AGRICULTURE

Paper 0600/11

Paper 11

Key Messages

Candidates should:

- answer all questions, especially those in multiple choice format
- note the number of marks available per question and answer accordingly
- ensure all diagrams are completed where this is required
- plan essay questions before they begin to write

General Comments

Candidates' responses to the questions were generally good. They demonstrated good knowledge and they had sufficient time to complete the paper.

Diagrams were used to help candidates access the questions. Command words such as, 'state' and 'list' typically introduced lower demand question parts. 'Suggest' and 'explain' were generally used where higher-level answers were required.

The multiple choice questions within ***Section A*** of the paper were mostly approachable by candidates, although some responses were left blank. Candidates should be reminded to check carefully that all ***Section A*** questions have been responded to. Where questions asked for labels to be added to diagrams this command was often missed, possibly because candidates look for spaces in which to write their answers.

Section B requires longer answers involving extended writing with the choice of two essays from five. There were many excellent accounts which showed a high level of knowledge and a good command of English. Candidates should be advised to take note of the mark allocations for each question part.

Candidates are expected to have practical experience of agriculture and some questions examined this. For example, **Question 1(a)** tested the use of hand tools and fencing, **Question 2** the production of pasture from woodland and **Question 8** the process of calving. The examination tested data response, for example aspects of **Questions 2**, **5** and **9**. The data is designed to be unfamiliar and in a variety of formats so that the candidates answer from the given data rather than their own knowledge. The more able candidates dealt better with these questions, although it was encouraging that other candidates also attempted them.

Candidates need to understand that the term 'suggest' means there is often no right or wrong answer and not to be put off, we are looking for sensible suggestions, several candidates did not attempt these questions; **6(d)** and **9(d)** being good examples of this.

Candidates should be discouraged from rewriting the question as part of their response to ***Section B***. This wastes time and often gains no extra marks.

Comments on Specific Questions

Question 1

A question based upon experience and awareness of using hand tools and of livestock fencing.

(a) This question was well answered by the majority of candidates.

(b) This question was well answered by the majority of candidates.

(c) This question was very well answered by most candidates who drew the gate. Some can drew gates which did not fill the space or diagrams which continued the fencing.

Question 2

This question tests understanding of pasture utilisation and improvement, stocking density at its implications alongside information analysis, problem solving and aquaculture.

(a) (i) This question was well answered by the majority of candidates.

(ii) This question was well answered by the majority of candidates. Some candidates gave examples of fish kept in aquaria.

(iii) Good answers were seen from candidates who referred to the fecundity of fish. Some candidates gave features of a particular fish species rather than fish in general and the importance of fish as a protein food source and 'cash crop'.

(iv) This question was well answered by the majority of candidates.

(v) This question was well answered by the majority of candidates, who identified the risk of pollution. Fewer candidates linked this to the increased township size.

(b) (i) Only the strongest candidates were able to correctly calculate the stocking density.

(ii) This question was well answered by the majority of candidates, many of whom identified potential problems for both the pasture and livestock.

(iii) This question was very well answered by the majority of candidates.

Question 3

This question tests knowledge of soil profile, pH, the understanding of the impact of the application of lime and manure on soil pH and the ability to articulate this.

(a) This question was well answered by the majority of candidates.

(b) This question was well answered by the majority of candidates.

(c) Good answers were seen from the strongest candidates who correctly related pH to acidity and alkalinity. A common misconception was to incorrectly present the relationship between reducing pH and raising alkalinity and few candidates articulated the role, processes or products of decomposition following the application of manure.

Question 4

This question explores knowledge and understanding of the nitrogen cycle.

(a) (i) This question was well answered by the majority of candidates. The most common misconception was to state 'microorganisms' or 'decomposition' rather than naming a type of organism responsible for decay such as bacteria or fungi.

(ii) This question was well answered by the majority of candidates. Some candidates confused nitrites and nitrates.

(iii) This question was well answered by the majority of candidates.

(iv) The majority of candidates presented the idea of nitrogen fixation and the role of bacteria in this. Only the strongest candidates referred to the release of nitrogen on decay. Confusion was shown between the roles of the various bacteria involved.

(b) This question was well answered by the majority of candidates.

Question 5

This question includes data analysis and links to understanding of yield test methodology and the gr impact of key nutrients.

(a) This question was mostly well answered by the majority of candidates. Some had problems identifying the control.

(b) This question was well answered by the majority of candidates.

(c) Some candidates confused the yield information given in the table for potatoes and wheat and/or failed to demonstrate that they had correctly interpreted the data given. The strongest candidates scaled the yield difference.

(d) This question was well answered by those candidates who attempted it. Some candidates did not attempt this question.

Question 6

This question tested understanding of the role in and impact of water in plant growth, harvesting and health.

(a) This question was well answered by the majority of candidates.

(b) This question was well answered by the majority of candidates. Many candidates offered excellent answers encompassing a selection from photosynthesis, mineral uptake, transport, turgidity and cooling. Some candidates failed to develop the concept of growth to photosynthesis and a common confusion was the role of transpiration.

(c) This question was well answered by the majority of candidates. Strong responses referred to anaerobic conditions linked to waterlogging. Some candidates stated that seeds needed nutrients from the soil to germinate.

(d) Most candidates gained credit for linking the tsunami to loss of top soil or nutrient leaching. The strongest candidates linked this to the increase in salt content of the soil due to sea-water inundation.

Question 7

A question based upon knowledge and understanding of the digestive systems and processes of ruminants and non-ruminants.

(a) This question was well answered by the majority of candidates. Some candidates incorrectly labelled the rectum as the caecum.

(b) This question was well answered by the majority of candidates.

(c) Some very strong candidates described the specific roles of rennin and/or pepsin in milk digestion and their impact. Others answered more generally.

(d) Very few candidates described the ability of ruminants to absorb fatty acids directly in to their bloodstream or were able to suggest why this could be beneficial.

Question 8

This question was of increasing difficulty, focusing on the practical implications of livestock anatomy, physiology and breeding.

(a) This question was well answered by the majority of candidates. A common misconception was that artificial insemination allows the farmer to get the cow in calf whenever he desires rather than when the cow is on heat.

(b) This question was well answered by the majority of candidates.

(c) This question was well answered by the majority of candidates, who demonstrated cle understanding of the role of colostrum in conferring immunity and as a nutrient source.

(d) (i) This question was well answered by the majority of candidates.

(ii) This question was well answered by the majority of candidates. A variety of successful methodologies were demonstrated which correctly showed the ratio of genotypes in the F_1 generation.

Question 9

This is a question of increasing difficulty about factors which may reduce cereal yield, incorporating data analysis and open-ended responses.

(a) This question was well answered by the majority of candidates.

(b) This question was well answered by the majority of candidates. Some candidates named a pest and then gave an explanation for the damage caused that did not match the pest selected.

(d) This question was well answered by the majority of candidates. A few candidates did not offer an answer.

Section B

This section comprised long answer questions, from which candidates had to choose two. In some Centres, attempts were made to answer all the questions and time was wasted.

All the questions had similar format incorporating both description and explanation. It is important that candidates relate their answers to the number of marks available. Two sentences are unlikely to achieve the seven or eight marks allocated to a description and a detailed half page on a definition cannot score more than the maximum number of marks stated.

Question 11 and **Question 12** were the least popular choices and **Question 13** the most popular. Similar question choices were made within Centres, potentially reflecting differing teaching strengths. In all questions marks across the whole range were seen, with the best being highly impressive answers. Many answers were detailed and well organised and a large number of very high quality responses were seen to **Question 13** in particular.

Question 10

(a) The concept of crop rotation and the need for this was well understood, described and explained overall. Some candidates gave examples which did not comply with their correct description and there was a degree of confusion over which crops were deep and shallow rooted.

(b) Few candidates were clear as to the specific potential benefits of shifting cultivation and some confused this with crop rotation.

(c) Some very good answers were seen. The strongest clearly identified key reasons why certain land may never be cultivated. Overall, this part of the question was not well answered with candidates demonstrating a lack of clarity as to the key requirements for successful cultivation.

Question 11

(a) Some candidates did not demonstrate clear understanding of what the phrase “suitable cultivar”.

(b) This question was well answered by the majority of candidates, who demonstrated particularly good understanding of fertiliser application, weed and pest control.

(c) This question was well answered by the majority of candidates. Excellent answers were given encompassing all aspects of crop harvest and storage. Candidates demonstrated their wider awareness through the range of potential crop products identified.

Question 12

(a) Most candidates identified that asexual reproduction involves a single organism and that genetically identical offspring would be produced. Fewer specified mitosis or the absence of gametes.

(b) The strongest candidates gave excellent answers. Where this was not the case, candidates either secured little or no credit as a result of insufficient specific detail regarding underground stems, tubers, eyes, new plant development, etc. in their answers, which tended to be too generic.

(c) This question was very well answered by the majority of candidates.

Question 13

(a) This question was well answered by the majority of candidates.

(b) This question presented little difficulty to the majority of candidates.

Question 14

(a) Many candidates provided effective answers connecting temperature, transpiration rate and growth. Fewer linked temperature directly to photosynthesis and only the strongest candidates referred to earlier ripening and/or the impact of frost. Many candidates gave excellent answers correctly identifying the damage potential and impact on rate of transpiration of wind. Some candidates discussed light levels rather than temperature and wind.

(b) This question was well answered by the majority of candidates. Some candidates described methods to distribute or apply the water rather than to collect it.

(c) Alongside excellent answers identifying the importance of minimising evaporation and how to achieve this, some candidates discussed the application of further water by irrigation.

AGRICULTURE

Paper 0600/12

Paper 12

Key Messages

Candidates should:

- answer all questions, especially those in multiple choice format
- note the number of marks available per question and answer accordingly
- ensure all diagrams are completed where this is required
- plan essay questions before they begin to write

General Comments

Candidates' responses to the questions were generally good. They demonstrated good knowledge and they had sufficient time to complete the paper.

Diagrams were used to help candidates access the questions. Command words such as, 'state' and 'list' typically introduced lower demand question parts. 'Suggest' and 'explain' were generally used where higher-level answers were required.

The multiple choice questions within ***Section A*** of the paper were mostly approachable by candidates, although some responses were left blank by candidates. Candidates should be reminded to check carefully that all ***Section A*** questions have been responded to. Where questions asked for labels to be added to diagrams this command was often missed, possibly because candidates look for spaces in which to write their answers.

Section B requires longer answers involving extended writing with the choice of two essays from five. There were many excellent accounts which showed a high level of knowledge and a good command of English. Candidates should be advised to take note of the mark allocations for each question part.

Candidates are expected to have practical experience of agriculture and some questions examined this. For example, **Question 3** tested the supply of water to a farm, **Question 8** the process of weed control and **Question 9** poultry house construction.

The examination also tested data response. The data is designed to be unfamiliar and in a variety of formats so that the candidates answer from the given data rather than their own knowledge. The more able candidates dealt better with these questions, although it was encouraging that other candidates also attempted them.

Candidates should be discouraged from rewriting the question as part of their response to ***Section B***. This wastes time and often gains no extra marks.

Comments on Specific Questions

Question 1

A question based upon types of farming and the implications of forestry management.

(a) This question was well answered by the majority of candidates.

(b) (i) This question was well answered by the majority of candidates. Some candidates gave answers based upon timber such as 'furniture' and others offered 'food' without specifying sufficient detail.

(ii) This question was well answered by the majority of candidates. Good answers were see explaining the potential impact of photosynthesis on levels of oxygen and carbon dioxide in atmosphere.

(iii) This question was well answered by the majority of candidates. Many good answers were seen describing the encouragement of regrowth.

Question 2

This question tests understanding of weathering, soil pH and its relationship to plant growth.

(a) Strong candidates correctly placed the letter H on the diagram. Many candidates did not attempt this aspect of the question.

(b) This question was well answered by the majority of candidates, who correctly described physical weathering. The strongest candidates also described chemical weathering action.

(c) Most candidates secured some credit.

(d) Many candidates offered no answer. The strongest candidates correctly linked pH and nutrient availability.

Question 3

This question tests understanding of soil drainage, aeration and the implications for the growth of root crops, alongside practical applications of water supply.

(a) The strongest candidates identified the passage of roots into the soil and linked this to aeration. Some candidates selected the wrong farm and used incorrect reasoning, based upon clay soil type.

(b) Many candidates' answers were insufficiently developed, naming 'dam' and/or 'reservoir', without further comment.

(c) Few candidates answered correctly. 'Heating the connector in a flame' was a commonly selected incorrect answer.

(d) Few candidates answered correctly.

Question 4

This question incorporates data analysis and questions of increasing difficulty within the context of biofuels and farm economics.

(a) This question was well answered by the majority of candidates.

(b) (i) This data response question was well answered by most candidates.

(ii) Very few candidates linked the lack of surplus food/crops and the priority for food to the lack of emphasis on biofuels. Many candidates incorrectly stated that the climate was not suitable, that water was in short supply or that biofuel crops could not be grown.

(c) (i) The strongest candidates correctly identified the crop which did not require a complex biofuel production process.

(ii) The strongest candidates correctly identified the crop which produced more than one type of biofuel raw material.

(d) (i) This question was well answered by many stronger candidates, who achieved full credit and demonstrated clear understanding of the calculations required. Some candidates failed to correctly calculate the seed cost.

(ii) This question was well answered by the majority of candidates.

Question 5

This question tests understanding of the role of nitrates in crop growth, the nitrogen cycle and the poten impact of farming practices on this.

(a) This question was well answered by the majority of candidates.

(b) The strongest candidates effectively described both the role of nodule bacteria in nitrogen fixation and the incorporation of nitrogen into the cycle. Few candidates discussed decay releasing nitrogen into the soil. Many candidates incorrectly described nitrogen fixation.

(c) This question was well answered by the majority of candidates. Some candidates focused on the role of nitrogen in plant growth more generally, rather than identifying specific effects.

(d) The strongest candidates identified monoculture and irrigation. Very few candidates offered other farming practices and many focused on the process of nitrogen loss from the soil rather than the cultural activity.

Question 6

This question tested knowledge of the ruminant digestive system and the ability to explain the role of microorganisms in ruminant digestion.

(a) (i) This question was well answered by many candidates.

(ii) This question was well answered by the majority of candidates.

(iii) This question was well answered by the majority of candidates. The intention was to test the role of microbes in ruminant digestion. However, as digestion was not specified all letters were accepted.

(b) Some candidates correctly identified the role of microorganisms in the digestion of cellulose and the strongest candidates were able to provide sufficient detail to secure full credit.

Question 7

A question based upon knowledge and understanding of the reproductive system of the pig and inheritance.

(a) (i) Only the very best candidates offered a correct answer. The name ‘epididymis’ was poorly recalled.

(ii) Only the very best candidates offered a correct answer. Many candidates showed confusion between the terms sperm and semen.

(iii) The strongest candidates correctly identified the ability of the pig penis to interlock with the vaginal grooves of the female. This correct answer was extremely rare and many candidates incorrectly described ease of penetration, protection of the penis itself and a ‘spring-loaded’ effect as advantages.

(b) (i) Only the very best candidates offered a correct answer.

(ii) Very few candidates correctly identified aspects of chromosome structure. The best answers identified DNA and a coiled structure.

(iii) Only the very best candidates offered a correct answer.

(c) This question was well answered by the majority of candidates.

Question 8

This question was of increasing difficulty, focusing on practical aspects of weed control.

(a) This question was well answered by a majority of candidates.

(b) (i) This question was well answered by many candidates.

(ii) Some candidates provided an answer which was too general and did not offer a specific me

(c) Only the very best candidates offered a completely correct answer. Many candidates felt that mechanical methods would work best and did not describe the impact of leaving pieces of rhizome behind in the soil. Some candidates correctly described the use and effectiveness of systemic chemical herbicides.

(d) Candidates tended to focus on the personal safety aspects of chemical use, rather than answering the question posed. Alongside this, many candidates did correctly identify the need to wash, dry and maintain the sprayer itself.

Question 9

This is a question of increasing difficulty incorporating description and candidates own ideas about factors which may affect egg production and testing knowledge and understanding of animal housing.

(a) (i) This question was well answered by the majority of candidates.

(ii) Most candidates correctly identified a roofing material and were able to provide at least one reason why it was suitable. The best candidates successfully provided two reasons.

(iii) Some candidates gave features which would apply both to a free-range system and an enclosed wire run. Many candidates correctly identified the build-up of disease as a potential problem of an enclosed run. Fewer were able to correctly state specific advantages.

(b) (i) The strongest candidates answered this question well, often gaining full credit.

(ii) This question was well answered by the majority of candidates. 'Diet and feeding' was a common correct answer, alongside genetics.

Section B

This section comprised long answer questions, from which candidates had to choose two. In some Centres, attempts were made to answer all the questions and time was wasted.

All the questions had similar format incorporating both description and explanation. It is important that candidates relate their answers to the number of marks available. Two sentences are unlikely to achieve the seven or eight marks allocated to a description and a detailed half page on a definition cannot score more than the maximum number of marks stated.

Questions appeared to be equally popular choices and similar question choices were made within Centres, potentially reflecting differing teaching strengths. All questions achieved a wide range of marks. Some answers were detailed and well organised with high quality responses seen to **Questions 11**, **Question 13** and **Question 14** in particular.

Question 10

(a) Many candidates defined monoculture without giving specific advantages. The strongest candidates described the ability to specialise and the savings that this could bring. The very best candidates also correctly identified market opportunities and the ability to maximise income. Some candidates confused monoculture with mixed farming.

(b) Some very good answers were seen from the strongest candidates who clearly identified key reasons why land use may be limited by environmental factors. These answers were rare and overall, this part of the question was not well answered. Candidates demonstrated a lack of clarity as to the key environmental requirements for successful cultivation.

(c) Many candidates correctly identified the need of a larger population for more food and the likely reduction in land for farming. Only the strongest candidates were able to extend this by offering multiple examples of intensive farming systems. Some candidates offered excellent answers describing intensive hydroponic systems and rooftop cultivation examples.

Question 11

(a) This question was well answered by the majority of candidates, who were able to provide deta soil and seedbed preparation. A common omission was the application of fertiliser and it was evident where candidates had undertaken this as a practical activity.

(b) Many candidates gave detailed and creditworthy answers earning close to full credit. Some candidates were less clear as to the desired depth of seed planting and row spacing.

(c) Most candidates were able to describe effective methods of pest and weed control. The strongest candidates gave additional detail and specific examples.

Question 12

(a) Most candidates were able to describe one or more functions of water in a plant and many gained full credit.

(b) (i) Dam construction was generally not well described. Stronger candidates were able to describe physical features of the construction in detail and often used a diagram to effectively illustrate their knowledge.

(ii) This question was well answered by the majority of candidates, who offered detailed descriptions of irrigation systems.

(c) Many candidates correctly identified the implications and outcomes of waterlogging and the very best were able to suggest a number of hazards and secure full credit.

Question 13

(a) This question was well answered by the majority of candidates, who correctly identified that a notifiable disease must be reported to the authorities. Fewer candidates illustrated their awareness that it would be illegal not to do so.

(b) This question was well answered by the majority of candidates, who clearly described methods to prevent disease and good livestock hygiene. The strongest candidates offered specific examples.

(c) Many candidates gave a highly detailed description of the effects of a single parasite, rather than extending to other parasites.

Question 14

(a) Many candidates offered excellent answers, earning full credit. Some candidates confused pollination with fertilisation and were unclear regarding pollen transfer.

(b) This question was well answered by the majority of candidates many candidates provided accurate, detailed answers which earned full credit.

(c) Few candidates answered this question successfully.

AGRICULTURE

Paper 0600/02
Coursework

Many Centres have submitted coursework portfolios of a good standard. The best Centres produced work accurately marked and addressing the marking criteria in interesting ways. Candidates were shown in pictures and video clips clearly enjoying and understanding the applied aspects of agriculture.

The best Centres submitted substantial and well-presented portfolios of evidence for the practical exercises and for the practical investigation with candidates being able to demonstrate to Moderators their knowledge and practical skills. Centres have clearly used the experience to enhance the overall learning. These Centres required minimal moderation of their marking and are applying the marking criteria accurately. Teachers and candidates should be congratulated on their work. In some cases Moderators were able to award higher marks for exceptional, high quality candidate work portfolios.

Some Centres however still have not adhered fully to the requirements for coursework and have failed to submit adequate evidence for the practical exercises. In some cases the evidence was superficial and did not provide sufficient information to support the marks awarded. Investigations were sometimes very rushed and superficial and contained work of a low demand. These Centres have had their marks moderated downwards, in some cases quite severely. This type of coursework does not enable candidates to develop an understanding of the theoretical aspects of the syllabus.

Centres must devote sufficient time to the practical part of the syllabus to ensure practical and investigative skills have been taught and developed before embarking on producing the coursework.

Some Centres need to take note of the comments in their Centre report and to ensure that in future candidates more accurately meet the marking criteria for each skill area. At times it was quite difficult to find evidence to support marks awarded to candidates and so marks had to be adjusted downwards.

Next year these Centres must take care to prepare candidates so that they are more aware of the marking criteria and fully address it. Candidates may benefit from being given a copy of the marking criteria and having discussed how it needs to be addressed, prior to producing their coursework.

Practical Exercises

Some Centres appear to have carried out an appropriate range of practical exercises and candidates certainly demonstrated a high standard of performance in carrying these out. Others produced detailed diaries recorded throughout the course and supported these with critical reflections and / or annotated points. Many Centres are now producing fascinating and informative short video clips and presentations.

It can be expected that most candidates would achieve well, and some highly, in this part of the examination. However in reality not all candidates would, for all aspects of practical exercises, have performed to the highest standard at every skill as is seen from some Centres and these marks are often supported with very limited evidence. This is not acceptable and results in marks being moderated downwards.

Almost all Centres have showed evidence of some differentiation in their marking of practical exercises but too many tended to award high marks with little or no evidence to support or justify such excellence. The awarding of the highest marks should be for candidates of exceptional skill and ability producing practical outcomes which fully meet all the marking criteria statements and demonstrating the highest possible standard of practical agricultural skills by performing the related practical scientific skills with high levels of competence.

Centres are strongly advised to take note of the comments contained in the Moderator's report to the Centre which will have addressed any specific problems the Centre may have had.

Teachers responsible for the course should take careful note of the guidance document for cou
Candidates should be encouraged to collect evidence in the form of diaries, constructive critical re
and the use of annotated photographic evidence or video clips. Such work should not be seen as an
requirement but as an effective way of enhancing the learning process for the candidates. Careful preparation and learning through practical exercises will provide the candidates with the skills needed to carry out their practical investigation in an effective way. Work needs to be annotated to help inform the reader. This simple process will greatly enhance learning.

Practical Investigation.

1. The selection of relevant questions (Hypothesis) for the investigation.

Most candidates produced a hypothesis but few sufficiently developed or explained their hypothesis. It would be very helpful if Centres would annotate the type and amount of support given to candidates in forming their hypothesis. Only fully independent selection of a challenging hypothesis should be awarded full marks.

The most able candidates collected a good range of supportive background information and used this to support the formation of their hypothesis and to support the science that would underpin their investigation. Candidates need to fully discuss the research and reasons for arriving at their chosen hypothesis.

2. The planning of the investigation and the principles on which it is based.

Some candidates need to more clearly link the plan to the hypothesis.

The plan needs to be clear and allow a reader to replicate the investigation in a scientific way. It should incorporate the necessary steps required to carry out the investigation and the resources required, including the timescale needed for the investigation.

Few candidates used the background research to support their plan or related it back to the hypothesis. Some of the strongest candidates referred to their background research and hypothesis and used this to evolve a suitable plan for carrying out their investigation within the limitations of the resources available. Some candidates used their ingenuity and that of their teachers and families to gain access to livestock or land to carry out their practical investigation and deserve congratulation on their efforts. Some candidates really do deserve praise for these efforts, as does the Centre support.

3. The handling of evidence.

The data collected was often quite simple and only just sufficient to produce an appropriate analysis.

The results need to be recorded in detail and candidates need to indicate any specific procedures which were used to make the collection of data accurate and provide a reliable sample size.

Presentation of the data was often simplistic and to score the higher marks need to incorporate more than one method of expressing the outcome of their investigation. Tables and charts need to be clearly labelled using appropriate SI units. Graphs need to be fully labelled to ensure the reader can follow what is being shown.

The most able candidates annotate their graphs and charts to identify anomalies or relevant points of interest, e.g. environmental events beyond their control, wild animals etc. This approach should be encouraged as investigative agriculture often presents variables beyond a candidate's control but need to be considered when presenting and interpreting data.

4. The ability to make deductions from the evidence or data acquired

Candidates must be encouraged to do more than simply state or describe the results they have obtained. The strongest candidates fully explain the reason for the results and the conclusions related to the data and outcomes of the investigation. Candidates need to draw conclusions and explain and fully discuss what their results and data shows and how this relates to their research and hypothesis.

Too many candidates see experimental error or natural events beyond their control as spo
limiting their ability to draw conclusions and evaluate appropriately. Candidates should be encouraged to show and explain the importance of events beyond their control and link these to conclusions that can be draw from such events. It is important that candidates identify and explain how error may have occurred and impacted on their ability to draw a firm conclusion.

A much more discursive approach would help ensure candidates access the highest marks

5. The ability to recognise limitation of the investigation

This is an area where Moderators sometimes found marking to be generous, usually because candidates made simplistic comments without an explanation as to why these were limitations which might have affected their work. Most failed to explain how future amendments or alterations could help to overcome the problems encountered, but made general statements which were not explained or developed to sufficiently address the marking criteria.

Much more detail and clear explanation is needed to ensure candidates fully access the limitations which need to be explained to ensure the reader of the report can fully understand why these were limitations and how amendments would improve the outcome.

6. Description of investigation, presentation, layout and originality (candidate's own work).

Most Centres marked this section accurately and in general the investigations were well presented across the full ability range of the candidates.

Centres should be encouraged to present their work using appropriate sub headings, making full use of diagrams and charts. These need to be fully explained, annotated and referenced. Ultimately, they should link to the discussion in producing deductions and conclusions.

Photographs greatly improve the reports making it easier to see and understand the work undertaken and to show the outcomes. Effective annotation of such evidence aids candidate learning and their ability to draw conclusions and explain the limitations of their investigation. Too many candidates failed to produce a list of contents, page numbers or bibliography and few linked the references within their text.

Where some of the evidence for practical exercise skills is taken from the investigation candidates need to identify this clearly.

When choosing practical exercises or topics for investigation it is important to identify the level of demand presented by the topic. Candidates with the potential for top marks need to be advised to devise investigations which allow them to produce work which will access grade A criteria. Candidates need also to be made fully aware of the descriptors prior to starting the coursework elements.

Moderators would like to congratulate teachers and most importantly the candidates for their hard work, some of which was of a very high standard.

Some of the best work demonstrated an appreciation of the importance of the practical aspects of work carried out by the candidates in Agricultural Science, such reports were most interesting and rewarding to read.

It was most evident that, across the ability range, candidates were motivated and produced valuable coursework helping to prepare them for their future lives.

Centres are strongly advised to read the Coursework guidance document to help ensure their candidates fully meet the marking criteria.

It would be worth considering recording and entering their candidates work electronically either on CD or memory sticks. Scanned work is quite acceptable and enables candidates to submit a mix of handwritten work and electronic work and photographs.

Some Centres produced fascinating video information and are advised to develop this f
annotation or by adding speech. The use of photographic and video evidence helps to mo
candidates and annotation aids learning. In addition it can save greatly on the cost. Some of
portfolios presented contained excellent colour photography, but must cost a great deal in both
reproduction and postage.