



16.0 AGRICULTURE (443)

The year 2007 KCSE Agriculture examination tested a wide range of skills and the candidates' mastery of knowledge in various agricultural concepts, principles and practices as specified in the syllabus. This year's report analyses the performance of the candidates in the three papers paying special attention particularly to the poorly performed questions. The report further gives expected responses of those poorly performed questions and goes further to give advice to both teachers and candidates with the sole purpose of improving future performance in the subject. The Agriculture (443) examination consisted of three individual papers.

Paper 1 (443/1) is a theory paper divided into three sections, A, B and C. **Section A** consisted of compulsory short answer questions worth 30 marks, **Section B** consisted of questions which were also compulsory and covered applied practices in Agriculture. This was worth 20 marks. **Section C** consisted of three (3) essay type questions, from which candidates were to choose and answer two, each worth 20 marks. This paper comprised of questions drawn from *Crop production, Agricultural economics, Soil science, Introduction to agriculture and factors influencing agricultural production*. This paper was marked out of a total of 90 marks.

Paper 2 (443/2) is also a theory paper divided into three sections A, B and C. **Section A** consisted of compulsory short answer questions worth 30 marks. **Section B** consisted of questions which were compulsory and covered topics in applied practices in Agriculture and was worth 20 marks. **Section C** consisted of three (3) essay questions, from which candidates were to choose two, each of which is worth 20 marks. This paper comprised questions drawn from *Livestock production and health, Agricultural engineering (covering farm tools and equipment, farm structures, farm power and machinery)*. This paper was also marked out of 90 marks.

Paper 3 (443/3) is a project paper which tests practical skills in livestock rearing and crop production. This paper comprised of two main agricultural projects from which the candidates were expected to select only one of the projects to carry out to completion. The projects given were on "*Chicken rearing*" and "*the production of beans, sorghum or tomatoes*". The schools in conjunction with the candidates were expected to make the right choice and then prepare materials for the project in good time.

It is worth noting that this was the second year of testing the new syllabus using a completely new format.

16.1 CANDIDATES' GENERAL PERFORMANCE

The table below shows the candidates' performance in the year 2007 KCSE Agriculture examination. Performance statistics for the year 2006 have also been provided for comparison. The candidates who were registered for the examination in the year 2007 was 121,899 comprising 69,074 males and 50,825 females.

Table 19: Candidates Overall Performance in Home Science in the years 2007 and 2006

Year	Paper	Candidature	Maximum Score	Mean Score	Standard Deviation
2006	1		90	32.67	11.99
	2		90	37.53	12.57
	Overall	107,068	180	77.56	24.00
2007	1		90	26.94	12.04
	2		90	53.98	16.89
	Overall	121,193	180	87.34	28.00

From the table above, the following observations can be made:

- 16.1.1 The mean score for *paper 1 (443/1)* drastically went down from 32.67 in the year 2006 to 26.94 in the year 2007, while that of *paper 2 (443/2)* went up from 37.53 in the year 2006 to 53.98 in the year 2007.
- 16.1.2 Candidates' overall performance improved as attested by the subject mean which rose from 77.56 in the year 2006 to 87.34 in the year 2007, an indication that generally the performance in 2007 was fairly good.
- 16.1.3 The overall standard deviation for the whole paper also drastically rose from 24.00 to 28.00 indicating that there was a much wider spread of scores around the mean in the year 2007 as compared to the year 2006.

This year's report attempts to analyze the candidates' performance and also to highlight the questions that were poorly performed and give advice to teachers on areas that they can improve in.

16.2 PAPER 1 (443/1)

Question 7

State **three** functions of boron in crop development.

Weaknesses

Most of the candidates did not respond to this question correctly due to the fact that this part of the syllabus dealing with the roles of micro-nutrients in the soil seemed to have been neglected during teaching.

Expected Responses

- Assists the development of meristematic tissues.
- Facilitates fruit setting.
- Helps in translocation of sugar, nitrogen and phosphorus.
- Facilitates nodule formation in legumes.
- Regulates carbohydrate metabolism.
- Facilitates the absorption of water.
- Facilitates formation of pollen tube.

Advice to Teachers

Teachers are advised not to ignore any part of the syllabus during teaching.

Question 8

Outline **four** observable indicators of economic development of a nation.

Weaknesses

Most of the candidates performed poorly in this question probably due to the fact that this topic was covered in form one (1) and most likely this area was neglected during revision for the examination. Another problem was that most of the candidates did not understand the theme of the question "*observable indicators*" hence

the poor performance. Their language competence in responding to the question and content mastery was poor.

Expected Responses

- Improved infrastructure.
- High per capita income/improved living standards.
- Increased recreational facilities.
- More and better social services/amenities provided to citizens.
- Better and efficient production methods and services/improved technology.

Advice to Teachers

Teachers should ensure that the syllabus coverage is thoroughly done and that revision of the covered work should also include form one (1) and two (2) work.

Question 21

The diagrams labelled D and E below are illustrations of coffee established using two different formative pruning systems. Study them and answer the questions that follow.



- (a) Name the system of pruning illustrated in diagram D above.

- (b) Outline how the pruning system illustrated in diagram E is carried out.

Weaknesses

Majority of candidates found this question to be difficult yet it required only the application of knowledge they had acquired on coffee tree management.

Expected Responses

- (a) Single Stem pruning.
- (b)
- The main-stem of seedlings is capped to encourage suckers to grow.
 - Two or three healthy suckers are selected and allowed to grow while the rest are removed.
 - The selected suckers should form a U shape between them to avoid splitting.

Advice to Teachers

Teachers should strive to organize practical activities based on coffee management and farm visits so that such areas of the syllabus are adequately covered.

16.3 PAPER 2 (443/2)

The performance of candidates in this paper was quite satisfactory compared to that of Paper 1 (443/1). This may be attributed to the fact that the candidates seemed to be adequately prepared in livestock production and farm mechanization topics as opposed to crop production and agricultural economics topics. However, the questions discussed here below seemed to have posed some degree of difficulty to the candidates.

Question 3

State two factors that could lead to failure to conceive in sows after service.

Weaknesses

Most candidates confused the factors that could lead to failure of conception with the specific causes of the problem such as disease infection and age of the sow leading to poor performance.

Expected Responses

- Poor nutrition.
- Infertility.
- Poor timing of service.

Advice to Teachers

Teachers are advised to make proper interpretation of the syllabus and try to cover the whole syllabus adequately.

Question 9

State three signs of anthrax infection disease observed in the carcass of cattle.

Weaknesses

Candidates were not adequately prepared for this question as indicated by the fact that they were unable to discern that there is a big difference between symptoms observed on a dead animal and those that appear on a live animal.

Expected Responses

- No rigormotise after death.
- Stomach swells/bloats.
- Darkened red blood oozes through the natural openings/orifices.
- Blood does not clot.

Advice to Teachers

Teachers should as much as possible try to cover the syllabus adequately and provide good practical guidance to the candidates.

Question 12

State **three** adjustments that should be carried out on a tractor - mounted mouldboard plough in preparation for ploughing.

Weaknesses

Students gave wrong and irrelevant responses.

Expected Responses

- Adjust the plough depth.
- Front furrow depth.
- Lowering/raising ploughing patch.
- Front furrow width.

Advice to Teachers

Teachers are advised to emphasize in their teaching areas covering farm power and machinery.

Question 13

- (a) Name **four** breeds of dairy goats.
- (b) Mention **two** distinguishing characteristics of the Bactrian camel breed.

Weaknesses

Poor performance by a number of candidates in this question was an indication that candidates were not exposed to practical activities and observations through planned visits to farms.

Expected Responses

- (a)
- Saanen.
 - Toggenburg.
 - British Alpine.
 - Anglo-Nubian.
 - Jamnapari.
- (b)
- Two humps.
 - Hairy body.
 - Absence of trap-nose.

Advice to Teachers

Teachers should be a bit more resourceful in that in the absence of realia they should improvise by using other teaching aids/resources such as photographs and pictures of livestock breed.

Question 16

State **three** maintenance practices that should be carried out on a feed trough.

Weaknesses

Although the question looks quite simple the candidates performed very poorly in it. This is attributed to the fact that they were not exposed to practical activities.

Expected Responses

- Clean regularly.
- Repaint the base if necessary especially wooden troughs.
- Repair cracks on concrete /wooden troughs.
- Replace broken parts.

Advice to Teachers

Teachers should organize and expose candidates to practical activities and also use project work to cover some of these areas.

16.4 PAPER 3 (443/3 – PROJECT)

Paper 3 (443/3) is the Agriculture project paper whose purpose is to provide an opportunity for the candidates to develop their practical skills independently. Here the candidates are tested in practical skills in growing of a selected crop from land preparation to harvesting or rearing selected livestock to maturity. Besides these, the candidates are also exposed to manual skills in construction of items such as beehives, feed troughs and rabbit hutches among others. Occasionally, they may also be exposed to making or preparing of compost manure.

According to the instructions given to schools, the candidates were expected to carry out the project work on their own after the school has provided the necessary inputs required. The project takes eight months, running from February to September of the given year. The agriculture teacher this time was expected to objectively assess and evaluate the entire candidates' work at all stages.

This paper aims at testing the practical skills that the candidates' acquire during the four year period in secondary school. In the year 2007, the candidates had to choose between rearing chicken and either producing beans, sorghum or tomatoes. Most schools chose to grow the crops with beans being the most popular choice.

16.5 GENERAL ADVICE TO TEACHERS

- 16.5.1 Teachers should make concerted efforts to ensure that the syllabus is adequately and effectively covered. The reason for this is because the questions in the examination will be drawn from all parts of the syllabus ranging from topics covered in form one (1) to those covered in form four (4). No part of the syllabus should be neglected or left out.
- 16.5.2 It is also important to note that correct interpretations of specific objectives in the syllabus will enhance effective teaching of the respective topics. Teachers should therefore attempt, all the time, to use the syllabus for guidance, rather than using textbooks even if they are recommended as class texts.
- 16.5.3 Teachers should strive to carry out all suggested practical activities in the syllabus in order to prepare the learners adequately for the examination.
- 16.5.4 Teachers should also strive to use a variety of teaching methods and resources to effectively deliver the content. In case the teacher feels that a specific topic, from the syllabus, requires a field trip or a visit, it is important that such a trip is arranged to enhance understanding of the topic.
- 16.5.5 Teachers should assist the candidates to obtain recommended textbooks and purchase also some relevant reference books. And as much as possible candidates should be involved in practicals.