

CITY & GUILDS LEVEL 3 CERTIFICATE OF COMPETENCE IN NATIONAL FERTILISER SPREADER TESTING SCHEME (NSTS) EXAMINING



QUALIFICATION GUIDANCE

Independently Assessed

Essential Qualification Information

Not to be used by the Candidate during Assessment

You will require some of this information to accurately complete the Record of Assessment (ROA)

**Qualification
Group No**

0	1	1	4
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**Qualification
Programme No**

0	1	1	4	-	0	1
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L3 Certificate of Competence in National Fertiliser Spreader Testing Scheme (NSTS) Examining

Unit(s)

1	0	1
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Legislation and Fertiliser Safety (Mandatory)

1	0	2
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Fertiliser Spreader Testing (Mandatory)

Endorsement(s)

**Learning Time
(LT)**

1	0	1
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LT 8 (* Credits)

1	0	2
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LT 8 (* Credits)
(* see note on page 2)

**Recommended
Assessment
Duration**

1.5 – 3 hours per Candidate

City and Guilds Level 3 Certificate of Competence in National Fertiliser Spreader Testing Scheme (NSTS) Examining Qualification Guidance

Introduction

The scheme will be administered by City & Guilds

City & Guilds will:

- Publish
 - Scheme regulations
 - Qualification guidance
- Approve Centres to co-ordinate and administer the scheme
- Set standards for the training of Verifiers and Assessors
- Recruit, train and deploy Verifiers
- Manage verification
- Issue Certificates to successful Candidates

Further information may be obtained from the National Sprayer Testing scheme (NSTS) administration, Samuelson House, 62 Forder Way, Hampton, Peterborough, PE7 8JB; Telephone 01733 207608

The Qualification

The qualification will be awarded to Candidates who achieve the required level of competence in the units to which their Certificate relates.

Testing

An annual NSTS test satisfies the requirements of the major crop assurance schemes. For further information visit NSTS website www.nsts.org.uk.

* Learning Time (LT)

Learning Time (LT) is a better indicator of the time requirement needed for a candidate to achieve competence in this qualification. It has replaced Guided Learning Hours (GLH) which are defined as *“tutor or teacher led hours”*. LT is defined as **“a notional measure of the learning time a typical learner might be expected to take to complete and achieve all learning outcomes”**. It takes into account prior learning and encompasses: formal learning (including classes, tutorials, on line tuition), coaching and mentoring, practical work, relevant IT activity, information retrieval, expected private study and revision, work-based activity which leads to assessment, practice to achieve competence, formative assessment, programme planning and feedback.

Access to Assessment

The Assessment Centre will be responsible for arranging the assessment on behalf of the Candidate.

The minimum age limit for Candidates taking Certificates of Competence is 16 years. There is no upper age limit.

The assessment consists of **two** mandatory units:

Unit 1	Legislation and Fertiliser Safety
Outcome 1.	Understand health & safety and how to safeguard the environment
Outcome 2.	Identify different types of fertiliser and know their characteristics
Outcome 3.	Carry out a detailed mechanical examination of a fertiliser spreader
Unit 2	Fertiliser Spreader Testing
Outcome 1.	Carry out calibration of a fertiliser spreader
Outcome 2.	Carry out a range of tests, interpret results and make appropriate adjustments
Outcome 3	Complete documentation and report findings

Candidates must successfully achieve **all** assessment activities in (both) the above unit(s).

Quality Assurance

Verification is a process of monitoring assessment; it is an essential check to confirm that the assessment procedures are being carried out in the way City & Guilds has specified. The overall aim of Verification is to establish a system of quality assurance that is acceptable in terms of both credibility and cost effectiveness.

Approved Assessors will be subject to a regular visit by a Verifier at a time when assessments are being undertaken.

Documents completed by the Assessor may be inspected by a Centre appointed Internal Verifier and a City & Guilds approved Verifier at any time.

Compliance with the verification requirements is a pre-requisite for Assessors remaining on the list of approved Assessors.

After assessment has been completed the Qualification Guidance is to be retained by the Assessor for 12 months and is to be made available for inspection by a Centre appointed Internal Verifier, a City & Guilds approved Verifier or when a centre visit takes place by a Quality Systems Consultant (QSC).

Performance Evaluation

The result of each assessment activity is evaluated against the following criteria:

M = Met Meets or exceeds the assessment criteria by displaying a level of practical performance and/or underpinning knowledge. If the Criterion has been MET, a tick is to be put in the box provided in the bottom right-hand column of each section.

NM = Not Met Does not satisfy the requirements of the assessment criteria, being unable to perform the practical task satisfactorily or safely or having insufficient underpinning knowledge. If the Criterion is NOT MET, a cross is to be put in the box provided in the bottom right-hand column of each section.

Appeals and Equal opportunities

Centres must have their own auditable, appeals procedures. If a Candidate is not satisfied with the examination conditions or a Candidate feels the opportunity for examination is being denied, the Centre Manager should, in the first instance, address the problem. If, however the problem cannot be resolved, City & Guilds will arbitrate and a Principal Verifier may be approached to offer independent advice. All appeals must be clearly documented by the Centre Manager and made available to the Principal Verifier or City & Guilds if advice is required.

Should occasions arise when Centres are not satisfied with any aspect of the verification process, they should contact the Quality Assurance Manager at City & Guilds NPTC, Building 500, Abbey Park, Stareton, Warwickshire, CV8 2LY. Telephone 0247685 7300

Access to the qualification is open to all, irrespective of gender, race, creed or special needs. Subject to H&S restrictions the Centre Manager should ensure that no learner is subjected to unfair discrimination on any grounds in relation to access to assessment and to the fairness of the assessment. QCA requires City & Guilds to monitor centres to check whether equal opportunities policies are being adhered to.

Validation of Equipment

Vehicles must comply with Department of Transport and Road Traffic Acts where relevant.

All equipment being used for this assessment must comply with the relevant requirements of the Provision and Use of Work Equipment Regulations (PUWER) 1998 and any other relevant legislation.

The candidate must have the necessary equipment for spreader testing as stipulated by NSTS and amended from time to time.

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

Safe Practice

The Assessor and Candidate must wear Personal Protective Equipment (PPE) when appropriate.

The Assessor must ensure that a Site Specific Risk Assessment and an Environmental Risk Assessment are carried out.

All equipment must be operated in such a way that the Candidate, Assessor, other persons and the environment are not endangered. Failure to operate safely and comply with these requirements will result in the Candidate not meeting the required standard.

A breach of Health and Safety that puts any person at risk during the assessment process will result in the assessment being terminated and the Candidate not meeting the required standard. The Assessor may stop the assessment on the grounds of safety at any time at their discretion.

Before any assessments take place, Assessor & Candidate should to be aware of any local or national issues to prevent breach of security, safety and any cross contamination or damage to the local environment.

Information

The candidate may refer to operator manuals, training materials or safety publications during the assessment. But they **may not** refer to the Qualification Guidance Document **during the assessment**.

Questions should be related to the background or employment aspirations of the candidate.

Continued...

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

Assessment Guidance for the Assessor

This qualification can only be assessed by an Assessor who is suitably qualified and meets the requirements of the awarding body. The Assessor must be independent **and cannot have been involved with the training of the Candidate**. The Assessor must hold the qualification being assessed. Please see City & Guilds Centre Manual for guidance.

The Candidate is to be notified of the place and time of assessment and when formal assessment commences and ceases.

Assessors are reminded that assessment is a formal process and that assessment must be carried out using this Qualification Guidance. All relevant assessment criteria must be assessed as specified in the Qualification Guidance. Assessment will be carried out by direct observation and by oral questioning of the Candidate. **Where a specific number of responses are required these may include other suitable answers not specified if they are deemed to be correct by the Assessor.** The performance of the Candidate is to be recorded on the Qualification Guidance as directed by completing the tick boxes. Space has been provided on the Qualification Guidance for the person assessing to record relevant information which can be utilised to provide feedback to the Candidate. After assessment has been completed the Qualification Guidance document is to be retained by the assessor and provided if required.

Assessment Guidance for the Candidate

A list of registered Assessment Centres is available from City & Guilds NPTC. (www.nptc.org.uk)

Assessment is a process by which it is confirmed that the candidate is competent in the unit(s) within the award to which the assessment relates. It is the process of collecting evidence about their capabilities and judging whether that evidence is sufficient to attribute competence.

The Candidate must be registered through the City & Guilds approved Assessment Centre for this qualification prior to the assessment.

The results of the assessment will be recorded on the Record of Assessment form (ROA).

The Qualification Guidance contains criteria relating to:

- Observation of practical performance
- Assessment of underpinning knowledge

Upon successful completion of the assessment the candidate shall be informed that they can only commence equipment testing once confirmation has been received from NSTS Administration

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City & Guilds is a registered charity established to promote education and training

Candidate A	Name:	Date:	Start Time:	Duration:
Candidate B	Name:	Date:	Start Time:	Duration:
Candidate C	Name:	Date:	Start Time:	Duration:
Candidate D	Name:	Date:	Start Time:	Duration:

Unit 1: Legislation and Fertiliser Safety (Mandatory)

CRITERIA NUMBER	ASSESSMENT CRITERIA	ASSESSOR GUIDANCE	ASSESSMENT ACTIVITIES	CANDIDATE			
				A	B	C	D
1.1	<p>Explain how to carry out hazard and risk assessment before testing fertiliser spreaders</p> <p>Oral questions</p>	<p>The candidate is required to state all three aspects to be covered</p> <p>The candidate is required to state all the items of PPE that should be worn when testing a fertiliser spreader (as stated in manufacturers handbook or identified in the risk assessment)</p>	<p>All required:</p> <ul style="list-style-type: none"> site task machine <p>To include:</p> <ul style="list-style-type: none"> safety boots (free from mud or oil) non snag outer clothing gloves face protection when handling fertilisers and testing distribution (if identified as a requirement by the risk assessment) <p>Met ✓ Not Met X</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unit 1.2	<p>Know the legal and safety requirements relating to the testing of granular fertiliser application equipment</p> <p>Oral questions</p>	<p>The candidate is required to state five considerations regarding machine guarding, risk of personal injury, injury to others and damage to the environment when testing fertiliser spreaders</p>	<p>These may include:</p> <ul style="list-style-type: none"> contamination of the environment appropriate use of the handbook personal contamination and safety contamination of others contact with moving machinery parts entrapment by machinery falls from machinery eye damage from fertiliser granules <p>Met ✓ Not Met X</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unit 1.3	<p>Know what detrimental effects fertilisers can have on the environment</p> <p>Oral questions</p>	<p>Candidate to state three factors that may cause environmental damage during the testing process</p> <p>The candidate is required to carry out an environmental risk assessment for the test and application site and report their findings verbally to the assessor</p> <p>The candidate is required to suggest suitable control measures for testing and application from the findings of the environmental risk assessment.</p>	<p>May include:</p> <ul style="list-style-type: none"> spillage when filling the machine loss of fertiliser onto hard surfaces spillage of fertiliser in the field over application of fertiliser in the field contamination of watercourses <p>The report must include (if applicable):</p> <ul style="list-style-type: none"> pollution of surface water pollution of groundwater run-off from sloping ground into waterways damage to hedgerows <p>May include:</p> <ul style="list-style-type: none"> adjustments to spreader to deflect, or change the balance of spread set up buffer zones introduce conservation strips adjust machine as required spillage containment and recovery use suitable procedure to remove spillage <p>Met ✓ Not Met X</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CRITERIA NUMBER	ASSESSMENT CRITERIA	ASSESSOR GUIDANCE	ASSESSMENT ACTIVITIES	CANDIDATE			
				A	B	C	D
2.1	State different types of fertiliser <i>Observation</i>	The candidate is required to state three different types of fertiliser	May include: <ul style="list-style-type: none"> prills granules blends mineral crystalline compounds <p style="text-align: right;">Met ✓ Not Met X</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.2	Carry out a range of tests on a fertiliser sample <i>Observation</i>	The candidate is required to carry out a range of tests on a fertiliser sample and interpret the results in relation to the machine settings and spreading characteristics	On one product to include: <ul style="list-style-type: none"> crush test (to establish the hardness of the product) density test (to establish bulk density of the product) grading test (to establish the size distribution of the product) <p style="text-align: right;">Met ✓ Not Met X</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.3	Use the manufacturer's information to determine and apply the machine settings <i>Observation</i>	The candidate is required to use the manufacturer's information to determine the correct settings and apply them to one machine	Must include: <ul style="list-style-type: none"> use of manufacturer's information correct setting for the machine determined correct settings applied to the machine <p style="text-align: right;">Met ✓ Not Met X</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Note: Additional Health and Safety Guidance</p> <p>The potential risks during this activity are:</p> <ul style="list-style-type: none"> entrapment entanglement contact with the PTO or disc during testing <ol style="list-style-type: none"> when possible, detach the spreader if the spreader is not detached from the prime mover before testing the PTO speed with a tachometer, extreme care must be taken during testing the spreader <u>must</u> be properly reconnected to the prime mover when testing the disc speed with an optical tachometer and contact must be avoided during testing <p>Failure to meet the above will result in the assessment being terminated</p>							
3.2	Carry out mechanical inspection on a machine as specified by the manufacturer (Note: machines may include disc, pneumatic and oscillating spout types) <i>Observation</i>	For this activity the candidate is required to use the NSTS Spreader Testing Report Form appropriate to the machine The candidate is required to inspect and/or test various components of the machine safely	Must include: <ul style="list-style-type: none"> carry out a visual inspection of a fertiliser spreader verbally report on the condition of the fertiliser spreader record the results of the inspection May include (as appropriate to machine): <ul style="list-style-type: none"> feed shutter openings drop point of fertiliser onto the disc disc/vane timing disc/vane wear test PTO and/or disc speed using a tachometer agitator drive and condition gearbox/drive wear or damage wear or damage to any other components <p style="text-align: right;">Met ✓ Not Met X</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2	Explain how to rectify faults <i>Oral questions</i>	The candidate is to be presented with two scenarios (faults which could occur to the type of machine being assessed) and asked how each could be rectified	Two required: <ul style="list-style-type: none"> fault one fault two <p style="text-align: right;">Met ✓ Not Met X</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Unit 2 Fertiliser Spreader Testing (Mandatory)

CRITERIA NUMBER	ASSESSMENT CRITERIA	ASSESSOR GUIDANCE	ASSESSMENT ACTIVITIES	CANDIDATE			
				A	B	C	D
1.1	State the factors that affect application rate Oral questions	Candidate to state five factors that can affect the application rate	May include: <ul style="list-style-type: none"> forward speed height of applicator from the ground disc speed aperture setting weather conditions type and condition of material ground conditions accuracy of bout width <p style="text-align: right;">Met ✓ Not Met X</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.2	Explain how to calibrate a fertiliser spreader Observation	The candidate is required to explain how to calibrate one fertiliser spreader for one product	All required: <ul style="list-style-type: none"> used the manufacturers analysis supplied with the fertiliser, and or analysis characteristics of the fertiliser to select an application rate for the product selected an acceptable forward speed carried out an accurate speed check calculated required output (kg/min) set the applicator to the required output according to the manufacturer's handbook measured the output of the applicator in a safe manner adjusted the applicator to achieve the required output <p style="text-align: right;">Met ✓ Not Met X</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.1	Demonstrate how to carry out field adjustments to fertiliser spreader Observation	The candidate is required to carry out adjustments to one fertiliser spreader in the field for one product	May include the following as appropriate to the machine: <ul style="list-style-type: none"> application rate (derived from calibration, or spreading charts) height of spreading mechanism level of machine (side to side) level or tilt of machine (front to back) vane type disc or PTO speed drop point and or vane settings headland mode <p style="text-align: right;">Met ✓ Not Met X</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unit 2.2	Demonstrate how to set out trays for fertiliser spreader testing Observation	The candidate is required to demonstrate how to set out trays for one fertiliser spread test	All required: <ul style="list-style-type: none"> type of spreading mechanism spreading width wind direction field layout, tramlines, hedges, obstructions slopes <p style="text-align: right;">Met ✓ Not Met X</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unit 2.3	Demonstrate how to carry out a test run for fertiliser testing Observation	An operator is required to operate the machine for one test run. The candidate is required to control the activity	All required: <ul style="list-style-type: none"> briefed the machine operator in respect of the activity gave signals to the operator as appropriate ensured that the test run, passes correctly through the trays <p style="text-align: right;">Met ✓ Not Met X</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unit 2.4	Demonstrate how to transfer material from collection trays to measuring tubes and correctly interpret the results and explain appropriate adjustments to the machine Observation	The assessor is required to observe activity taking place	All required: <ul style="list-style-type: none"> transfer fertiliser from collection trays to measuring tubes without spillage correctly interpret the results explain appropriate adjustments to the machine to improve accuracy <p style="text-align: right;">Met ✓ Not Met X</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CRITERIA NUMBER	ASSESSMENT CRITERIA	ASSESSOR GUIDANCE	ASSESSMENT ACTIVITIES	CANDIDATE			
				A	B	C	D
Unit 2.5	Use test results to demonstrate knowledge of how to adjust other machines Oral questions	Note: To produce a co-efficient variation of 15% or less as stated in the Department for Environment, Food and Rural Affairs Fertiliser manual (RB209) The candidate is required to state what adjustments would be needed to two other machines to produce an acceptable spread pattern	Both required: <ul style="list-style-type: none">machine onemachine two Met ✓ Not Met X	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Unit 2.6	Assess distribution patterns from different machines and recommend how each machine should be adjusted to correct the distribution pattern Observation and Oral questions	Note: the candidate is to provide nine sets of adjustments. The candidate to inspect the distribution patterns in the measuring tubes from three machines (depicted by three tube arrays provided by the assessor) The candidate to recommend adjustments to be made to correct the distribution pattern for each of the three different machines (depicted by three tube arrays provided by the assessor)	All required: <ul style="list-style-type: none">machine onemachine twomachine three All required: <ul style="list-style-type: none">machine onemachine twomachine three Met ✓ Not Met X	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Unit 2.7	Carry out a headland spread test and recommend adjustments to the machine Observation	The candidate is required to carry out one headland test (only if applicable to the machine being tested)	All required: <ul style="list-style-type: none">setting out trays for a headland testinspecting the distribution patterns in the measuring tubesrecommend the adjustments to be made to the machine Met ✓ Not Met X	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Unit 2.8	Complete report forms and provide a verbal report Observation	The candidate is required to complete the report forms and provide a verbal report	All required: <ul style="list-style-type: none">received an image of the distribution pattern (a digital camera)completed report forms clearly and accuratelyverbally communicated machine inspection and test results to the operator and/or owner Met ✓ Not Met X	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Summary of Assessment

(The Assessor is to complete **ONE** of the following)

The learner has met all of the assessment criteria	Signed:	Date:
The learner has not met all of the assessment criteria (<i>please state reason(s)</i>)	Signed:	Date:

Learner Feedback on Training and Assessment

(The learner is to provide some feedback on training and assessment in the box below)

Feedback on training -	
Feedback on assessment -	
Learner Name:	Signature:

For use by Internal Verifier

(Internal Verifier to complete **ONE** the boxes below if the assessment process was internally verified)

I observed the assessment process taking place. I am satisfied that the assessment was conducted in line with the qualification requirements and that the judgement of the assessor was appropriate.	Signed:	Date:
I observed the assessment process taking place. The following were noted as areas of concern.	Signed:	Date: