



Strathmore
UNIVERSITY

STRATHMORE UNIVERSITY BUSINESS SCHOOL

MASTER OF MANAGEMENT IN AGRIBUSINESS MANAGEMENT

END OF SEMESTER EXAMINATIONS

MMA 8103: FARMING SYSTEMS

Date: Friday, 17th August 2018

Time: 3 Hours

Instructions

1. This examination consists of **NINE (9)** questions.
2. This exam is composed of Parts **A, B** and **C**.
3. In Part **A**, **ALL Questions** are **Compulsory**. Attempt **5 (FIVE)** questions from **PART B**. In **PART C** choose **ONE** between Questions **8** and **9**.
4. This paper consists of three sections. Read **ALL** instruction for each section carefully before attempting any question.

PART A

Question 1(Compulsory) (20 Marks)

- a) What does sustainable agriculture mean? **(4 Marks)**
- b) What is Organic farming? **(4 Marks)**
- c) Explain globalization in the context of food systems. **(4 Marks)**
- d) What are integrated farming systems? **(4 Marks)**
- e) What are some of the causes of soil fertility depletion in Africa? List up to 4 causes. **(4 Marks)**

PART B (40 Marks)

Question 2 (8 Marks)

Outline how can nutrient use efficiency be optimized to alleviate the poor soil fertility in most African farms?

Question 3 (8 Marks)

How can the potential of smallholder rain fed agriculture be unlocked especially with regard to sustainable water management?

Question 4 (8 Marks)

Describe how current farming systems in sub-Saharan Africa may evolve in the next 32 years?

Question 5 (8 Marks)

Characterize the different elements of an integrated pest management approach?

Question 6 (8 Marks)

Are pastoral livestock systems a historical artefact whose time is long past? Give a brief explanation of your position on the matter.

Question 7 (8 Marks)

Why are low input integrated crop-livestock systems more resilient than intensive monoculture systems?

PART C (40 Marks)

Read the following passage and Answer **ONLY ONE** of the **TWO** questions provided

UNGA WARS: Enhancing Food Security in a Kenyan Village

Okwiri sat at the corner of his house, his back resting on his mud-walled hut and the hard verandah floor biting into his worn trousers. He stared intently at his *kabambe* phone, his heel digging into the ground in front of him. A thick slimy phlegm shot from his dry lips, landing unceremoniously at his feet. He looked at it disinterestedly, his jaws chewing ferociously at a peeled *lusiola* tree branch. Aah, I need a new brush, he thought, flinging the now heavily mangled stick across the yard. He was in a bad mood, and even the family dog Junior didn't dare approach him. He wagged his tail apprehensively from a distance, his eyes locked on the mad stare from his owner. Okwiri could not believe what he was reading! An SMS had just arrived from his son Nadebu in Mombasa. The government subsidized Unga had just hit the shelves in the local *duka*, and everybody was rejoicing. A two-kilogram pack of flour was now retailing at 90 shillings in all stores. The SMS read "*As part of the Government's food subsidy programme which seeks to reverse the recent rise in prices of essential food commodities; It is notified to the public that effective Wednesday, the government has partnered with various millers to offer white maize flour at subsidized rates across the country*". To ensure that these prices are maintained, the government had allowed maize

imports as a matter of emergency to avert a national disaster. “Disaster my foot”, Okwiri hissed. “Oh God, I am finished”. He couldn’t believe his eyes. He swept his gnarly fingers across his face, a cold sweat running down his brow, and let out a loud sigh, which sounded more like a growl from a wounded pig. Junior whimpered and moved a step back. Things were bad. Six billion shilling was what the government was spending to subsidize a few importers and millers. “Do you imagine what that money could have done had it been given to farmers to buy inputs at the beginning of the season”? Okwiri shouted, pointed at a nonexistent government official.

The mid-afternoon sun was hot, as was characteristic of this time in Magombe village. The heat from the ground radiated hot air, which made things in the distance seem to waltz lazily in response to an imaginary drumbeat. Only that the rhythm also made the eyelids feel heavy, an unwilling partner in the ride to Lalaland. Most people were actually taking naps under the protection of mango trees in their *boma*, their wide and majestic canopies providing shade and enviable coolness. But Okwiri was not sleepy today. His rumbling stomach did not give him peace of mind to indulge in sleep. It was as if needles were playing hide and seek on his body, everywhere. The sugarless porridge he had eaten in the morning seemed to have disappeared to some unknown place too early. He was glad his youngest son and daughter were in school and weren’t coming home for lunch. There was nothing to eat today. Even the cockroaches and flies in the kitchen were wondering what wasn’t cooking. This time round, times were hard. The hunger season had come back to tease them again.

The irony of it was that his granary was full with supplies of maize and sorghum. His problem was that he couldn’t sell his stock at a price above his input costs. Since he got training from Kilimo

Biashara, an agribusiness company helping farmers to farm smarter, he was very conscious of the costs of his inputs and profit margins. The middlemen had been hounding him to sell, but their prices were too low for him to accept the offer. He knew that a few months after the harvest, the glut would be over and he could sell his grain stocks at a good price. But now, all those hopes had suddenly vanished with a single big government stroke. The local MCA had informed them that the government had declared the drought a national disaster and ordered for maize and sugar to be imported. Now, there was this maize from Mexico and even more from Uganda. The situation was so bad that Kudedi, his cousin in Kitale, couldn’t not sell his truckload of maize to the national cereals board grain silos because they were already full.

Okwiri consoled himself that his case was not as bad as his neighbor Okuloki. Okuloki was so angry that he had decided to burn all the sugarcane after reports reached him that the sugar factory wasn’t going to buy any cane this year. His cane was overgrown at 22 months and all that waiting had been in vain. He had borrowed a lot of money to send his sons to a boarding school in Kakamega. He knew that if the sugarcane miller paid him for his 10 acres of cane, he would have enough money to pay back his loans and buy a few more dairy cows he had been craving. But that was not to be. In fact, it was said that the factory had imported so much sugar that it didn’t have to crush any cane for the next two years. Rumour had it that the sugar was not fit for human

consumption and had some rare metals like mercury and lead. Eish! was that even possible, with all the regulatory bodies and safety checks at the Mombasa port? Aah. In these places, people talk and it probably was not true, just a figment of imagination from disappointed farmers.

As Okwiri swatted a fly, his mood became even more pensive. An evil spirit was haunting the land, he thought to himself. They needed to call the elders for a cleansing ceremony. It had been three years of disaster after disaster, and the village was at breaking point. First was the longest drought they had seen. That was tough. The drought was so bad they had to survive on meals of immature pawpaw and local vegetables, to lubricate the journey for the cassava ugali. A few people harvested beans but nobody harvested any maize. Then came the army worms. They appeared from nowhere and nobody seemed to know what to do. Some people sprayed ash, others were using bitter herbs but nothing seemed to work. Even those who bought chemicals recommended by the government over the radio were not spared. The worms were so destructive, they ate most of the grain crop. Only Nangoma got something. She is a witch you know. Very active at night. I hear she used to work on her maize farm at night, spraying this and that. Clearly it must have been some secret potion which she didn't want people to see during the day. But she was generous, so everyone left her alone. However, her harvest, 30 bags from her one acre was decimated by Osama, some crazy beetle that destroys stored maize and dried cassava. The farmers in the village couldn't afford those fancy bags that keep Osama away. This year the weather was kind. Actually, most of us in the village had a bumper harvest. Everyone was excited, even when we heard that a lot of cheaper maize was coming in from Uganda. Given the demand, our crop would still fetch a tidy price. And then our boat sank. Just when we thought we had finally cheated hunger! I just want to take care of my family. Have enough food for the year and sell the excess, get enough money to send these kids to school. Now what!

Okwiri had been an excited man this year. He had planted early, because he had decided not to wait for the subsidized fertilizer from the government. It always came late and sometime it did not work. Many farmers had become skeptical of that fertilizer because their crops always yielded less than those who bought from the local agrovet. You also have to travel more than 40km to get a maximum of three 90kg bags, not enough for most people. It wasn't worth it. This year, he didn't want to take chances, especially after his Kilimo Biashara training. He was determined to make it. He had planted two acres, one and a half acres on maize and half an acre on sorghum. He had harvested 40 bags of maize and 20 bags of sorghum. He was pretty happy with his efforts and expected to have some good profit. Now it was all gone.

Okwiri stood up and lazily looked at his flock of Kuroiler chicken. A wry smile pursed his lips for a fleeting second as he sized up the big cock chasing a cockroach from the house. You are going to be dinner today, my friend! That was a wise decision his wife had made, buying the chicken. They had been their one constant stream of income for a couple of months now. The initial 20 birds she had bought had grown to 70 in a few months and sales from the eggs had ensured that his wife wasn't bothering him with requests for money to buy household items like soap, salt and

sugar. “Bwana, I have never seen so many eggs in my life”, Okwiri chuckled, smiling for the first time to expose his perfectly set and extremely white teeth. In the last 2 months, the family had been reluctantly forced to slaughter at least two chickens a week to supply their food requirements. A pot of boiled *kuku* mixed with the ubiquitous local vegetables was a delicacy in the village.

Now, there were only a handful of laying birds remaining. “No wonder we don’t have any sugar left. We are eating the bank account” he thundered as he banged the door behind him.

Required:

Answer the following questions

Question 8 (40 Marks)

- a) What farming system is Okwiri running? **(2 Marks)**
 - (i) Expound on why Okwiri is not getting the best returns from his activities? **(5 Marks)**
 - (ii) How would you improve the system in Magombe village to ensure higher per unit productivity? Explain, indicating resource and nutrient flows where appropriate. **(10 Marks)**
- b) Explain the changes can Okwiri can undertake to ensure his food security? **(8 Marks)**
- c) Given your answer in b) above, discuss the elements of sustainability that could hinder Okwiri from achieving sustainable food security? **(15 Marks)**

Question 9 (40 Marks)

Give succinct answers to the following questions

- a. Analyze the concept of food sovereignty and how it applies to Magombe village **(15 Marks)**
- b. Discuss the merits of government led subsidy programs and their effects on food security, especially when applied at the end of the value chain. **(10 Marks)**
- c. How could the subsidy program illustrated above be more effective? **(5 Marks)**
- d. Describe what institutional and infrastructural interventions would improve the livelihood of farmers in Magombe village? **(10 Marks)**