THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL

ADVANCED CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

134/2 **AGRICULTURE 2**

(For Both School and Private Candidates)

Time: 3 Hours **Year: 2001**

Instructions

1. This paper consists of sections **ten (10)** questions in sections A and B.
2. Answer **five (5)** questions choosing at least **two (2)** questions from each section.
3. Each question carries **twenty (20)** marks.
4. Cellular phones are **not** allowed in the examination room.
5. Write your **Examination Number** on every page of your answer booklet(s).

SECTION A

CROP SCIENCE AND PRODUCTION

Answer at least **two (2)** questions from this section.

1. (a) Define each of the following terms as used in plant pathology:
   (i) Wilt
   (ii) Damping-off
   (iii) Mosaic
   (iv) Leaf scorch
   (v) Root rot **(5 marks)**

   (b) Explain six methods farmers may use to prevent post-harvest losses due to fungal spoilage**.**

   (6 marks)

   (c) Rice tungro disease is a serious viral disease in rice-growing regions.
   (i) Name the causative single or viruses involved.
   (ii) Describe symptoms of rice tungro infection in young rice plants.
   (iii) Give three control strategies applicable to manage rice tungro. **(4 marks)**

2. (a) Describe the mode of action of each of these categories of herbicides:
   (i) Contact herbicides
   (ii) Systemic herbicides
   (iii) Pre-emergence herbicides
   (iv) Post-emergence herbicides
   (v) Selective herbicides
   (vi) Non-selective herbicides **(6 marks)**

   (b) What environmental factors influence the effectiveness of herbicides? Explain five. **(5 marks)**

   (c) For each of the following pests, do the following:
   False codling moth, aphids, and maize stem borer.
   For each pest: (i) name a host crop;

(ii) describe the type of damage;

(iii) suggest two control measures.

(9 marks)

3. (a) Explain what is meant by:
   (i) Hybrid vigour (heterosis)
   (ii) Recessive trait
   (iii) Codominance
   (iv) Genetic drift **(4 marks)**

   (b) Outline four characteristics which are desirable when selecting a new crop variety for drought-prone areas. **(4 marks)**

   (c) Discuss three methods used in breeding cross-pollinated crops, giving advantages and disadvantages of each method. **(6 marks)**

4. (a) Identify five viral diseases of major crops in Tanzania. For each, name the crop, virus, and one symptom. **(5 marks)**

   (b) Describe three advantages and three disadvantages of using chemical pesticides compared to biological control. **(6 marks)**

   (c) Explain epiphytotic disease:
   (i) Define the term.
   (ii) Describe four environmental and biological factors that can lead to epiphytotics. **(4 marks)**

5. (a) Wheat rust is a major fungal disease. For wheat rust:

   (i) What is the causative agent?

   (ii) Describe five symptoms of wheat rust.

   (iii) Suggest two control measures suitable for smallholder farmers. **(5 marks)**

   (b) Give five symptoms that might indicate nutritional deficiency in maize plants. **(5 marks)**

(c) Define each of these:

(i) Quarantine

(ii) Resistant variety

(d) Give four advantages and three limitations of using resistant crop varieties to control plant diseases.

(6 marks)

SECTION B

LIVESTOCK SCIENCE AND PRODUCTION

Answer at least **two (2)** questions from this section.

6. (a) Define each of these terms as used in animal nutrition:
   (i) Metabolizable energy
   (ii) Net energy for production
   (iii) Crude protein
   (iv) Forage quality

   (b) A dairy cow eats 10 kg of feed containing 90% dry matter (DM) with a digestibility coefficient of 60%. Calculate the amount of digestible dry matter consumed.
   (c) Name and explain four factors that affect feed intake in ruminants.

7. (a) Explain five effects of overstocking on a pasture ecosystem.
   (b) Compare continuous grazing and rotational grazing by giving three advantages and three disadvantages of each system.

   (c) What is zero grazing? Explain four merits and two demerits of zero grazing.

8. (a) Define epidemiology in livestock health, non-infectious disease, and zoonosis.

(b) For each of the following parasites, give two control measures:

(i) Fasciola gigantica
(ii) Eimeria spp.
(iii) Ticks

(c) Outline five routine management practices that help maintain poultry health.

9. (a) Describe the roles of each of the following hormones in the oestrus cycle of a cow:

(i) Follicle Stimulating Hormone (FSH)

(ii) Luteinizing Hormone (LH)

(iii) Progesterone

(iv) Estrogen

(b) Identify three signs that indicate a cow might be infertile.

(c) Describe three methods of pregnancy diagnosis used in cows.

10. (a) What is the carrying capacity of a pasture? How does stocking rate differ from it?

(i) Define both terms.

(ii) Give three ways in which overstocking can harm the productivity of livestock.

(b) Suggest six criteria to be used when selecting grass species for establishing improved pasture in dairy farms.

(c) Explain four effective weed control measures in pastures.