NPTC
Registered Charity No. 1096429

STONELEIGH PARK, WARWICKSHIRE CV8 2LG
Tel: 024 7685 7300 Fax: 024 7669 6128
Email: information@nptc.org.uk

NPTC LEVEL 3 CERTIFICATE OF COMPETENCE in FARM INSPECTION (Combinable Crops)

ASSESSOR GUIDANCE

Guidance Notes for Candidates and Assessors
The assessment is divided in to 3 compulsory units:
1. Part A – Crop husbandry and management (a practical assessment)
2. Part B – Farm Inspection (a practical assessment)
3. Principles of legislation and good practice (a written assessment)

Candidates must successfully achieve all assessment activities in all three units.

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

4 = Meets or exceeds the assessment criteria by displaying a level of practical performance and/or underpinning knowledge, with no 'minor' or 'critical' faults. (Competent).

3 = Meets the requirements of the assessment criteria for both the practical performance and the underpinning knowledge, with some 'minor' faults but no 'critical' faults. (Competent).

2 = Does not fully satisfy the requirements of the assessment criteria, being unable to perform the practical task satisfactorily or being deficient in underpinning knowledge leading to the recording of minor faults. (Not yet competent).

1 = Does not satisfy the requirements of the assessment criteria, being unable to perform the practical task satisfactorily or safely or being deficient in underpinning knowledge leading to the recording of a critical fault. (Not yet competent).

Safe Practice
Appropriate Personal Protective Equipment must be worn at all times.
Appropriate biosecurity measures must be observed at all times.
Any equipment must be used/operated in such a way that the Candidate, Assessor, other persons, animals or other equipment are not endangered.
If these conditions are not observed this will result in the Candidate not meeting the required standard.

Validation of Equipment
Any item(s) of equipment and facilities used for the assessment must comply with current legal, health & safety requirements.

Additional Information
May be sought from the relevant manufacturer's instruction book, operators' manual, product label or any other appropriate safety publication.

Candidates Name:	Date:	Start Time:	Duration: hrs

Part A – Crop husbandry and management

A1 Quality assurance and the identification of growing and stored crops

	Assessment Activities	Assessor Guidance	Assessment Criteria
1.1	Demonstrate knowledge of ways in which Quality Assurance Schemes may benefit the farming industry **M** ☐ **C** ☐ **1 2 3 4**	State **four** ways in which Quality Assurance Schemes may benefit the farming industry	◊ Consumer confidence ◊ Government confidence ◊ Food grown and stored to recognised standards ◊ Standards checked by independent verifiers/inspectors ◊ Brand image ◊ Market share ◊ Comply with legal requirements
1.2	Identify stored crops **M** ☐ **C** ☐ **1 2 3 4**	Identify correctly **six** examples of stored crops	Candidate must correctly identify six examples from the following: ◊ Wheat ◊ Barley ◊ Oats ◊ Rye/Triticale ◊ Oilseed rape ◊ Linseed ◊ Sunflowers ◊ Peas ◊ Beans
1.3	Identify growing cereal crops prior to ear emergence **M** ☐ **C** ☐ **1 2 3 4**	Identify correctly **three** examples of growing cereal crops prior to ear emergence	Where the time of year precludes the use of naturally growing plants the examiner may use photographs or other suitable aids. Candidate must correctly identify three from the following : ◊ Wheat ◊ Barley ◊ Oats ◊ Rye/Triticale
1.4	Identify growing oilseed or pulse crops prior to flowering **M** ☐ **C** ☐ **1 2 3 4**	Identify correctly **three** examples of growing oilseed or pulse crops prior to flowering	Where the time of year precludes the use of naturally growing plants the examiner may use photographs or other suitable aids. Candidate must correctly identify three from the following : ◊ Oilseed rape ◊ Linseed ◊ Sunflowers ◊ Peas ◊ Beans

A2 Health and quality of growing and stored crops

	Assessment Activities	Assessor Guidance	Assessment Criteria
2.1	Demonstrate knowledge of reasons why the health and quality of combinable crops should be maintained throughout the production, storage and transport processes **M** ☐ **C** ☐ **1 2 3 4**	State **five** reasons why the health and quality of combinable crops should be maintained throughout the production, storage and transport processes	◊ Consumer expectations ◊ Consumer confidence ◊ Brand reputation ◊ Personal/business reputation ◊ Merchant/trader confidence ◊ Maximise saleable yield ◊ Maximise value of crop ◊ Easier to find a market ◊ Image of the industry ◊ Moral responsibility ◊ Minimise unnecessary losses ◊ Maximise financial returns ◊ Integral part of good husbandry ◊ Personal pride and/or peace of mind ◊ Compliance with legislation
2.2	Demonstrate knowledge of criteria that would be assessed when checking the general condition of a stored combinable crop **M** ☐ **C** ☐ **1 2 3 4**	State **five** criteria that would be assessed when checking the general condition of a stored combinable crop	Where a range of stored crops is not available the candidate will be assessed using crop samples provided or approved by the assessor. ◊ Size of grains or seeds ◊ Colour ◊ General physical appearance ◊ Smell ◊ Purity ◊ Presence/absence of: - broken/damaged grains/seeds - contaminant crop seeds - weed seeds - straw, chaff, haulm - soil and stones - other contaminants - sprouting grains/seeds - fungal growth - insect pests - rodent, bird or other animal excreta - glass - domestic animals
2.3	Assess and report on the general condition of a sample of a combinable crop **M** ☐ **C** ☐ **1 2 3 4**		Candidate must report the condition of the sample using the criteria stated in 2.2. The sample must be provided or approved by the assessor
2.4	Determine the moisture content of a sample of grain, oilseed or pulse **M** ☐ **C** ☐ **1 2 3 4**		Candidate will use suitable equipment to accurately determine the moisture content of a sample supplied or approved by the assessor
2.5	Demonstrate knowledge of criteria that would be assessed when checking the general health and condition of a combinable crop in the field **M** ☐ **C** ☐ **1 2 3 4**	State **four** criteria that would be assessed when checking the general health and condition of a combinable crop in the field	◊ General appearance ◊ Colour ◊ Plant density and evenness ◊ Size for time of year and stage of growth ◊ Presence of weeds, pests, diseases or other conditions

2.6	Assess and report on the general condition of a cereal, oilseed or pulse crop in the field **M** ☐ **C** ☐ **1 2 3 4**		Where the time of year precludes the use of naturally growing plants the assessor may use photographs or other suitable aids N.B. The accurate identification of specific weeds, pests and diseases is not required

A3 Crop establishment and husbandry

	Assessment Activities	Assessor Guidance	Assessment Criteria
3.1	Accurately determine the growth stage of a cereal, oilseed or pulse crop **M** ☐ **C** ☐ **1 2 3 4**		The assessor will choose the crop for which the growth stage is to be determined. Where the time of year precludes the use of naturally growing plants the assessor may use photographs or other suitable aids Candidate may use appropriate identification aids as required
3.2	Demonstrate how the plant population of a cereal, oilseed or pulse crop may be determined accurately **M** ☐ **C** ☐ **1 2 3 4**		Where the time of year precludes the use of naturally growing plants the candidate may describe the appropriate procedure in detail
3.3	Identify weeds, field pests, store pests and diseases associated with combinable crops **M** ☐ **C** ☐ **1 2 3 4**	Identify correctly 3 weeds, 3 field pests, 3 store pests and 3 diseases associated with combinable crops	Where the time of year precludes the use of naturally growing plants the assessor may use photographs or other suitable aids or examples The candidate may provide and use appropriate identification aids
3.4	Determine the degree of infection or infestation for one of the problems identified above as chosen by the assessor **M** ☐ **C** ☐ **1 2 3 4**		Where the time of year precludes the use of naturally growing plants the candidate should describe the appropriate procedure in detail for a scenario given by the examiner The candidate may provide and use (or demonstrate the use of) published MAFF and/or other relevant guidelines: ◊ Determine that there is a problem ◊ Determine the location(s) of the problem ◊ Determine the scale of the problem
3.5	Demonstrate knowledge of methods by which the problem chosen by the assessor in 3.4 above could be controlled **M** ☐ **C** ☐ **1 2 3 4**	State two methods by which the problem chosen by the assessor in 3.4 above could be controlled	Methods should include the following wherever appropriate: ◊ Cultural/ Physical ◊ Chemical ◊ Biological
3.6	Identify a suitable approved pesticide to treat the problem chosen by the assessor in 3.4 **M** ☐ **C** ☐ **1 2 3 4**		Candidate may provide and use a suitable current publication Appropriate guides will include current copies of: ◊ Pesticides – DEFRA ◊ Pesticides Guide – BCPC ◊ Manufacturers' product and technical guides

Assessment Activities		Assessor Guidance	Assessment Criteria
3.7	Read and interpret a pesticide product label supplied or approved by the assessor **M** ☐ **C** ☐ **1 2 3 4**	Candidate to read and interpret a pesticide product label supplied or approved by the assessor Where the candidate has been found competent in the NPTC or SSTS module PA1 he/she will be credited with this assessment item and therefore not be required to complete section 3.7	Candidate must identify six items selected by the assessor from the following list: ◊ Product name ◊ Active ingredient(s) ◊ Approval number ◊ Type of formulation ◊ Statutory conditions ◊ Approved field of use ◊ Crop/target on which product may be used ◊ Maximum dose rate ◊ Maximum number of treatments ◊ Latest time of application ◊ Recommended dose rate(s) ◊ Recommended application rate(s) ◊ Operator PPE requirements ◊ Specific product precautions ◊ Environmental precautions or restrictions ◊ Approved tank mixes and adjuvants ◊ Hazard symbol ◊ Practical significance of Maximum Exposure Limit (MEL or Occupational Exposure Standard (OES) ◊ Reduced volume applications
3.8	Demonstrate knowledge of problems associated with a badly adjusted combine **M** ☐ **C** ☐ **1 2 3 4**	State four problems associated with a badly adjusted combine	◊ Excess broken grains/seeds ◊ Excess straw/haulm in sample ◊ Excess grains/seeds on ground behind combine ◊ Excess stones and/or soil in sample ◊ Too much of a laid crop left on ground ◊ Poor fuel efficiency
3.9	Describe how the symptoms stated in 3.8 and selected by the assessor may be corrected **M** ☐ **C** ☐ **1 2 3 4**	Describe how two of the symptoms stated in 3.8 and selected by the assessor may be corrected	Candidate must describe how two of the faults identified in 3.8 and selected by the assessor, may be corrected

A4 Environment and legislation

	Assessment Activities	Assessor Guidance	Assessment Criteria
4.1	Assess the environmentally sensitive factors of the site of a field crop with particular reference to the risks associated with the application of manure, fertilizers and pesticides **M** ☐ **C** ☐ **1 2 3 4**		Where the time of year or assessment situation preclude a practical demonstration, the candidate must assess the factors for a simulated field crop situation described by the assessor ◊ Ground conditions ◊ Soil type ◊ Terrain ◊ Weather ◊ Watercourses ◊ Wildlife ◊ Flowering plants ◊ Sensitive crops ◊ Public access ◊ Hedgerows ◊ Housing ◊ Presence of non-target species susceptible to harm ◊ Nitrogen vulnerable/sensitive areas
4.2	Demonstrate knowledge of control measures by which the risks identified in 4.1 could be minimised **M** ☐ **C** ☐ **1 2 3 4**	State **six** control measures by which the risks identified in 4.1 could be minimised	◊ Buffer zones ◊ LERAPs ◊ Conservation headlands ◊ Choosing suitable weather and soil conditions for application ◊ Choosing suitable equipment for the application e.g. full-width fertilizer applicators, liquid fertilizers, headland discs on broadcaster, low drift spray nozzles, sleeve-boom or twin fluid nozzle sprayers, low ground pressure tyres and equipment ◊ Selecting the safest pesticide ◊ Not doing the work ◊ Timing of application ◊ Use of nutrient balance sheets
4.3	Assess the environmentally sensitive factors of the site at which manure or fertilisers or pesticides are stored **M** ☐ **C** ☐ **1 2 3 4**		◊ Drains ◊ Watercourses ◊ Type of yard surface e.g. concrete or crushed stone ◊ Presence of a roof or other covering ◊ Proximity to housing or offices ◊ Proximity to livestock housing ◊ Proximity to hay, straw or other flammable materials
4.4	Demonstrate knowledge of control measures by which the risks identified in 4.3 could be minimised **M** ☐ **C** ☐ **1 2 3 4**	State **three** control measures by which the risks identified in 4.3 could be minimised	◊ Roofing storage area ◊ Moving store ◊ Moving flammable materials ◊ Bunding liquid fertilizer and pesticide storage areas ◊ The ability to block drainage channels if fire, spillage or leakage occur ◊ Emergency action plans prepared ◊ Register site with local fire service

A5 Principles of legislation and good practice

This section will be assessed through the completion of a written test paper. The pass mark is 80%. Please see Appendix for a range of questions and possible answers.

Assessment Activities		Assessment Criteria
5.1	Demonstrate knowledge of legislation which specifically affects work activities and management practices on an arable farm	◊ Health and Safety at Work Act ◊ Management of Health and Safety at Work Regulations ◊ COSHH Regulations ◊ Food and Environment Protection Act ◊ Control of Pesticide Regulations ◊ Control of Pollution Act ◊ Personal Protective Equipment Regulations ◊ The Pesticides (Maximum Residue Levels in Crops, Food and Feedingstuffs) Regulations ◊ The Water Supply (Water Quality) Regulations ◊ The Environmental Protection Act ◊ The Wildlife and Countryside Act ◊ The Poisons Act ◊ The Food Safety Act ◊ The Confined Spaces Regulations ◊ Compliance with appropriate codes of practice
5.2	Demonstrate knowledge of the production, storage and handling of combinable crops	◊ Choice of crop(s) to be grown ◊ Markets available for cereal, oilseed and pulse crops ◊ Choice of variety to be planted ◊ Method(s) and timing of establishment ◊ Typical seed rates ◊ Typical plant populations ◊ Main weed, pest, disease and associated problems and their control strategies ◊ Typical crop nutrition requirements and timing of applications ◊ Typical timing of harvest and expected yields ◊ Transitional and long term storage requirements of combinable crops ◊ Care required during growing, handling, storage and transport to minimise risks to crop quality
5.3	Demonstrate knowledge of the safe storage of fertilizers	◊ Preferably on level hard surface and under cover ◊ Easy access for handing equipment ◊ Bags not stacked too high ◊ Liquids in bunded tanks ◊ Safe distance from sources of ignition, hay, straw, fuel and pesticide stores ◊ Where 25 tonnes or more of ammonium nitrate, local fire service notified and warning signs erected
5.4	Demonstrate knowledge of the safe storage of pesticides	◊ Suitably sited ◊ Secure ◊ Controlled access ◊ Structure capable of resisting fire ◊ Contains spillage and leakage ◊ Big enough for anticipated usage ◊ Sufficient shelving ◊ Adequate lighting ◊ Good access ◊ Fire precautions ◊ Stock inventory kept ◊ Equipment available to clean up a spillage ◊ Proximity of personal washing facilities and PPE storage ◊ Ability to contain water used to fight a fire ◊ HSE Information Sheet ◊ Warning sign(s)

Assessment Activities		Assessment Criteria
5.5	Demonstrate a knowledge of the safe storage and transport of harvested combinable crops	◊ Of a size sufficient for needs ◊ Structure strong enough to support weight safely ◊ Weatherproof ◊ Good access for handling equipment and transport ◊ Ability to segregate different crops and/or varieties ◊ Drying/ventilation facilities ◊ Cleaned and, if necessary, sanitised prior to putting crop in ◊ Secure ◊ No unprotected glass ◊ Proof against vermin, birds and domestic animals ◊ Provides safe access to personnel for inspection and sampling ◊ Crops and varieties labelled ◊ Minimise personal exposure to dust ◊ Inspected regularly and records kept ◊ Temperature and moisture content of crop suitable for anticipated storage period ◊ Representative samples taken at filling and emptying ◊ Crop treated with pesticide if situation demands and records kept ◊ Access to empty bins and pits controlled ◊ Drier, augers, conveyors etc., cleaned and records kept ◊ Trailers cleaned before use ◊ Lorries inspected and previous cargo checked before loading ◊ Load covered during transport off the farm ◊ Grain passport given to lorry driver ◊ Standards of the current AIC/UKASTA code of practice for road haulage
5.6	Demonstrate knowledge of why efficient and effective control of rodents is important in good crop storage	◊ Maintains quality of stored crop ◊ Prevents contamination by urine, faeces, hair, soil, nesting and other materials brought in by rodents ◊ Avoids infection by, or transmission of, disease to humans ◊ Minimises associated damage to farm premises
5.7	Demonstrate knowledge of how efficient and effective control of rodents may be achieved	◊ Tidiness in the immediate vicinity of the crop store ◊ Clearing of junk, waste, spilled grain or seed, badly stored foodstuffs, uncontrolled vegetation and other items that may provide cover or food for rodents in the immediate vicinity of the store ◊ Proof doors, drains and other potential entry points against rodents ◊ All doors fit well and are normally kept closed ◊ Regular inspections are made for evidence of rodent activity such as holes and nests, runs, smears, footprints, tail marks, droppings, crop and other damage ◊ Regular baiting with suitable type(s) of poison and inspection of these baiting points is carried out ◊ Differences between the behaviour of rats and mice ◊ Records of inspections, baiting and other control methods are kept and used

Assessment Activities		Assessment Criteria
5.8	Demonstrate knowledge of the factors involved in selecting a variety of a specified combinable crop	◊ Disease and/or pest resistance ◊ Suitability for intended market and farming system ◊ Specified by buyer/processor ◊ Suitability for local soil and climatic conditions ◊ Place in cropping sequence or rotation ◊ Previous crop and variety ◊ Neighbouring crops and varieties ◊ Yield potential ◊ Time of maturity ◊ Personal experience ◊ Crop quality ◊ Anticipated level of fertilizer and/or pesticide inputs ◊ Aspect and exposure of site ◊ Known or anticipated weed, pest or disease problems ◊ Need for minimising or maximising straw production
5.9	Demonstrate knowledge of the benefits of using treated seed	◊ Chemical is applied specifically to the target (seed) ◊ Minimises environmental contamination ◊ Allows chemical control from the earliest and most vulnerable stage of growth ◊ Ensures crop gets off to the best start ◊ May avoid the need to apply pesticides via crop sprayer with consequent soil damage
5.10	Demonstrate knowledge of how and when a specified combinable crop may be established	◊ Typical timing of planting ◊ Description of cultivation sequence, minimal cultivation or direct drilling techniques
5.11	Demonstrate knowledge of typical seed rates for a cereal, oilseed and pulse crop and the typical target plant population	◊ State suitable seed rate for each of the crops identified ◊ State a typical plant population for each of the crops identified
5.12	Demonstrate knowledge of the plant nutrient requirements for a cereal, oilseed and pulse crop and the ways in which these are typically supplied	◊ State requirements in terms of kilograms of N, P and K for each of the crops identified ◊ Describe how these nutrients may be supplied ◊ State typical timings of the application of fertilizers to each of the crops identified ◊ State two advantages and two disadvantages of using granular and liquid fertilizers
5.13	Demonstrate knowledge of the potential benefits of using conservation headlands and buffer zones around arable fields	◊ Maintains areas of cover where wildlife can live and move ◊ Maintains areas close to the crop where pest predators can live ◊ Improved access for tractors, vehicles and people ◊ Enables more timely cutting of hedges ◊ Reduces the risk of cultivation damage to trees and hedges ◊ Reduces risk of pollution of watercourses ◊ Reduces risk of fertilizer getting into the base of hedges ◊ Reduces the risk of spray drift causing harm to non-target species

Part B – Farm Inspection

B6 Arranging and conducting a visit

Assessment Activities		Assessor Guidance	Assessment Criteria
6.1	Demonstrate knowledge of items to be considered when arranging and organising a farm inspection **M** ☐ **C** ☐ **1 2 3 4**	State six items to be considered when arranging and organising a farm inspection	Suitable method of communication used: ◊ Verbal ◊ Written ◊ Electronic – e-mail or fax ◊ Telephone Arrangements ◊ Personal introduction ◊ Reason for visit ◊ Date ◊ Time ◊ Place ◊ Length of visit ◊ Outline of visit ◊ Requirements – staff - transport - access to crop stores - access to pesticide and fertiliser stores - records - literature ◊ Safety issues e.g. dogs
6.2	Conduct a simulated farm inspection **M** ☐ **C** ☐ **1 2 3 4**		◊ Inspection carried out safely and effectively ◊ Punctuality ◊ Suitable clothing and equipment ◊ Personal protective equipment (PPE) ◊ Introduction ◊ Purpose of visit ◊ Requirements of visit ◊ Establish details of farm and business ◊ Scheme paperwork completed correctly to EN45011 standard ◊ Good communication ◊ Dealing with comments and questions ◊ Feedback to owner/manager ◊ Appeals procedure

B7 Crop protection and seed treatment

Assessment Activities	Assessor Guidance	Assessment Criteria
7.1 Establish what operator certification is required for the legal application of pesticides on the farm **M** ☐ **C** ☐ **1 2 3 4**		Candidate may use NPTC or SSTS Schedule of Assessment for Certificate of Competence in the Safe Use of Pesticides Correct certification groups must be selected for the application equipment and techniques used on the farm "Grandfather rights" may legally apply
7.2 Inspect a pesticide store and comment on how well or otherwise it complies with the requirements of the current ACCS standards **M** ☐ **C** ☐ **1 2 3 4**		◊ Inspection carried out safely ◊ Suitability of siting ◊ Structurally sound and secure ◊ Ability to contain leaks and deal with spillage ◊ Emergency procedures ◊ Impervious walls and floor ◊ Well organised ◊ Empty container storage ◊ Have an up to date stock list kept away from the store ◊ Warning sign(s)
7.3 Examine a pesticide application record and comment on how well or otherwise it complies with the guidance given in the current code of practice **M** ☐ **C** ☐ **1 2 3 4**		◊ Date and times of application ◊ Location ◊ Wind speed and direction ◊ Dose rate ◊ Application (volume) rate ◊ Product(s) used ◊ Reason for use ◊ Crop growth stage ◊ Operator ◊ Other useful information
7.4 Establish that a product selected from the pesticide application record (used in 7.3) is approved for the use to which it has been put and that it has been used within manufacturer's guidance **M** ☐ **C** ☐ **1 2 3 4**		Product selection must be made or approved by the assessor. Candidate may use MAFF or BCPC product guides or other suitable product literature
7.5 Establish that pesticides are transported safely around the farm(s) **M** ☐ **C** ☐ **1 2 3 4**		Candidate must ensure that at least four of the following key points are followed: ◊ Suitability of vehicle ◊ Secure ◊ Impervious barrier between driver/passengers and pesticide(s) ◊ Ability to contain leaks and deal with spillage ◊ Storage of PPE ◊ Emergency procedures ◊ On-site storage ◊ Warning sign(s)

Assessment Activities		Assessment Criteria	
7.6	Establish that pesticide waste (including empty containers and washings) is disposed of correctly **M** ☐ **C** ☐ **1 2 3 4**		Candidate must ensure that at least three of the following key points are followed: ◊ Liquid waste sprayed on to untreated crop treated crop provided maximum dose rate is not exceeded ◊ Liquid waste collected and disposed of via a registered waste disposal contractor ◊ Liquid waste sprayed on to area of ground used for disposal and approved for such use by the Environment Agency under the current Groundwater Regulations ◊ Liquid waste treated in a suitable treatment plant on the farm and concentrated waste disposed of via a registered waste disposal contractor ◊ Empty, rinsed containers returned to supplier ◊ Empty, rinsed containers buried on farmer's own land in accordance with the current code of practice ◊ Empty, rinsed containers burned in accordance with the current code of practice ◊ Empty, rinsed containers collected by a registered waste disposal contractor ◊ Surplus or waste concentrate returned to supplier ◊ Surplus or waste concentrate collected by a registered waste disposal contractor

B8 Fertilizers and crop nutrition

	Assessment Activities	Assessor Guidance	Assessment Criteria
8.1	Inspect a fertiliser storage area and comment on how well or otherwise it complies with current guidance on good practice **M** ☐ **C** ☐ **1 2 3 4**		◊ Preferably on suitable hard, level surface and under cover ◊ Away from watercourses and drains ◊ Easy access for handing equipment and delivery vehicles ◊ Bags and/or pallets not stacked too high ◊ Liquids in bunded tanks or with tap and sight glass removed or secured ◊ Emergency procedures to be followed in the event of spillage
8.2	Demonstrate knowledge of the benefits of regular soil analysis **M** ☐ **C** ☐ **1 2 3 4**	State two benefits of regular soil analysis	◊ Maximise the efficiency with which fertilizer inputs are utilised ◊ Minimise risk of waste and pollution ◊ Maximising profitability
8.3	Demonstrate knowledge of the conditions under which sewage sludge may be used for combinable crops as currently stated by ADAS **M** ☐ **C** ☐ **1 2 3 4**	State the conditions under which sewage sludge may be used for combinable crops as currently stated by ADAS	Candidate must state the current conditions as published in the ADAS matrix for the application of sewage sludge to agricultural land

B9 Crop storage and handling

Assessment Activities		Assessor Guidance	Assessment Criteria
9.1	Inspect a crop store and its associated records and comment on how well or otherwise it complies with current guidance on good practice **M** ☐ **C** ☐ **1 2 3 4**		◊ Inspection carried out safely ◊ Suitability for anticipated storage period ◊ Weatherproof ◊ Suitable, sound floor and walls ◊ All lights and other glass protected ◊ Proof against vermin, birds and domestic animals ◊ Evidence of rodent control ◊ Suitability of vehicle loading areas ◊ Evidence of store hygiene procedures ◊ Control of insect pests ◊ Evidence of regular monitoring of crop temperature, bird and rodent contamination, general condition ◊ Record kept of any post-harvest insecticide application ◊ Variety and field of origin labelled ◊ Evidence of the cleaning and/or maintenance of combine, trailers, grain/seed handling and drying equipment, bulk loader ◊ Evidence that grain passports are completed and handed to the lorry driver ◊ Evidence that representative samples of grain/seed are taken as store is filled (for a bin type store) and as store is emptied and that these are retained for the required time ◊ Evidence that GM crops are stored separately, suitably labelled and, if mixed with non-GM crops, are labelled as GM ◊ Evidence that livestock buildings have been cleaned and sanitised at least five weeks prior to storage
9.2	Inspect a farm store and comment on how well or otherwise the control of, and prevention of access to, rodents is being achieved **M** ☐ **C** ☐ **1 2 3 4**		◊ Tidiness in immediate vicinity of store ◊ Absence of rubbish, waste, spilled grain or seed, badly stored foodstuffs, uncontrolled vegetation and other items that may provide cover or food for rodents ◊ Evidence that doors, drains and other potential entry points have been proofed against rodents ◊ Evidence that doors fit well and are normally kept closed ◊ Evidence that regular poison baiting and inspection of bait points is being carried out (this must include physical evidence and records) ◊ Absence of evidence of rodent activity such as holes and nests, runs, smears, footprints, tail marks, droppings, crop and other damage

B10 Staff assessment

Assessment Activities		Assessor Guidance	Assessment Criteria
10.1	Establish that a suitable procedure for the calibration of any fertilizer distributor is being carried out regularly **M** ☐ **C** ☐ **1 2 3 4**		Candidate must establish that the following key points are included: ◊ Forward speed measured ◊ Width of spread measured ◊ Application rate required ◊ Flow rate through machine calculated ◊ Flow rate through machine measured and adjusted to that calculated ◊ Records kept ◊ Calibration checked during field operation
10.2	Establish that a suitable procedure for the calibration of a field crop sprayer is being carried out regularly **M** ☐ **C** ☐ **1 2 3 4**		Candidate must establish that the following key points are included: ◊ Forward speed measured ◊ Nozzle spacing measured ◊ Application rate required ◊ Nozzle flow rate calculated ◊ Spray quality selected ◊ Suitable nozzle selected and fitted ◊ Flow rate through nozzles measured and adjusted to that calculated ◊ Records kept ◊ Calibration checked during field operation

B11 The use of contractors and advisers

Assessment Activities		Assessor Guidance	Assessment Criteria
11.1	Establish how, when using farm contractors, their suitability is established and their compliance with quality assurance scheme standards ensured **M** ☐ **C** ☐ **1 2 3 4**		◊ Do they hold appropriate certificates of competence if applying pesticides? ◊ Inform them of own health and safety requirements ◊ Inform them of standards they are required to work to or comply with ◊ Ensure that adequate records are kept and passed to the farmer ◊ Ensure they are aware of the ACCS Scheme requirements ◊ Ensure that they have access to the ACCS Manual ◊ Instruct contractor to comply with the ACCS Scheme and other requirements
11.2	Establish how, when using farm advisers, their competence is established and their compliance with quality assurance scheme standards ensured **M** ☐ **C** ☐ **1 2 3 4**		◊ BASIS registration number ◊ FACTS registration number ◊ Ensure they are aware of the ACCS Scheme requirements ◊ Ensure that they have access to the ACCS Manual

Range of questions and possible answers

Q.1 List **five** key pieces of legislation which govern or affect work activities and management practices on an arable farm.

A.1 The Health and Safety at Work etc. Act
The Management of Health and safety at Work Regulations
The Control of Substances Hazardous to Health Regulations
The Food and Environment Protection Act
The Control of Pesticide Regulations
Personal Protective Equipment Regulations
The Water Supply (Water Quality) Regulations
The Water Industry Act
The Water Resources Act
The Control of Pollution (Amendment) Act
The Pesticides (Maximum Residue Levels in Crops, Food and Feedingstuffs) Regulations
The Wildlife and Countryside Act
The Poisons Act
The Food Safety Act
The Confined Spaces Regulations

Q.2 List **four** factors which may be taken into account when choosing the type of crop to be grown on a farm.

A.2 Position in cropping sequence or rotation
Soil type
Terrain and aspect
Climate
Personal experience and interests
Availability of local market and/or processor
Availability of production contract
Anticipated profitability
Type of production regime into which it fits

Q.3 For a named cereal, oilseed or pulse crop of your choice list **four** factors which may be taken into account when choosing the variety to plant.

A.3 Previous variety grown in the field
Neighbouring crop varieties
Site on which it is to be grown (aspect, exposure)
Husbandry system under which it will be grown
Yield potential
Anticipated maturity date
Straw or haulm length
Contract specification
Crop quality characteristics
Disease and or pest resistance

Q.4 For a named crop of your choice briefly describe when and how it may be established successfully.

A.4 All variations on this answer cannot be illustrated here but the following illustrates how it may be successfully answered:

Winter wheat – normally established between early September and late October. Ground is ploughed then cultivated using mounted, trailed or powered cultivation equipment to provide a fairly fine tilth with small clods on the surface. Seed is drilled into this seedbed to a depth of approximately 2.5 – 3.5cm.

An answer for a different crop, which contains similar information, will be deemed suitable.

Q.5 For a named cereal, oilseed and pulse crop of your choice state a typical plant population being aimed for as the crop is planted.

A.5 Winter cereal – 250 – 350 plants/m^2
Spring cereal – 250 – 300 plants/m^2
Oilseed rape – 100 plants/ m^2
Linseed – 500 – 600 plants/m^2
Peas – 65 – 95 plants/m^2
Winter beans – 12 – 20 plants/m^2
Spring beans – 40 – 60 plants/m^2

Q.6 For a named cereal, oilseed or pulse crop of your choice state the typical total quantities of plant nutrients N, P and K (in kg/ha) that may be applied in the growing of the crop as part of an inorganic husbandry system.

A.6 All variations on this answer cannot be included here but the following illustrates how it may be successfully answered:

Winter wheat – 175 kg N, 75 kg P, 75 kg K
An answer for a different crop, which contains similar information, will be deemed suitable.

Q.7 List **two** benefits of regular soil sampling to test the pH and nutrient status of fields under arable cropping.

A.7 Minimises waste of plant nutrients
Minimises the risk of water pollution through the leaching of unused nutrients
Improves the cost effectiveness of crop nutrition programme
May detect nutrient shortage before it compromises crop performance
pH optimised for the crop(s) being grown at a suitable time in the rotation
Correct pH may improve nutrient availability in the soil

Q.8 Define (giving examples) each of the following terms as used in discussing arable crop production:
1. Major nutrients
2. Minor nutrients (or trace elements)

A.8 1. Major nutrients – those required by the crop plants in relatively large quantities, generally in tens of kilograms per hectare e.g. N, P, K
2. Minor nutrients – those required in relatively small quantities per hectare, generally in kilograms (or less) per hectare e.g. manganese, boron

Q.9 Describe what is meant by the term leaching as it may be applied to the behaviour of plant nutrients or pesticides.

A.9 Leaching is the process by which crop nutrients and pesticides may be moved down the soil profile by the action of soil water. This may result in the nutrients and pesticides being lost from the soil environment completely.

Q.10 For a named cereal, oilseed and pulse crop of your choice state the typical soil pH below which the performance of the crop may be compromised.

A.10 Beans – 6.0
Barley – 5.9
Peas – 5.9
Oilseed rape – 5.6
Wheat – 5.6
Linseed – 5.4
Oats – 5.3
Answers $\pm$ 0.1 will be acceptable

Q.11 Define the term “selective herbicide”.

A.11 A selective herbicide is one which will control only certain plants (generally weeds) in a mixed population

Q.12 Define the term translocated herbicide.

A.12 A translocated herbicide is one which moves through the plant from its point of application to its site of action, frequently the point where cell division takes place, either in the root and/or the foliage.

Q.13 Define the term “residual herbicide”.

A.13 A residual herbicide is one which remains in an active state in the soil over a long period. It may act through the foliage but may also be absorbed by the roots or germinating seeds.

Q.14 Define the term “protectant fungicide”.

A.14 A protectant fungicide is one which, following application, protects the crop plants against infection (or further infection) by the disease organism(s).

Q.15 List **eight** important criteria to be considered when deciding on the siting, construction and management of a pesticide store.

A.15 Site store well away from houses and normal public access areas
Structure must be capable of containing spillages
Structure should be capable of resisting fire for at least 30 minutes
Structure should be well ventilated
Store should be clearly and correctly signed
Store should be well lit
Store should be secure
Appropriate fire precautions must be taken
Site should provide good access
The area must be capable of containing fire-fighting water if this would otherwise present a high risk to the environment
Washing facilities must be easily accessible
Stock inventory kept
Stock well organised and rotated
Equipment for containing and clearing up spillage available

Q.16 State **three** ways in which water supplies may become contaminated by pesticides.

A.16 Incorrect application to watercourses
Spray drift
Spray run off
Careless measuring and/or pouring methods leading to spillages and splashing during applicator filling
Failure to follow the correct procedures when washing the applicator
Incorrect disposal of surplus dilute spray, granules or washings
Poor storage and/or disposal of empty containers and packaging
Application at incorrect dose/application rate to unsuitable soil types

Q.17 List **four** factors that may help control spray drift.

A.17 Use the correct nozzle type
Use the correct nozzle size
Apply with the sprayer boom as low as possible consistent with even application with the type of nozzle fitted
Avoid spraying in windy conditions
Apply at the correct pressure for the type and size of nozzle fitted
Avoid spraying at high ambient temperatures
Apply using the spray quality recommended by the product label
Use low drift or drift control nozzles
Use sleeve boom sprayer
Operate sprayer at a suitable forward speed

Q.18 State **three** factors that would contribute to the safe transport of pesticides.

A.18 Driver and passenger(s) should be in a separate compartment from the pesticide being transported
Ensure that containers are secure and properly sealed
Equipment is carried on the vehicle that enables any spillage to be safely contained and cleared up
Suitable PPE is carried on the vehicle in case of emergency
The transporting vehicle can be securely locked with the pesticide inside
Facilities for decontamination are available on the vehicle
Emergency procedures have been developed and are known by the driver
All containers (including water) are correctly and clearly labelled

Q.19 List **three** ways in which the problem of disposing of dilute pesticide and sprayer washings may be reduced or eliminated.

A.19 Mix only the correct amount of pesticide for the job
Plan for a shortfall, so as to leave an unsprayed area for the disposal of washings
Apply surplus/washings to another untreated crop on which the pesticide is approved for use or to a treated crop provided the maximum dose is not exceeded
Recycle waste as part of the next spray mix
Measure ground areas and quantities of pesticide accurately
Plan the spraying programme to reduce the need for sprayer washing
Provide and use a washing system on the sprayer

Q.20 State **two** ways in which the need for disposing of surplus, unwanted or unusable pesticide concentrate can be avoided.

A.20 Order accurately the amounts required
Use old stocks up first
Keep accurate stock records
Store safely
Where disposal is necessary use a specialist waste disposal contractor
or return to supplier

Q.21 List **five** items that you would expect to find recorded in a farm's pesticide application record which complies with the requirements of the green code of practice.

A. 21 Date
Start and finish time
Location
Operator
Pesticide(s) used
What the pesticides were applied to
Reason for application
Amount of product(s) used
Amount of water used
Weather, including wind speed and direction
Equipment used
Incidents/accidents
Other relevant information

Q.22 State **two** ways in which a farmer could demonstrate that he/she has routinely maintained their pesticide applicator in good working order.

A.22 Provide details of an NSTS/Agricultural Engineering Association Inspection
Provide records of maintenance and/or repairs that have been carried out

Q.23 List **five** factors which may help to avoid the pollution of water during the storage, handling, transport and application of pesticides.

A.23 Pesticides are stored securely in a store that complies with current Health and Safety Executive guidance
The safest product, formulation and method of application are selected
Variable geometry boom rather than broadcast air assisted sprayer is used
A closed transfer system is used to fill the applicator
Handling, including pouring and measuring, is carried out carefully and in an area where and spillage or splashing can be contained and cleaned up
Pesticides are transported in a suitably designed and equipped vehicle
Container seals and lids and empty containers are handled, cleaned, stored and disposed of correctly
Spray drift is minimised and monitored during application – this may include the use of low drift or drift control spraying equipment such as twin fluid and low drift nozzles, sleeve boom sprayer, controlled droplet application and other techniques
Application is made only when the weather is suitable, particularly temperature, wind speed and direction and likely rainfall
Application is only carried out when ground conditions are, and are likely to remain, suitable
Spread width from a granule applicator is carefully controlled and monitored
Washing of an applicator is carried out in an area where the washings can be contained or where they will not contaminate either surface or groundwater
Washing water from the inside and outside of the applicator is disposed of correctly

Q.24 List **two** options available for the safe disposal of empty pesticide containers.

A.24 Return to supplier for re-use or disposal
Collection by an approved waste disposal contractor
Take rinsed containers to a local authority waste disposal site approved to take this type of waste
Incineration of rinsed containers at high temperature
Burial of rinsed containers provided that additional requirements of the code of practice can be complied with

Q.25 State the NPTC certification groups you would expect an operator to hold when using a boom sprayer, granule applicator, knapsack sprayer and application equipment on a crop conveyor.

A.25 PA1 PA2
PA4 PA6
PA11

Q.26 State whether or not a spraying contractor who was born before 31st December 1964 needs to hold NPTC certificate(s) of competence and give reasons for your answer.

A.26 Yes – the contractor is providing a commercial service so should hold an appropriate certificate or be under the close and personal supervision of a certificate holder

Q.27 The leaching of plant nutrients from the soil is highly undesirable. List **three** factors which can help to minimise this.

A.27 Apply nutrients at a time when the crop is actively growing and will absorb them
Apply nutrients in quantities that can be taken up by the crop before the risk of leaching is likely to occur
Take into account the soil type and anticipated rainfall pattern when deciding on the fertilizer programme
Maintain a good soil structure
Regularly sample and test soil for its nutrient status then tailor fertilizer programme to these findings

Q.28 Explain briefly what is meant by the term "economic threshold" when it is used in discussing arable crop protection.

A.28 The economic threshold for a disease or pest is the level of infection or infestation above which its control becomes economically viable or profitable.

Q.29 State **one** means by which the risk of a build-up of resistance by a disease or pest to a particular pesticide may be minimised.

A.29 Avoid applying pesticide repeatedly at reduced dose rate(s)
Avoid applying the same pesticide, or one with the same mode of action, in the control of a particular weed, disease or pest
Tank mixing two or more pesticides with differing modes of action
In a particular field, apply a different pesticide or one with a different mode of action in subsequent years

Q.30 State a typical moisture content below which a cereal, oilseed and pulse crop of your choice may be stored successfully for a long period.

A.30 Cereals – at or below 15% moisture
Linseed – at or below 9% moisture
Oilseed rape – at or below 8% moisture
Peas and beans – at or below 14% moisture

Q.31 List **three** factors which will aid the safe and effective storage of granular fertilizer.

A.31 Preferably on level concrete surface and under cover
Where access for delivery lorries and handling equipment is easy
Bags are not stacked too high
Store is sited a safe distance from sources of ignition, hay, straw, fuel, pesticide stores and watercourses
Where 25 tonnes or more of ammonium nitrate are stored local fire service have been notified and suitable warning signs erected
Emergency plan in place to deal with major spillage or fire

Q.32 List **three** factors which will aid the safe and successful storage of liquid fertilizers.

A.32 Tanks of suitable size and in good condition
Tanks sited away from watercourses and drains
Site provides easy and safe access for delivery vehicles and application equipment
Tanks are bunded
Tank outlet is lockable or valve may be safely removed to minimise the risk of harm through vandalism
Emergency plan in place to deal with spillage or fire

Q.33 List **five** benefits which may result from the use of conservation headlands and buffer zones around arable fields.

A.33 Maintains areas of cover where wildlife can live and move
Maintains areas close to the crop where pest predators can live
Improved access for tractors, vehicles and people
Enables more timely cutting of hedges
Reduces the risk of cultivation damage to trees and hedges
Reduces risk of pollution of watercourses
Reduces risk of fertilizer getting into the base of hedges
Reduces the risk of spray drift causing harm to non-target species

Q.34 What is meant by the term “approved pesticide”?

A.34 The term approved pesticide means that a pesticide product has been approved by MAFF for specific uses following extensive testing with regard to its efficacy and safety (personal and environmental). The product may be used only for those uses, and in those situations, stated in its conditions of approval. A non-approved product may be neither supplied, stored or used.

Q.35 List **three** factors a farmer needs to take into account when carrying out a Local Environmental Risk Assessment for Pesticides (LERAP) for a Category B pesticide.

A.35 Establish if the spraying equipment is 1*, 2* or 3* LERAP low drift spray equipment
Assess the size of the watercourse (from water’s edge to water’s edge)
Establish whether the product is to be used at a full or lower dose rate

Q.36 Explain briefly what is meant by the term “calibration” as applied to crop sprayers or fertilizer applicators.

A.36 The calibration of a crop sprayer or fertilizer applicator is a process by which its application rate is measured accurately

Q.37 List **four** benefits of using a crop rotation on an arable farm.

A.37 Minimised the build up of weeds, pests and diseases
Aids the cultural control of weeds, pests and diseases
May provide the opportunity for cheaper chemical control of weeds
Maximises the efficiency with which soil nutrients are utilised
Helps to maintain soil fertility
Encourages biodiversity on the farm
Makes optimum use of natural resources

Q.38 State three reasons why efficient and effective control of rodents is important in good crop storage.

A.38 Maintains quality of stored crop
Minimises risk of rejection of crop by merchant or end user
Prevents contamination of crop by urine, faeces, hair, soil, nesting and other materials brought in by rodents
Avoids infection of humans with disease(s) carried by rodents
Avoids transmission of disease to humans
Minimises associated damage to farm premises

Q.39 State four types of damage caused by rodents living in and around a crop store.

A.39 Grain or seeds are completely or partially consumed
Grain or seeds are contaminated, rendering them unfit for human consumption
Gnawing of woodwork, insulation and other structural materials
Gnawing of electric and other cables or wiring and water pipes
Holes created in walls, floors and other surfaces
Severe burrowing weakening building structures, walkways and vehicle access areas

Q.40 State five methods by which the activity of rodents may be minimised or prevented.

A.40 Keep the immediate vicinity of the store tidy and clear of rodent cover
Tidying up any rubbish, waste, spilled grain, spilled foodstuffs, uncontrolled vegetation
Cleanliness and good working practice in neighbouring livestock feeding areas
Suitable storage of foodstuffs for livestock housed or fed in the vicinity of the crop store
Proofing of doors, drains and other areas against entry by rodents
All doors, windows and vents are close fitting and kept closed while crop is in store
Regularly inspect store and areas around store for evidence of rodent activity
Regularly bait with suitable type(s) of poison in appropriate locations
Regularly inspect baiting points and refill as necessary
Keep records of site inspections and baiting

Q.41 Rodenticides can be classified as acute, sub-acute or chronic. For one of these types briefly describe how its activity may be characterised.

A.41 Acute – has an immediate effect on the rodent following consumption
Sub-acute – the effect on the rodent is not immediate but nevertheless harm occurs within a short period of time following consumption
Chronic – the rodent needs to consume the rodenticide for a relatively long period of time before harm occurs

Q.42 State one difference between the feeding activity of rats and mice that can lead to differences in the speed or effectiveness of poison baiting.

A.42 Mice feed readily when new food material appears whereas rats are suspicious of new objects or materials and may take many days to take bait.
Mice tend to be more indiscriminate in their feeding than rats leading to the need for many more bait points when controlling a mouse infestation

Q.43 State three diseases of humans that may be carried by rodents.

A. 43 Salmonella
Leptospirosis
Typhoid
Rabies

Q.44 State three diseases of animals that may be carried by rodents.

A.44 Leptospirosis
Brucellosis
Salmonella
Aujesky's disease
Foot and mouth disease

Q.45 State four measures that could be implemented to prevent an insect infestation of a stored crop.

A.45 Clean store thoroughly
Insect trap
Cold air ventilation
Regular temperature monitoring
Preventative insecticide spray of store pre-harvest
Spray stored crop with insecticide
Use of pitfall traps

Q.46 State four benefits of regular monitoring of a crop being stored for a long period.

A.46 Early detection of rodent activity
Early detection of bird activity
Early detection of insect pest activity
Early detection of domestic animal activity
Early detection of temperature changes
Maintenance of high crop quality
Avoidance of claims and/or rejections

Q.47 What is the scheme criterion for protecting glass used in crop stores?

A.47 A non-glass protective coating

Q.48 State three materials which are acceptable to the scheme in forming a hard loading area.

A.48 Concrete
Consolidated road planings
Consolidated crushed stone
Consolidated clean hardcore

Q.49 State one effect that the Confined Spaces at Work Regulations have on the management of crop stores.

A.49 Staff are normally unable to sample bins. Therefore samples must be taken prior to bin filling so that they can be made available to third parties.
A detailed risk assessment and safe system of work must be prepared when considering the need to enter a crop storage bin which either contains crop or is empty.

Q.50 State the ACCS Scheme criteria for defining whether a store can be classified as a "production only transitional store".

A.50 The crop remains in the store no longer than 30 days after combining or no later than 30th September, whichever is the later.