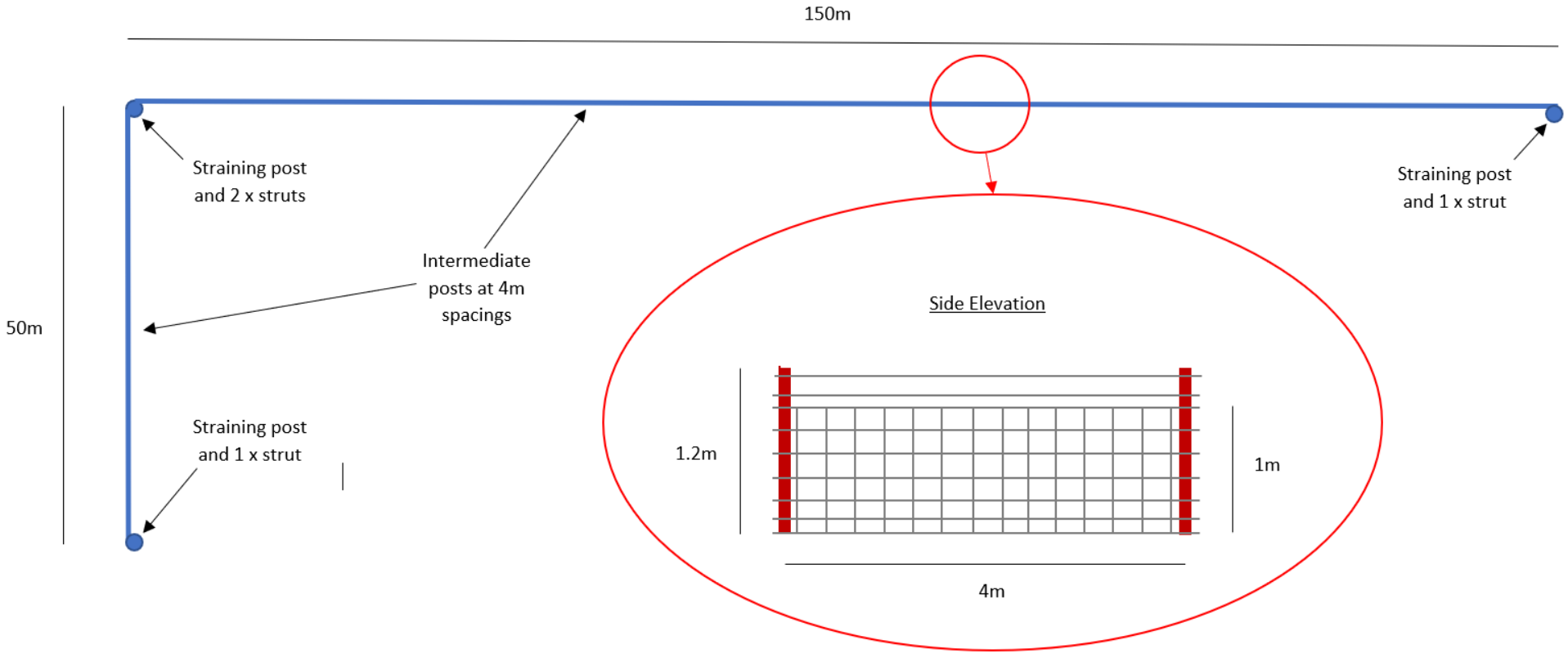
Prior to installation a full site survey will be carried out to check that the ground is suitable for driving posts into.

Any equipment used for fence installation will be thoroughly checked prior to use to ensure safety and suitability for the task. Any defective equipment will be reported and repaired or replaced prior to use.

Wooden fencing posts will be purchased from sustainable sources. Suppliers will have Forest Stewardship Council (FSC) certification.

All items of waste arising from the fence installation will be disposed of via a licensed commercial waste disposal contractor. A copy of waste transfer documentation must be retained as evidence of the legal transfer of waste.

Task 2e) Plan a permanent stock proof boundary



Material Specification

Straining posts = 2.1m long, 125-150mm diameter (0.9m in ground)
Struts = 2.7m long, 75-100mm diameter (approx. 0.7m in ground)
Intermediate posts = 1.65m long, 75-100mm diameter (0.45m in ground)
Stock netting = C8/80/15
Plain wire = standard specification
Barbed wire = 2mm wire gauge
Staples = 40mm barbed

Commentary

The candidate used adequate knowledge and understanding of **estate maintenance** to create a plan for the fence repair that would meet minimum industry requirements and the estate's **business management** requirements.

The requirements of the fence were considered so the materials are mostly appropriate to the brief, although the spacing of the plain wire may not on its own keep sheep out.

The quantities and costs are mostly accurately calculated or estimated, although the candidate made some errors: they should have estimated the cost of the staples based on what was required rather than the quantity to be purchased, they didn't allow for the strainers when calculating the number of intermediate posts, and a 4m intermediate post spacing could be considered too far apart for stock netting fencing because it is more likely to sag.

The plan is adequately communicated through the report and accompanying partially annotated diagram, with some justifications for the candidate's approach eg positioning the staples away from the top of the post to avoid splitting. The diagram shows sound understanding of the techniques used to maintain a fence, for example using two strands of wire above the stock netting, and fixing the netting and wires on the appropriate side of the fence, however they have not suggested how the struts would be fitted.

The candidate's consideration of the environment and legislation consisted of general comments without recognising specific waste disposal categories or the legislation applicable to the fence post treatments. The candidate missed consideration of site uses, such as rights of way which might impact the plan.

Note about typical word counts: Whilst a candidate demonstrating threshold competence may write more descriptively and use more words, this example evidence has used fewer words so that the required standard of work is accessible and clear.

Task 3 – Produce container-based crops

Task 3a) Establish indoor container-based crops

Evidence contributes to the following:

Performance outcome	Assessment themes
PO2 Establish crops in field and container-based systems for optimum yield and quality	Health and safety in container-based crop establishment
	Container-based crop establishment

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this GSEM
risk assessment	PO2: Health and safety in container-based crop establishment	√		√
container-based crop propagation record	PO2: Container-based crop establishment	√		√
assessor observation, including Q&A	PO2: Health and safety in container-based crop establishment PO2: Container-based crop establishment		√	√
photos			√	√

Candidate evidence – risk assessment

Candidate's name	Sample Candidate	Enrolment number	CG1234
Task/Activity	3a) Establish indoor container-based crop	Location	Centre training area
Assessor's name	Sample Assessor	Date of assessment	23/02/2023

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)
1	Scissors.	Self. Cuts.	Training.	Low	None		Low
2	Rooting gel.	Self. Skin irritation.	Wash hands afterwards.	Low	None		Low
3	Slips, trips, falls.	Self and others. Injury.	Training, prepare site, safety boots.	Low	None		Low
4	Compost (Weight of bag).	Self. Back injury.	Training, bend knees not back	Medium	Use lifting equipment.		Low

Date of assessment: 23/02/2023	Risk assessment carried out by: Sample Candidate

Commentary

The candidate completed an adequate risk assessment which would keep themselves and others safe, showing a sound understanding of the requirements of **health and safety in container-based crop establishment**. For example, referring to training, although not specifying the type of training required.

The candidate applied their adequate understanding of container-based crop establishment to identify the main hazards and risks; they could have included the manual handling of packs of trays and pots. The risk assessment was completed with an adequate understanding of the difference between hazards, risks and control measures, and correctly categorised risk ratings. For example, they referred to slips, trips and falls as a hazard which is acceptable; accurate terminology would be to state the specific hazards, such as an untidy work area.

The candidate identified brief precautions to minimise the risks, although there were some gaps, such as missing use of PPE to easily reduce the risk of harm from the rooting gel.

The candidate included an additional control measure to reduce risk number 4, correctly assessing the residual risk rating.

Technical terminology was mostly accurately used eg skin irritation is correct, although they could have referred to ‘manual handling’ rather than a specific technique.

Candidate evidence – container-based crop propagation record

Candidate's name	Sample Candidate	Enrolment number	CG1234
Task/Activity	3a) Establish indoor container-based crops	Location	Centre training area
Assessor's name	Sample Assessor	Date of assessment	23/02/2023

Date:	23/03/23
Plant name:	Osteospermum Stardust
Source material:	Bought-in rooted cuttings in P108 trays
Quantity:	30
Glasshouse/tunnel number:	Main glasshouse
Bench:	Bench 2
Required propagation conditions:	20˚C, polythene sheet cover

Date:	23/03/23
Plant name:	Plain cress
Source material:	Seeds from Guilds supplies
Quantity:	6 trays (1 packet of seed)
Glasshouse/tunnel number:	Main glasshouse
Bench:	Bench 3
Required propagation conditions:	Keep constantly moist

Commentary

The candidate completed an adequate record of **container-based crop establishment**, showing a sound understanding of how to present information, with mostly accurate technical terminology eg they didn't present the botanical name in full accurate format, and referred to 'trays' instead of 'punnets.'

All sections have been completed, but the record lacks detail about the propagation conditions and the type of trays used.

Assessor evidence – assessor observation, Q&A, and photos

Task	Assessment component number
3a) Establish indoor container-based crops	8717-400
Candidate name	**Candidate number**
Sample Candidate	CG12345
Centre name	**Assessment themes**
Sample Centre	PO2: Health and safety in container-based crop establishment PO2: Container-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.*
• Selection and preparation of resources.	Followed correct manual handling when moving bags of growing media and packs of trays and pots. Wore appropriate PPE (gloves, safety boots). **Osteospermum:** Cutting trays selected, checked for condition. Mixed propagating medium: 75% Standard multi-purpose peat-free mixed with 25% vermiculite. Selected cutting scissors, rooting gel and dibber. **Plain cress:** Punnets selected; condition checked. Germination medium selected: peat-free multi-purpose.
• Safe, accurate and efficient work, using appropriate tools and equipment, avoiding wastage and working at appropriate speed.	Fairly efficient: achieved within time given. Initially slow broadcast sowing with some loss of seeds, but satisfactory by the last two punnets. Clean cuts at correct angle; some wastage where 4 cuttings were too short so had to be recut.

• 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.	Site prepared with resources and equipment in the work area. Bags of growing media not within easy reach of the work area. Cleaned work bench with a brush. Work area kept reasonably tidy throughout; no risk created. All work completed in compliance with risk assessment eg safe lifting of bags of compost and trays of pots. There were a couple of occasions where the cutting scissors were kept in the hand rather than placed on the bench which would have been safer, these did not create a risk to safety. **Osteospermum:** 2 cuttings trays prepared with growing medium; trays filled correctly and firmed but could have been more even. Pre-watered. Candidate given 10 plants to select and take cuttings from. Cuttings removed from stock material by cutting above nodes, although 4 were cut too short; cuts made carefully with cutting scissors. Selected terminal shoots with no damage. Cuttings made on bench stored in dampened bag until 30 were completed; assessor took photo in tray (photo 1). 30 cuttings trimmed below nodes but left a node too long in several cases (although not internodal). Missed that one had a flower bud present (photo 1). Used dibber to make hole. Cuttings dipped in gel, inserted one per cell to correct depth (photos 2 & 3). Used fingers to gently secure the cutting in place; firming inconsistent, but no potential to impact establishment. No damage to the stems. **Plain cress:** Added appropriate growing medium to 6 punnets though depths a little uneven, tending to be deeper than needed. Watered punnets first, started sowing and the seeds stuck to the sides of the punnet. They stopped sowing and waited for the punnets to dry. Took some time to work out how to ensure correct seed rate from the information provided: 4,500 seeds in the packet, assessor provided sowing rate of 500 seeds per tray. Struggled with working out rate of 1.5g per punnet from the information provided. Final weights ranged from 1.47 to 1.53g per punnet, equivalent to approximately 480 – 530 seeds per punnet; acceptable range. Broadcast sowing fairly even; acceptable standard (photo 4).
• Place completed propagation into appropriate environment	**Osteospermum:** Didn't water or label immediately. Taken to prop. bench, watered with can and fine rose, labelled (date, plant name), covered with polythene.

and carry out immediate post-propagation maintenance.	**Plain cress:** Took to prop. area, placed on bench and labelled the batch of 6 punnets with name and date. Questions asked (see below).
• Disposes of waste appropriately.	Unused gel rinsed from container into compostable waste bin, with trimmed plant material and small amount of contaminated compost. Left work area tidy.
• Complete relevant records and labelling as applicable e.g. what sown, growing medium, date, source plant (for cuttings).	Yes, see container-based crop propagation record. Punnets and pots labelled.

Responses to questions	**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.*
• What regulations apply to propagation and sale?	Candidate replied that plants should be named correctly, and have a UK plant passport identifier.
• Explain the advantages of a glasshouse compared to a polytunnel for vegetative propagation.	Candidate stated that glasshouse had better heat retention and better natural light.
• Compare mist units with polythene covers for the rooting environment for vegetative propagation.	Candidate stated that mist units were better because the humidity was maintained automatically by the technology, and cuttings were visible; poly-covers were simple, but cuttings couldn't be checked without lifting the covers.

Assessor signature	**Date**
Sample Assessor	23/02/2023

Photo/video evidence

- Photos:
  - all the trays **after** sowing: showing evenness of sowing, levels of finished growing medium

- 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.

Photo 1 (assessor) After preparation: trimming of leaves, position of basal cut, size of cutting, one photo of all the propagules

Photo 2 (assessor) After insertion: spacing in the container

Photo 3 (assessor) After insertion: depth of insertion

Photo 4 (assessor) All the trays after sowing: showing evenness of sowing, levels of finished growing medium

Commentary

The candidate demonstrated an adequate level of performance to carry out **container-based crop establishment** to meet industry standards and follow the requirements of **health and safety in container-based crop establishment**. There were some errors such as wastage of growing media with uneven filling, and initial wastage of seeds and cuttings, but the quality of the candidate's work improved through the task.

The candidate followed their risk assessment, recognising and controlling risks such as safe manual handling of the bags of growing media, although they positioned them slightly out of reach which created extra work to access them when required.

The candidate applied their sound understanding of **container-based crop establishment** to prepare the correct resources (eg suitable growing media although uneven in the tray for cuttings, resources in the work area) and a tidy work area, although they could have cleaned the cutting scissors with disinfectant.

The candidate calculated the weight of seeds for each punnet based on the sowing rate provided, but this took some time. The candidate had some variation when weighing the seeds, which would result in slight inconsistency in the crop yield per punnet. The candidate's broadcast sowing was acceptable: fairly even with some waste in the first punnets, and within the time given.

The candidate took the cuttings with care, selecting suitable source material and making clean cuts, although they sometimes left a node too long so had more leaves than required, which would result in excessive transpiration. The cuttings were prepared and inserted into the trays with some inconsistent firming.

The candidate followed with appropriate post-propagation maintenance (watering, covered with polythene), although they did not immediately water the cuttings, risking drying out and potential failure.

The candidate's adequate application of understanding would result in minimum industry standards of crop yield and quality.

The candidate's responses to the questions showed adequate knowledge with brief responses where they mostly used technical terminology accurately eg missed off plant breeders' rights and reliability of mist benches compared to polythene.

Task 3b) Manage container-based crop performance

Evidence contributes to the following:

Performance outcome	Assessment themes
PO3 Manage crops in field and container-based systems to optimise yield and quality	Container-based crop monitoring
	Container-based crop management

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this GSEM
container-based crop diary	PO3: Container-based crop monitoring PO3: Container-based crop management	√		√
assessor observation, including Q&A			√	√
photos		√	√	√

Candidate evidence - container-based crop diary

Candidate's name	Sample Candidate	Enrolment number	CG12345
Task/Activity	3b) Manage container-based crop performance	Location	Centre training area
Assessor's name	Sample Assessor	Date of assessment	March - April 2023

Crop: Osteospermum **Glasshouse/tunnel number:** 1 **Bench:** 1

Date of crop visit:	Observations:	Recommendation for actions: (with justification)	Actions taken: (with justification)
Week 10 Monday (1hr)	Photo 1 – new cuttings in tray. **P, D & D:** Nothing.		**Watering:** Water using hose and lance; light watering only as rooting not yet evident so just making sure the leaves don't dry out and to keep them cool. **Crop cover:** Lift and check for issues, put back.
Week 10 Thursday (1hr)			**Watering:** Water using hose and lance; light watering only as rooting not yet evident so just making sure the leaves don't dry out and to keep them cool. **Crop cover:** Lift and check for issues, put back.
Week 11 Monday (1hr)	**P, D & D:** Nothing.		**Watering:** Water using hose and lance; light watering only as rooting not yet evident so just making sure the leaves don't dry out and to keep them cool. **Crop cover:** Lift and check for issues, put back.
Week 11 Thursday (1hr)	Removed some plants from tray and checked roots. Some callusing.		**Watering:** Water using hose and lance; light watering only as rooting not yet evident so just

			making sure the leaves don't dry out and to keep them cool. **Crop cover:** Lift and check for issues, put back.
Week 12 Monday (1hr)	**Roots coming:** Definite resistance when I pulled gently so needs a first proper watering on Thursday. **P, D & D:** Some *Botrytis*.	**Watering:** On Thursday carry out first proper watering because roots now visible.	**Watering:** Water using hose and lance; light watering only as rooting not yet evident so just making sure the leaves don't dry out and to keep them cool. **P, D & D:** emptied cells with botrytis so that it does not spread. Taken to green-waste bin. **Crop cover:** Remove cover for one hour each morning and late afternoon to get plants used to being cooler.
Week 12 Thursday (1hr)	Some roots showing beneath cells. Might be ready to pot on next week.		**Watering:** First proper watering with hose and lance because of rooting. **Crop cover:** Remove cover for one hour each morning and late afternoon to get plants used to being cooler.
Week 13 Monday (1hr)	Growth is good. **Pot-on:** Thursday. Take is 85%; 7% still look like they might make it so put them back. **P, D & D:** Checked for *Botrytis*, aphids, thrips, anything else that looks odd. Nothing found.		**Watering:** Early morning to provide water all day. With hose and lance. **Crop cover:** Covers gone except for plants which not potting on. Plants don’t need covering now.
Week 13 Thursday (1hr)			**Watering:** Early morning to provide water all day. With hose and lance.

			Pot on: most of plants. Took photo of examples (photo 2). Put on grow bench (photo 3). Pinched out to encourage bushy growth. **Crop cover:** Covers gone except for plants which not potting on.
Week 16 **Monday (2hrs)**	Rest of crop have been potted on by staff during break. First potted on plants now bushy (photo 4). **P, D & D:** Some minor *Botrytis.* Pinched off affected leaves before it spreads and put in bin. **Weeds:** one identified (photo 5).	**Crop cover:** no more covering needed.	**Watering:** Early morning to provide water all day. With hose and lance. College staff do when I am not here. **Pinching out:** Pinched out the plants potted on by college staff.
Week 17 **Monday (2hrs)**	Flower bud seen on one or two plants. **P, D & D:** Nothing. **Weeds:** None.		**Watering:** Early morning to provide water all day. With hose and lance. College staff do when I am not here.
Week 18 **Monday (2hrs)**	More buds. **P, D & D:** Nothing. **Weeds:** None.		**Watering:** Early morning to provide water all day. With hose and lance. College staff do when I am not here. Remove odd dead leaves before any problems started. **Feeding:** Liquid feed at 1:100 setting, high K, every watering so that buds grow.
Week 19 **Monday (2hrs)**	Lots of buds with colour showing. **P, D & D:** Nothing. **Weeds:** None.	**Feeding:** Same feed as week 18, twice this week (staff will need to do on one day). **Prepare for sale:** consider preparing some for sale next week.	**Watering:** Early morning to provide water all day. With hose and lance. College staff do when I am not here. **Feeding:** applied same as week 18.

Supporting photos:

- 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.

Photo 1 (candidate) Tray (week 10)

Photo 2 (candidate) Potted on plants (week 13)

Photo 3 (candidate) Potted on (week 13)

Photo 4 (candidate) Bushy growth (week 16)

Photo 5 (candidate) Weed (week 16)

Commentary

The candidate applied their sound understanding of **container-based crop monitoring and management** to produce an adequate report of their crop visits, with mostly accurate use of technical terminology eg referred to 'botrytis' rather than *Botrytis cinerea*, 'watering' rather than 'irrigation.'

The candidate provided a brief record of their crop visits, with some observations eg PDD and weeds, although lacking detail such as what they checked for. The candidate included some recommendations for when they weren't there eg staff watering the crop, and applying liquid feed to the crop.

The candidate's observations reflected the status of the crop recorded by the assessor in the assessor observation form, such as the timing for potting on. The report includes the candidate's photos which confirm their observations.

The candidate took the correct actions such as irrigation and potting on, however there wasn't always a justification linking the observation and the recommendation or action. For example, once the roots were showing they correctly changed the approach to irrigation, but this wasn't explained beyond 'because of rooting' when they could have justified the change because the roots could take in water. Some justifications were brief and lacked detail, such as removing the lower leaves (week 18; to reduce the risk of problems when they die off) and why the change in watering at week 12 (more susceptible to drying out).

Assessor evidence – assessor observation, Q&A, and photo

Task	Assessment component number
3b) Manage container-based crop performance	8717-400
Candidate name	**Candidate number**
Sample Candidate	CG12345
Centre name	**Assessment themes**
Sample Centre	PO3: Container-based crop monitoring PO3: Container-based crop management

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.*
• Safe, accurate and efficient work, using appropriate tools and equipment, avoiding wastage and working at appropriate speed.	*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.* The candidate's diary correctly reflected the actual conditions of the Osteospermum crop on each visit: Week 10 – no PDD or weeds, no roots visible Week 11 – no PDD or weeds, callousing of roots Week 12 – some *Botrytis cinerea* leaves (no spores), no other PDD or weeds, rooting visible beneath trays Week 13 – no PDD or weeds, extension growth, majority ready for potting on, rest not ready for potting on, potted on plants ready for pinching out Week 16 – no PDD, some weeds, potted on plants ready for pinching out Week 17 – no PDD or weeds, small quantity of flower buds Week 18 – no PDD or weeds, more flower buds (ready for liquid feed) Week 19 - no PDD or weeds, multiple flower buds with colour (ready for liquid feed).
• Irrigation.	**Observed week 12: Thursday** Candidate collected the hose and lance. Watered the crop of Osteospermum once, passing back to front. Briefly revisited edges. Left for short period before picking up a pot to check weight and drips. Completed within time given. Some wastage of water – watered beyond required area. No damage – fine rose and low pressure.

	Questions asked about weeds and irrigation.
• Liquid feed.	**Observed week 18: Monday** Gathered equipment: connected up diluter, hose and lance. Used high K liquid feed. Candidate set the gauge on the diluter to 1:100, it was showing colour and so was ready for use. Applied to all plants in the crop. Minor wastage – some application of liquid feed beyond required area. No damage. Completed within time given. Question asked about feeding.
• Transplanting/ potting up.	**Observed week 13: Thursday** Candidate put on disposable gloves first. Prepared potting bench by brushing clean. Collected resources: • a bag of peat-free potting medium • box of 10.5cm pots. Filled pots in batches of 5; rubbed down lumps and levelled. Used a pusher to remove rooted cells, checked condition, pushed into pots and firmed in well. Some not centrally positioned (photo 1). Added colour label. Put completed pots into carry trays and loaded these onto flat barrow. Took to growing bed in house 3 where a clean weed-suppressant-covered area was available for setting down. Put down pot-thick. Returned to potting bench, brushed roughly clean. Put contaminated compost in green-waste bin. Completed within time given. Some wastage of water – watered beyond required area. No damage – used a fine rose on a watering can. Question asked about transplanting.
• Disposes of waste appropriately.	Weeds & diseased material: added to green-waste bin when required. Potting on and removed lower leaves (week 18); waste put into green-waste compost bin for recycling.

Responses to questions	**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.*
Weeds, pests, diseases, and disorders within the cropping environment: • why did you recommend particular control measures? • why is accurate timing of control measures important?	There was only one weed so it could be removed by hand. To reduce the chance of a problem spreading.
• Irrigation – what factors did you consider to irrigate the crop when you did?	I didn't want the cuttings drying out because they didn't have much root. They were very delicate, so I used a fine rose and low pressure.
• Feeding – why did you feed the crop when you did?	To put some growth on now and also to produce flower buds I used a ratio of 1:100 because it was being applied twice a week.
• Transplanting – how did you decide when to transplant the crop?	When the roots were visible. Most of the plants were ready at the same time.

Assessor signature	**Date**
Sample Assessor	As noted above.

Photo/video evidence

- Photo:
  - **completed** potting up/transplanting.

Photo 1 (assessor) Completed potting up/transplanting

Commentary

The candidate demonstrated an adequate level of performance to safely carry out **container-based crops monitoring and management** to meet industry standards. For example, they applied appropriate control measures by pulling the weed.

When transplanting they handled the plants carefully, causing no damage, although they were not always centrally positioned, and the levels were a little uneven.

The candidate applied their sound understanding of **container-based crop management** to prepare the correct resources (eg growing media, pots, gloves) and manage a tidy work area, although they could have been more thorough in clearing before and after potting.

The candidate worked at an acceptable speed, achieving the task within the time given with some wastage, but no damage.

The candidate's responses to the questions showed adequate knowledge with brief responses where they mostly used technical terminology accurately (eg they referred to 'botrytis' rather than *Botrytis cinerea),* and they could have used higher strength K twice a week instead of a weaker dilution at every irrigation.

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

Evidence contributes to the following:

Performance outcome	Assessment themes
PO4 Harvest crops for commercial markets	Harvesting container-based crop

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this GSEM
container-based crop collection order sheet	PO4: Harvesting container-based crop	√		√
assessor observation			√	√
photos			√	√

Candidate evidence - container-based crop collection order sheet

Candidate's name	Sample Candidate	Enrolment number	CG1234
Task/Activity	3c) Collect and prepare a container-based crop for sale	Location	Centre training area
Assessor's name	Sample Assessor	Date of assessment	23/03/2023

Customer:	Shop
Crop:	Osteospermum 10.5cm pots
Quantity ordered:	10x
Specification:	Grade 1 Number of branches/shoots per plant: 3+ Number of open flowers: 1+ Labelling: card
Crop collected to specification: (tick)	✓

Commentary

The order sheet for **harvesting the container-based crop** has been adequately completed. The candidate could have included the Grade 1 specification provided by the assessor.

This evidence in isolation provides minimal differentiation between grades, however it supports the observation of meeting minimum industry standards with a brief record, lacking detail.

Assessor evidence – assessor observation and photos

Task	Assessment component number
3c) Collect and prepare a container-based crop for sale	8717-400
Candidate name	**Candidate number**
Sample Candidate	CG12345
Centre name	**Assessment themes**
Sample Centre	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.*
• Select and prepare appropriate resources for the task.	10 plants chosen from the growing bed, colour labels from store. Danish trolley, 6-cell carry trays, cutting scissors and waste bucket collected. Checked hose and lance were available and connected.
Grading, preparation, pre-treatment, and packing ready for despatch or sale: • The candidate must carry out relevant preparation prior to packing into appropriate carry trays or onto Danish trolley shelves, e.g. remove dead leaves, weeding, watering, final feed, deadheading, pest and disease removal/rejection of crop.	Reasonable selection of plants made, some lop-sided/uneven (photo 1, better quality plants were available). Resulted in unbalanced finished plants: some lacking balance of flower buds, limited colour showing (photo 2). All plants checked for watering requirement by looking underneath the pot. None were watered (assessor note: none in need of watering, damp circles visible on weed suppressant fabric). Dead leaves removed. Checked for P&D (none present). No wastage or damage. Pots given a quick wipe, but some compost remained on the outside (photo 2). Labels replaced. Packed securely. All plants met the Grade 1 specification given. Order sheet completed. Steady pace of work. Worked safely throughout.

• Disposes of waste appropriately.	Dead leaves removed, placed into bucket, bucket emptied to green-waste compost bin.

Assessor signature	**Date**
Sample Assessor	23/03/2023

Photo/video evidence

- Photos:
  - one plant **before** the candidate starts the task to show example of plant condition
  - one plant once **ready for sale** showing detail of preparation e.g. dead leaves removed, deadheaded and other treatments as required.

Photo 1 (assessor) One plant before the candidate starts the task to show example of plant condition

Photo 2 (assessor) One plant once ready for sale showing detail of preparation

Commentary

The candidate demonstrated an adequate level of performance to safely carry out **harvesting of the container-based crop** to a minimum industry standard. The candidate prepared the plants within the time given with no wastage or damage, and they met the required specification.

The candidate applied their sound understanding of **harvesting the container-based crop** to select an acceptable standard of plants from the growing bed. There were plants available closer to the required specification, so they could have made better plant selections.

The candidate could have taken more care to produce a higher quality finished product eg more thorough cleaning of the pot.

Task 4 – Produce field-based crops

Task 4a) Manage field-based crop performance

Evidence contributes to the following:

Performance outcome	Assessment themes
PO3 Manage crops in field and container-based systems to optimise yield and quality	Field-based crop monitoring
	Field-based crop management

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this GSEM
report	PO3: Field-based crop monitoring PO3: Field-based crop management	√		√
photos	PO3: Field-based crop monitoring	√		√
assessor observation			√	√

Candidate evidence – report and photos

(Word count: 834)

Winter wheat crop
Soil type: medium loam

Visit 1
Date of visit: 01/02/2023
Growth stage: 23
Soil conditions: moist

Crop walk showed even emergence of the winter wheat, except at the field entrance where there was less crop emergence. It was compacted because of tractors driving over it.

A quadrat was used:

- plants were an even colour, so they looked healthy
- 60 plants. This is 240 plants per m^2
- sowing density of 325 plants per m^2, giving establishment of 74% which is ok and a realistic failure of establishment. Some might be because of winter losses
- the roots of one plant from a representative area were checked by digging it up. They looked healthy and were not stunted
- approximately 5 broad-leaved weeds were visible within the area surrounding the quadrat (groundsel, mayweed, and cleavers or chickweed)
- a small amount of disease was present on a few of the lower leaves.

Photo 1a (candidate) Emergence: crop is an even colour, stage 23

Photo 1b (candidate) Disease on lower leaves

Crop development was ok for the time of year.

Visit 2
Date of visit: 01/03/2023
Growth stage: 23 (photo 2)
Soil conditions: dry surface

A walk of the crop showed even emergence of the winter wheat. The field entrance was still showing poor emergence due to compaction.

A random quadrat showed:

- the plants were an even green colour. They looked healthy. The crop had a nitrogen fertiliser applied 7 days ago which would have helped the plants look healthy
- 59 plants. This is 236 plants per m^2
- the roots of one plant from a representative area were checked by digging it up. They looked healthy and they were not stunted (photo 2)
- groundsel, mayweed, and cleavers or chickweed were still present, but they were not competing with the crop so were not considered a problem
- some small brome plants were found close to the edge of the crop, but they were not competing with the crop so were not considered a problem
- a small amount of disease was still present on a few of the lower leaves – need to look this up.

The crop development was still ok for the time of year.

Photo 2 (candidate) Root establishment

Visit 3
Date of visit: 22/03/2023
Growth stage: 23/30 (photos 3a and 3b)
Soil conditions: moist

The crop looked bigger than it did on visit 2. The crop looked yellow in a few areas and possibly needed more fertiliser. The field entrance still showed poor emergence. It probably will not improve.

A quadrat showed:

- the plants were yellowing
- 61 plants. This is 244 plants per m^2
- the roots of one plant from a representative area were checked by digging it up. They looked healthy and bigger than they did on visit 2.
- the weeds were bigger, particularly the groundsel (photo 3c). A lot more brome plants were found on the headland causing competition with the crop. Wild oats were identified by an electricity pylon. A herbicide needs to be applied
- diseased lower leaves have died. New growth is clear of disease.

Crop development was ok for the time of year.

Photo 3a (candidate) Plant root split to show stem extension

Photo 3b (candidate) Quadrat

Photo 3c (candidate) Groundsel

Integrated Pest Management

Wild oats: Pull wild oats before the crop is harvested; no need to spray.

Brome: Find a local livestock farmer to see if they will whole-crop harvest the crop at the headland before the brome sheds its seeds.

Fertiliser Plan

Current crop: Winter wheat for feed

Previous crop: Winter oilseed rape

Expected yield: 8 t/ha

Soil type: medium loam

Target P&K indices: P=2

The previous crop is important so that you can use industry guidance to calculate the nitrogen requirements for the current crop. Based on the previous crop and expected yield, the estimated total nitrogen (N) requirement is 160kg/ha, which is normal for this crop's needs. This will be applied in 2 equal applications (80kg/ha) so that the nitrogen is available when it needs it – the first in early spring as soon as the ground conditions allow, and the second will be 4 weeks later. The crop will start growing in spring when the soil warms up and it will use the nitrogen, so it will need a second application.

Legislation

No restriction on timings of application because farms is not located within a *Nitrate Vulnerable Zone (NVZ)*. *Farming Rules for Water* apply so we must avoid water pollution.

Accurate application is important. The correct headland settings should be used to avoid pollution, and buffer zones could be used to protect watercourses, hedges, and stewardship areas.

Protecting our Water, Soil and Air: Fertiliser must be spread in suitable weather conditions. Fertiliser must not be spread in very wet conditions where it can run-off. Deep ruts can occur if machinery is on the field in wet conditions causing damage to soil structure. Windy weather can cause inaccurate spreading.

Records should be kept following the application of fertiliser including the field name, product, date, and application rate.

Commentary

The candidate applied their understanding of **field-based crop monitoring and management** to produce an adequate report of their crop visits.

The candidate's observations correctly reflect the status of the crop recorded by the assessor in the assessor observation form. The candidate mostly used technical terminology accurately, for example correctly identifying the stages of crop growth, but they were uncertain in identifying some of the weeds.

The report included the methods used but lacked detail that would confirm the relevance of the candidate's observations eg they used a quadrat, but the location is unclear. The report includes the candidate's photos which provide some confirmation of their observations, although they could have been more precise when quantifying the weeds.

The candidate applied their adequate knowledge of crop management to record the status of the crop but were unable to identify the disease on the lower leaves, so they could not recommend an approach to its control. The candidate did, however, note to look it up.

The candidate calculated the correct crop establishment rate, although no calculation was given.

The candidate's brief evaluations were based on broad observations eg checking the root of only one plant to decide on the crop establishment, and initially missing quantifying the level of some of the weeds.

The candidate's evaluations informed the recommendations for integrated pest management eg pulling the wild oats is appropriate to the level of coverage, and they looked to harvest before the brome shed its seeds, although this risked being ineffective if the brome shed before harvesting the crop.

The candidate's fertiliser plan had a total nitrogen application which was a little lower than ideal, but acceptable. The candidate correctly justified their applications of nitrogen but did not consider other essential nutrients such as phosphate and potash.

The candidate identified the relevant environmental legislation and industry best practice and provided brief explanations of the impact of these on the fertiliser plan, such as avoiding water pollution, but without stating how to achieve this.

Note about typical word counts: Whilst a candidate demonstrating threshold competence may write more descriptively and use more words, this example evidence has used fewer words so that the required standard of work is accessible and clear.

Assessor evidence – assessor observation

Task	Assessment component number
4a) Manage field-based crop performance	8717-400
Candidate name	**Candidate number**
Sample Candidate	CG12345
Centre name	**Assessment themes**
Sample Centre	PO3: Field-based crop monitoring PO3: Field-based crop management

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

Assessor observation	Assessor notes
• 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.	Visit - 01/02/23 Ground conditions: moist, recent light rainfall. Crop at growth stage 23. Roots healthy, not stunted. Minimal weeds. Some *Septoria Tritici* present. Visit – 01/03/2023 Ground conditions: dry surface. Crop at growth stage 23. Some weeds – groundsel, mayweed, cleavers, brome. Some *Septoria Tritici* present. Visit – 22/03/2023 Ground conditions: dry surface. Crop mainly at growth stage 23, some at growth stage 30. Some yellowing of leaves. Weeds - groundsel, mayweed and cleavers, brome plants, wild oats. Some competition with crop. No signs of *Septoria Tritici.*

Assessor signature	Date
Sample Assessor	As in notes

Commentary

Assessor observation records actual ground and crop conditions during the **field-based crop monitoring** to compare with the candidate's report.

Task 4b) Apply nutrients to a field-based crop

Evidence contributes to the following:

Performance outcome	Assessment themes
PO3 Manage crops in field and container-based systems to optimise yield and quality	Field-based crop monitoring
	Field-based crop management

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this GSEM
field record (inorganic/organic fertiliser applications)	PO3: Field-based crop management	√		√
assessor observation, including Q&A	PO3: Field-based crop monitoring PO3: Field-based crop management		√	√
video			√	√

Candidate evidence - field record (inorganic/organic fertiliser applications)

Grass for silage

Sowing date: n/a
Seed rate: n/a

Date	Product name and analysis	Product application rate (kg/ha)	Nutrient application rate (kg/ha)				Operator
			N	P	K	S	
15 June	Cow slurry Kg/t: 2.6 of N 1.2 of P 2.5 of K 0.7 of S	30,000	80	35	75	20	*Sample Candidate*

Commentary

The candidate accurately completed the field record as part of their **field-based crop management**. The candidate calculated the nutrient application rates based on the product analysis and product application rate. The candidate rounded the figures which is acceptable but less accurate.

The record meets the legislative and environmental requirements because it includes product analysis, and the date and rate of application.

This evidence in isolation provides minimal differentiation between grades, however it supports the observation of meeting minimum industry standards with a reasonably accurate record.

Assessor evidence – assessor observation, Q&A, and video

Task	Assessment component number
4b) Apply nutrients to a field-based crop	8717-400
Candidate name	**Candidate number**
Sample Candidate	CG12345
Centre name	**Assessment themes**
Sample Centre	PO3: Field-based crop monitoring PO3: Field-based crop management

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.*
• Check safety, suitability and cleanliness of machinery and equipment.	i) PPE was worn: safety boots and gloves. The following checks were carried out on the spreader: • safety – checked guards in place (PTO), checked overload (shear bolt), tested brakes, visual check of hydraulic pipes, safe attachment to tractor • suitability – checked tyres for wear and cuts, checked oiler drip rate • cleanliness – checked lights were clean.
• 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	ii) The candidate applied nutrients in the field at the predetermined rate for 3 bouts and 2 turns (video): • approached the area for nutrient application hesitantly and at a variable speed (initially too fast so they slowed their speed), checked the area for hazards • oversteered on turning into the application area (video time: 0:20) • stopped in the area directed by the assessor, at an angle to the bout set by the assessor • turned on the spreader before the headland; didn't immediately move forward, resulting in excess application at the headland (time: 0:35) • drove the 1st bout at a reasonable consistent speed (3½ km/hr) • overcorrected driving on the 1st bout. Resulted in overlap and underlap of application and a large gap of application (time: 0:55) • corrected their driving by the end of the 1st bout; the last part had a consistent acceptable overlap of application

the nutrient application.	• stopped the spreader before taking a wide turn, allowing a buffer zone of 10 metres due to a nearby stream (time: 2:10) • started the spreader again during the turn (before leaving the buffer area) resulting in a reduced buffer zone (still within legislation) (time: 2:12) • 2nd bout, 2nd turn and 3rd bout: oversteered, corrected driving and achieved acceptable overlap of application. They did not let the poor 1st bout interfere with the alignment of the later bouts (time: 2.52) • worked safely, turning to check the spreader alignment about half-way along the bouts, and after the turns • stopped application just before the headland • applied the nutrient with variable overlap with the previous bouts, resulting in uneven application of the nutrient • they took gentle turns to ensure minimal soil structure damage • safely parked in the area directed by the assessor: safe stop procedure was followed • overall, safe working and an adequate standard of application and environmental protection (soil structure, buffer).

Responses to questions	***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.*
i) • What are the potential environmental impacts that may arise when inorganic fertiliser is applied?	i) Good increase in yield and quality. Risk of run-off polluting waterways if rain expected.
• Explain how to set-up and calibrate a fertiliser spreader.	Set-up as per the handbook eg level of lower links, top link level, correct height of discs/spout relative to crop height. Refer to the handbook for the settings for the fertiliser. This will tell you forward speed and width setting.
• Explain how modern technology can assist in the application of fertiliser.	GPS and autosteer to help drive in a straight line. Drones monitor the crop. Mapping of fields to show crop condition. Automatic calibration of a fertiliser spreader.

• How is the machinery and equipment cleaned, checked, and stored after use?	Use a pressure hose. Need to be able to collect washings. Visual checks carried out after cleaning. Store under cover. Safe stop procedure followed.
ii) • Explain the vegetative and reproductive growth stages of the crop in relation to its lifecycle.	ii) Leaves emerge and then it tillers. The grass goes to head.
• Explain the potential end uses of this crop.	This crop could be used for animal feed.

Assessor signature	Date
Sample Assessor	15/06/2023

Photo/video evidence

- Video:
  - safe and accurate operation for a minimum of 1 bout and 1 turn (typically 2-3 minutes).

Video is a separate file: Task 4b assessor video - applying nutrients (TC).mp4

Note: some video evidence has been taken using a drone to provide a clear overhead view of the standard of work by the candidate. Where video evidence is required by City & Guilds for live assessments, the use of a drone is not required.

Commentary

The candidate demonstrated an adequate level of performance to carry out **field-based crop management** to meet minimum industry standards. The candidate worked safely throughout the task, recognising and controlling risks such as wearing safety boots.

The candidate adequately checked the machinery, including safety checks (eg visual check of hydraulic pipes and guards), suitability of the spreader (didn't check the pump oil level or the gate valves; they did check the oiler drip rate and tyre wear) and cleanliness.

In the field, they showed sound skills and dexterity, operating the machinery to apply the nutrient with acceptable evenness. There were some inefficiencies: they turned on the spreader before moving forward resulting in an increased application rate at the headland, and they overcorrected at the 1st turn resulting in overlap and underlap of the bouts. The

candidate assessed their own work, however and corrected their driving for the 2nd and 3rd bouts by taking a better line, achieving an acceptable standard of application. The candidate's occasional oversteering risked damage to the soil structure, but they took the turns gently which minimised possible damage.

The candidate applied their understanding of relevant legislation by allowing a suitable buffer zone of 10 metres.

The candidate's responses to the questions showed adequate understanding of **field-based crop monitoring and management** with brief responses where they mostly used technical terminology accurately eg height of discs/spouts, tillers, referring to grass going 'to head' rather than 'seed head' or 'flowering.' The candidate didn't differentiate between positive and negative environmental impacts.

Task 4c) Harvest a field-based crop

Evidence contributes to the following:

Performance outcome	Assessment themes
PO4 Harvest crops for commercial markets	Harvesting field-based crop

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this GSEM
field-based crop harvest record	PO4: Harvesting field-based crop	√		√
assessor observation, including Q&A			√	√
video			√	√

Candidate evidence - field-based crop harvest record

Field name/number/ID: Field 5.	**Area (ha.):** 60	**Harvest year:** 2023
Crop: Grass	**Variety:** n/a	**Harvest date:** 23 May
Load 1 - estimated weight: 9 tonnes		
Comments:		

Commentary

The record of **harvesting the field-based crop** has been completed with the correct information including the estimated load weight. The candidate could have provided detail about what information they used to make the estimation.

This evidence in isolation provides minimal differentiation between grades, however it provides an acceptable estimation that reflects the standard of skills demonstrated in the observation, with the slightly underfilled trailer.

Assessor evidence – assessor observation, Q&A, and video

Task	Assessment component number
4c) Harvest a field-based crop	8717-400
Candidate name	**Candidate number**
Sample Candidate	CG12345
Centre name	**Assessment themes**
Sample Centre	PO4: Harvesting field-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.*

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.
	i)
	PPE was worn: safety boots and gloves.
	
	Assessment of the tractor and trailer for harvesting:
	Safety & suitability – general condition check (walk around), checked required guards in place, checked wear on ring hitch, visual check of condition and pressure of tyres, visual check of condition of hydraulic, pneumatic, and electrical pipes, cables and fittings.
	
	The trailer was attached to the tractor as follows:
	• a visual check of pick-up hitch on the tractor and the ring hitch on the trailer for condition
	• visual check of protective PTO stub cover to ensure in place
	• the tractor was started and reversed to align with the trailer (two moves to achieve alignment)
	• the pick-up hitch was aligned and connected in one move, and the link arms lowered slightly
	• the engine was stopped, and the key removed and placed into the candidate's pocket
	• they exited the tractor in the correct direction
	• the pick-up hitch connection was visually checked to ensure security
	• the connections were inserted into the tractor:
	  ○ hydraulic: (tipping, tail gate)
	  ○ pneumatic (brakes)
	  ○ electrical connects.

	• trailer shoe was not removed • they checked the lift rods for movement • good all-round observation was noted during all machinery operation. Safety & suitability: tested brakes, checked lights and indicators working, checked hydraulic controls (partially tipping the trailer, partially opening the tail gate).
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.	ii) The candidate collected one load of the harvest (video): • approached the harvester at a variable speed (initially too fast so they slowed their speed) • after two attempts matched the speed of the harvester to collect one full load (2 bouts and 2 turns) • positioned the trailer under the harvester with the spout at the front of the trailer (video time: 0:02) • made some abrupt adjustments to their speed and direction so that they maintained reasonable alignment with the harvester. This resulted in uneven loading of the trailer with some crop lost (time: 0:30) (The harvester maintained a constant speed on the bouts) • adjusted speed at the turns to match the harvester, so harvester did not have to wait (time: 0:48) • there was some space in the trailer because the load was pilled at the front • worked safely, checking the trailer alignment to the harvester and for any people or other vehicles in the area • they collected the load safely, with minimal wastage, to an adequate standard • they safely drove to the silage clamp, using their mirrors and indicators. They offloaded one load of the harvest into the silage clamp (video): • visually checked the area using the side mirrors as they started the manoeuvre • reversed the trailer into the clamp in a wavy line, and at a variable but relatively slow speed. They had to shunt (stop and move forward) to retry (time: 2:17) • clumsy movements at times during the manoeuvre • adjusted alignment to clamp to enable tipping the load • started to drive forward before the load started exiting the trailer (time: 3:10) • full load was emptied broadly within the area directed by the loader operator, no damage to crop • worked safely, checking the trailer alignment to the clamp and the position of the loader • safely parked in the area directed by the assessor: safe stop procedure was followed.

Responses to questions	***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.*
• What parts of the trailer need regular lubrication?	Tail gate, draw bar, axle spring.
• What could make the tractor and trailer incompatible?	Hydraulic fittings, size of tractor, hitch type.
• Explain how to minimise soil damage when harvesting crops.	Use wide tyres to spread the weight to reduce compaction. Don't go on the field when it's raining so that you don't leave deep wheel marks and ruts.
• Explain the considerations at harvesting to produce good quality grass silage.	Weather needs to be dry for good quality chop length wanted, additive to help ferment.

Assessor signature	Date
Sample Assessor	23/05/2023

Photo/video evidence

- Video:
  - 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).
    video is a separate file: Task 4c assessor video - harvesting crop (TC).MOV

Note: some video evidence has been taken using a drone to provide a clear overhead view of the standard of work by the candidate. Where video evidence is required by City & Guilds for live assessments, the use of a drone is not required.

Commentary

The candidate demonstrated an adequate level of performance to carry out the **harvesting of the field-based crop** to meet minimum industry standards. The candidate worked safely throughout the task, recognising and controlling risks such as wearing safety boots, and exiting the tractor in the correct direction.

The candidate adequately assessed the safety and suitability of the machinery, including checking guards and visual checks of pipes, cables and fittings. The candidate visually checked the tyre pressures which is acceptable, whereas use of a gauge would have been more accurate.

The candidate safely set-up the machinery, although they could have taken additional steps to reduce the risk of contamination of the hydraulic and pneumatic systems, and wear on the machinery; they could have wound the lower links up to ensure full clearance of the drawbar.

Once the tractor and trailer were connected, the candidate adequately checked their safety and suitability by testing the brakes, and testing the hydraulic controls, although they were not tested through the full range of movement (partially tipping the trailer, partially opening the tailgate). This meant that they didn't check that sufficient volume of oil was in the hydraulic system.

The candidate showed adequate skill and dexterity by safely reversing the tractor to align with the trailer for hitching on, although this took two moves rather than achieving alignment first time. In the field, they safely operated the machinery to collect one load off the harvester, although there were some errors. For example, a small amount of crop was lost on the first bout and the trailer was unevenly filled. The candidate showed sound dexterity in aligning with the harvester, correcting their relative position as required: they took two attempts to match the speed of the harvester but adjusted their speed at the turns to match the harvester, and maintained a reasonable alignment with the harvester for the rest of the bouts.

The candidate later safely reversed the trailer into the silage clamp, although their approach was wavy, and they had to shunt to retry. The candidate started moving forward before the load started exiting the trailer, so the load was broadly tipped within the required area; a loader would need to move it further than usual for efficient storage of the crop. There wasn't any crop loss.

The candidate's responses to the questions showed adequate understanding with brief responses where they mostly used technical terminology accurately. For example, they could have provided more detail about where the lubrication is required on the tailgate pivot points and ram connections.

Task 4d) Assess a stored field-based combinable crop

Evidence contributes to the following:

Performance outcome	Assessment themes
PO4 Harvest crops for commercial markets	Crop storage

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this GSEM
field-based combinable crop storage monitoring	PO4: Crop storage	√		√
assessor observation			√	√
photos			√	√

Candidate evidence - field-based combinable crop storage monitoring

Store name/number:	**Bin/bulk/bay number:**	**Crop stored:**	**Typical crop specification:**
Guilds Estate Long Term Store (2)	Bulk store 1	Wheat	**Temperature:** 10°C **Moisture:** Maximum 15% **Hectolitre weight:** Minimum 72kg/hl

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	
23/03/2023	Middle of store	14°C (average of 12°C and 16°C readings)	15.5%	76kg/hl	Yes (No signs)	√		All readings are acceptable. Monitor rodent activity. Consider baiting outside. No insects or birds present.

Commentary

The candidate provided an adequate record of their **stored crop** monitoring with their brief observations. The candidate clearly recorded their approach to the task with sampling from one location. (See comments in the Assessor Observation about the candidate's choice of approach).

The candidate applied their understanding to analyse their data against the crop specification provided by the assessor; they concluded that the readings were acceptable, although they could have recommended more regular monitoring of the temperature to ensure it doesn't go any higher.

The candidate made recommendations to monitor the rodent activity and 'consider baiting outside,' which is an appropriate approach to baiting.

Assessor evidence – assessor observation and photos

Task	Assessment component number
4d) Assess a stored field-based combinable crop	8717-400
Candidate name	**Candidate number**
Sample Candidate	CG12345
Centre name	**Assessment themes**
Sample Centre	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.*
• Correct use of sampling equipment. • Assessment of representative samples of the crop. • Disposes of waste appropriately.	PPE (dust mask) worn during the assessment. **Insects/rodents/birds** Rodent activity (tail swipes across part of heap) was detected prior to disturbing the heap by other monitoring activities. They did not check for entry points, so they missed a small hole at the base of a wooden door. Insect traps were checked by locating marker tags, lifting the trap from the sub-surface of the grain. All the traps were emptied together into their hand. None were recorded, despite some beetles being present. Following emptying, the traps were placed back into the same locations. **Representative sampling** Sample taken from only the middle of the store using a grain sampling spear; taken at appropriate depth and emptied into a bucket for visual assessment (photo 1). It was tested for moisture using the correct moisture meter settings and procedure (photo 2). The hectolitre vessel was not checked for cleanliness prior to use. The scale was used to weigh the sample (photo 3), and the weight was recorded. However, the vessel was not filled to the brim (photo 4) which resulted in a small (acceptable) error in the reading. The scale reading was correctly interpreted. Temperature probe: The correct crop was chosen from the control screen, but they did not check to ensure it was clean. The probe was inserted at a suitable depth (photo 5) in two locations. The temperature was recorded

	before the screen reading had fully stabilised. Each reading was recorded and an average calculated. Candidate's readings and observations were entered onto the storage monitoring record. No abnormally high readings were detected during this activity. Samples were returned to the heap.

Assessor signature	**Date**
Sample Assessor	23/03/2023

Photo/video evidence

- Photos:
  - collection and assessment of the crop sample: visual assessment, use of meter, probe and weigher.

Photo 1 (assessor) Collection and assessment of the crop sample: visual assessment

Photo 2 (assessor) Assessment of the crop sample: moisture meter

Photo 3 (assessor) Assessment of the crop sample: weigher

Photo 4 (assessor) Assessment of the crop sample: vessel

Photo 5 (assessor) Assessment of the crop sample: use of temperature probe

Commentary

The candidate made brief observations when assessing the presence of insects, rodents and birds in the **stored crop**, although they could have checked for rodent entry points.

The candidate applied adequate understanding to assess the presence of insects. They located the insect traps before disturbing the heap. When they checked the insect traps, they emptied them all together into their hand making it harder to identify the presence of insects, compared to emptying the traps onto a sheet of paper, and they wouldn't be able to identify the original location of the trap. The candidate correctly returned the traps to the same locations to enable continued monitoring.

The candidate took appropriate health and safety precautions by wearing a dust mask, although not gloves which is acceptable.

The candidate applied an adequate understanding of how to assess the crop: they took a sample and readings from one area of the **stored crop**, calculating the average readings which gave them an acceptable accuracy of data and representation of the status of the **stored crop**, however sampling across the heap would have given more reliable information.

The candidate prepared the temperature probe by setting it to the correct crop before use, although they didn't check the cleanliness of the equipment, which risked introducing errors to their data through contamination.

The candidate mostly used the equipment correctly, for example, correctly interpreting the scale reading, and inserting the temperature probe at a suitable depth to get a representative reading. There were some minor errors which could have impacted the reliability of the candidate's data: the hectolitre vessel was slightly underfilled, and they didn't wait for the temperature probe reading to stabilise before taking the readings.

Task 5 – Estate maintenance

Task 5a) Maintain a stock-proof boundary

Evidence contributes to the following:

Performance outcome	Assessment themes
PO5 Maintain the areas surrounding the crop production environment	Business management
	Estate maintenance

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this GSEM
assessor observation	PO5: Business management PO5: Estate maintenance		√	
photos	PO5: Estate maintenance		√	

Task 5b) Maintain a hedge

Evidence contributes to the following:

Performance outcome	Assessment themes
PO5 Maintain the areas surrounding the crop production environment	Business management
	Estate maintenance

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this GSEM
assessor observation	PO5: Business management PO5: Estate maintenance		√	
photos	PO5: Estate maintenance		√	

Task 5c) Maintain a ditch/drain

Evidence contributes to the following:

Performance outcome	Assessment themes
PO5 Maintain the areas surrounding the crop production environment	Business management
	Estate maintenance

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this GSEM
assessor observation	PO5: Business management PO5: Estate maintenance		√	√
photos	PO5: Estate maintenance		√	√

Assessor evidence – assessor observation and photos

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: • Correct selection of tools, equipment and machinery. • Correct pre-use checks on tools, equipment and machinery.	Selected PPE – safety boots, gloves, eye protection. The tools were selected for the task, including the appropriate pre-use checks: • Drain rods – used for inserting into drain and extracting the blockage (vegetation). Drain rods were checked for damage prior to use. • Slash hook – used for cutting overgrown vegetation around the area adjacent to the drain outfall. Checked to ensure head and handle attached.
• Safe and efficient use of tools, equipment and machinery as appropriate to the task. • Disposes of waste appropriately.	Photo 1 – area before task undertaken. Photo 2 – area after task undertaken. The candidate carried out the task in the following order: 1. The excessive vegetation around the outfall was cut with the slash hook and left in place: candidate checked area for other people before starting work. The candidate ensured they had a stable footing prior to swinging the slash hook. They vegetation was left quite tall (could have been cut closer to the ground). The cut vegetation was left where cut; risk of being carried further down the ditch to the next narrow outfall. 2. The blockage was cleared from the drain using the drain rod. Mostly used a drain rodding (forward/backwards) movement. Turned anti-clockwise at times, however the rods did not come apart. No damage by the candidate. 3. All equipment was cleaned and stored.

	Outcome was a free flowing drain and ditch. The candidate carried out all tasks in a safe manner and used appropriate PPE throughout (safety boots, gloves when using the drain rods and slash cutter, eye protection).

Assessor signature	**Date**
Sample Assessor	23/03/2023

Photo/video evidence

- Photos:
    - ‘before’ and ‘after’ the candidate has undertaken the task: whole area.

Photo 1 (assessor) Before the candidate has undertaken the task: whole area

Photo 2 (assessor) After the candidate has undertaken the task: whole area

Commentary

The candidate applied a sound understanding of **estate maintenance** to clear the drain to an adequate standard with the ditch flowing. The candidate could have considered **business management** needs by moving the cut vegetation so that it could not be carried by water flow to block the ditch farther down.

The candidate selected an adequate range of tools and equipment to undertake the **estate maintenance** task, recognising the need to cut the vegetation and clear the blockage. The candidate could have selected tools and equipment which would have produced a better result eg a spiral attachment for the drain rods, and a prong to move the waste vegetation away from the ditch. All tools and equipment were checked before use.

The candidate worked safely throughout the task, for example wearing appropriate PPE, checking the area for other people before starting work and making sure they had a stable footing before swinging the slash hook.

The candidate used the tools and equipment with adequate knowledge and skill. For example, they used the drain rods in a rodding movement which is less effective than turning the rod with a spiral attachment, and the vegetation could have been cut lower to achieve better clearance and flow of water.