



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

**SECOND SEMESTER EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE IN
INTEGRATED SOIL FERTILITY MANAGEMENT (ISFM)**

KRM 504: FARMING SYSTEMS

DATE: Friday 30th March 2012

TIME: 9.00 a.m. – 12.00 p.m.

**INSTRUCTIONS: ANSWER QUESTION ONE and ANY THREE OTHER
QUESTIONS**

Time: 3 hrs

(1)

- a) Give a brief account as to why the farm-household is considered an essential unit of focus in farming systems studies **(6 points)**
- b) Provide a brief discussion of your understanding of a cropping system, common cropping system practices, and resource bases **(6 points)**
- c) Integrated Soil Fertility Management (ISFM) is considered one of the main strategies for improving agricultural productivity, profitability and sustainability. Can you briefly, describe some of the common ISFM practices that are capable of benefiting the poor smallholder farmers – accounting for factors that may influence their widespread adoption **(6 points)**
- ~ d) Integrated Pests and Disease management (IPM) is a strategy of growing importance in regard to crop yield protection and reduction of agricultural chemical pollution to the environment. Give a brief account of the main approach and strategies that constitute the core of IPM **(6 points)**
- e) Briefly describe the various tillage systems and their impact on conservation agriculture **(6 points)**

(2)

- a) Describe the most common livestock kinds that are predominantly reared by farmers in your home area
 - b) How are the kinds of livestock you have mentioned in (a) above managed?
 - c) Explain any integration between the crops and livestock systems as currently practiced by farmers in your home area
 - d) Can you discuss any commonly observable problems with the way the livestock are managed in your home area?
 - e) Discuss the approach and strategies that you would propose as part of the sustainable solutions to the livestock management problems that you have discussed.
- (10 points)**

(3)

Land tenure has been observed as one of the factors that can cause profound impacts on agricultural production and investment, as well as gender equity and justice.

- a) Discuss ways in which land tenure can impact on investments and agricultural production
- b) Discuss the link(s) between land tenure and gender
- c) Discuss the approach and ways in which potentially negative impacts of land tenure on investment and agriculture and also on gender can be sustainably addressed.

(10 points)

(4)

Farmers in Kwa Vonza area of Kitui cultivate maize, pigeon peas and cow peas as their main crops. Their main livestock are goats and poultry, however a few of them have cattle. Majority of farmers in this region do not apply mineral fertilizer and manure in their crop production systems. The crops are cultivated as intercrops, each on its own line within the farm. Wide spacing is provided for- such that sufficient soil cover is never achieved. Seasonal drought is common in most years. In some years particularly last year worms (spodoptera), aphids, termites, weevils, were experienced in abnormally high numbers and hence yield loss was extremely high. Their livestock graze on the open grazing fields but during drought they are allowed to roam freely in the farms in search of fodder. The market for their produce is often affected by low market prices. As a consultant you have been asked to find sustainable solutions to the farmers' problems in this region as a strategy for promoting rural development. Can you discuss the approach and strategies that you would find relevant for the farmers.

(5)

Farmers in one of the Kisumu Districts, have put much effort to address soil fertility and crop nutrition – however the achieved agronomic efficiency is low. In their efforts they combine both purchased mineral fertilizers and organic resources. Their land is sloping, soil acidity in most places is high. Pests and diseases are mainly controlled through the application of low quantities of synthetic pesticides. Discuss the factors that according to your perception would be affecting the agronomic efficiency for this region. Additionally, discuss strategies that can be adopted by the farmers in the District in order to improve their overall agronomic efficiency. **(10 points)**