"Investing in Africa's future"

COLLEGE OF HEALTH AGRICULTURE & NATURAL SCIENCES

NAEC 504: ADVANCED AGRICULTURAL POLICY ANALYSIS

END OF FIRST SEMESTER FINAL EXAMINATIONS

NOVEMBER 2022

LECTURER: DR K. MUKUMBI

DURATION: 3 HOURS

INSTRUCTIONS

1. Do not write your name on the answer sheet
2. Use Answer Sheets Provided
3. Begin your answer for Each Question on a New Page
4. Credit is Given for Neat Presentation

SECTION A

Answer <u>ALL</u> questions in this section

QUESTION 1

Read the passage below and answer the questions that follow

Agricultural mechanization levels (i.e. the use of machinery in farming) differ dramatically across the globe: while, on average, 700-1,850 tractors are used per 1,000 farmers in Europe and Northern America, exceptionally low levels of mechanization persist in many developing countries: a mere 3-6 tractors are in operation per 1,000 farmers in China, Africa or India.

Africa remains the most challenging region for mechanization. In Sub-Saharan Africa (SSA), land productivity is among the lowest in the world, and Agricultural Mechanization has either stagnated or retrogressed in recent years. In SSA countries:

- over 60% of farm power is still provided by people's muscles, mostly from women, the elderly and children
- only 25% of farm power is provided by drudge animals
- less than 20% of mechanization services are provided by engine power

Machines are a central indispensable pillar to make farm operations efficient and productive as they determine much of the efficiency and productivity of all the other inputs used in crop production such as seeds, fertilizer, water, labour, and time. Mechanization covers all levels of farming and processing technologies, from simple and basic hand tools to more sophisticated and motorized equipment.

Advancing agricultural mechanization can help to improve overall agricultural productivity, profitability of farming, and rural livelihoods in developing countries, particularly at the backdrop of increasing demand for food and fuel with demographic dynamics, accelerated urbanization, climate change, and constraints of land and water resources.

In order to exert the full potential of agricultural mechanization in developing countries the public and the private sector need work together to nurture an adequate enabling environment that allows the largely self-sustaining private sector (consisting of manufacturers, distributors and dealers, and service providers) to develop and operate effectively.

A vicious cycle currently exists in which low farmer income leads to low potential for investments in seed, fertilizers and appropriate machinery, leading to low yields and even lower income. Successfully inverting this trend can improve farm family welfare and also facilitate a response to the paradox that low demand for tractors also hinders the availability of spare parts and even fuel, reducing the value of investing in mechanization anyway. That shift must be driven by the demand of farmers.

Many past initiatives have failed, with subsidized or donated machinery ending up as "orphans" due to the absence of spare parts or repair services. Many countries today have graveyards full of tractors and their associated equipment that seemed cheap at the outset but ended up being very expensive.

Funding sustainable mechanization is a challenge. While much modern agricultural technology today is too sophisticated to be suitable for African smallholders, options are proliferating. Nowadays, major international suppliers of farm machinery now produce cheaper and more suitable equipment in developing countries, while there are also a number of evolving agricultural machinery companies from Argentina, Brazil, China, India, Turkey and elsewhere - none yet from Africa - focusing on technology transfer in the interests of smallholder farmers.

a) You have been asked by the African Union (AU) to develop a policy draft to address agricultural mechanization issues on the continent. Your response should include:

i. a problem statement (5 marks)

ii. causes of the problem (5 marks)

ii. policy objectives (5 marks)

iii. rationale (5 marks)

iv. description of seven policy alternatives addressing issues raised. (14 marks)

v. Recommend a set of 3 policy interventions from (iv) which AU should pursue to address the problem. Provide justification for each recommendation and include criteria used. (9 marks)

vi. Assess the likely positive and negative effects of the recommended policy interventions from (v). (7 marks)

b) Present your case to the African Union with arguments for adopting a gendered approach and promoting gender equity in agricultural mechanization policy and programs. (10 marks)

SECTION B

Answer any <u>TWO</u> questions in this section

QUESTION 2

Read the passage below and answer the questions that follow.

Germany to ban glyphosate to protect insects, biodiversity

Germany said it would phase out the controversial weed killer glyphosate because it wipes out insect populations crucial for ecosystems and pollination of food crops. The chemical has been linked with a decline in pollinating insect species like bees and butterflies. The chemical, which is also suspected by some experts to cause cancer in humans, is to be banned by the end of 2023 when the EU's current approval period for it expires, ministers said. Concerns about the chemical's safety came to light when a World Health Organization agency report concluded in 2015 that it probably causes cancer.

Biologists have sounded the alarm over plummeting insect populations that impact species diversity and damage ecosystems by disrupting natural food chains and plant pollination. "What harms insects also harms people," said Environment Minister Svenja Schulze of the centre-left Social Democrats, warning of a future when fruit could become a luxury. "What we need is more humming and buzzing," Schulze told a press conference, stressing that "a world without insects is not worth living in".

Farm groups and the chemical industry have lobbied for the continued use of glyphosate, which is sold under the trade name Roundup made by Bayer subsidiary Monsanto. Thousands of farmers drove their tractors into German cities, in protest at the government's new agricultural policies which they say will hurt their livelihoods and make them scapegoats for climate change. Long convoys of tractors held up traffic at the main protest sites in Berlin and Bonn, both home to federal government offices, while thousands more honked their horns and blocked roads in cities including Munich, Hanover and Stuttgart. The protesters are furious at plans to ban the controversial weed killer glyphosate by 2023 and limits the use of fertilizer to reduce nitrate levels in groundwater.

Bayer protested Germany's unilateral ban, arguing the chemical can be used safely and is "an important tool for ensuring both the sustainability and productivity of agriculture". The German chemical giant Bayer — which acquired Monsanto in a mammoth $62.5-billion (€54-billion) deal — says studies and regulators have deemed glyphosate and Roundup safe for human use. However, some 18,000 people have brought legal action against the firm since the takeover. They claim that the use of glyphosate has caused them to develop various types of cancer. After its mammoth takeover of Monsanto, Bayer has been battered with a wave of lawsuits alleging the flagship herbicide causes cancer, with juries awarding massive damages awards.

The German Chemical Industry Association complained that, with EU authorities due to re-evaluate glyphosate use in 2022, Berlin was "embarking on a

confrontation course with European law". Austria became the first EU member to forbid all glyphosate use in July, with restrictions also in force in the Czech Republic, Italy and the Netherlands. France is phasing it out by 2023. Chancellor Angela Merkel's government presented its plan after heated internal debate between Schulz and the more industry-friendly Agriculture Minister Julia Kloeckner of Merkel's centre-right Christian Democrats. As part of the proposal approved by her cabinet on Wednesday, the government intends to oppose any request for the EU to renew the license to produce the weed killer, according to a release by the environment ministry. Jurisdiction over licensing lies with Brussels and not with EU member countries.

In a first phase, glyphosate will be banned from next year in city parks and in private gardens, according to the policy roadmap which sets the basis for new laws and regulations. Herbicide and insecticide use will also be restricted or banned in more species-rich areas such as grasslands and orchard meadows, and along many river and lake shores.

Campaigners worldwide have highlighted the risks of declining insect numbers, noting they are vital for pollinating plants -- including food crops -- and as food sources for birds and other animals. In February, a record 1.75 million people in the prosperous southern German state Bavaria voted in a referendum to "save the bees", calling for less chemicals use and more organic farming and green spaces. The campaign was opposed by the powerful regional agriculture association, which urged the population to "stop bashing farmers". However, Bavaria's ruling conservative CSU party then announced it would turn the referendum into government policy. The cabinet also plans to earmark a greater share of EU farm subsidies it receives to environmental and climate protection, raising the share from 4.5 percent now to six percent next year.

a) Identify and describe three types of market failure related to glyphosate production and usage. (10 marks)

b) Use the GRADE framework to analyze the proposed glyphosate ban. (10 marks)

QUESTION 3

Develop an agriculture marketing policy for Zimbabwe. Your response should include:

a) A problem statement (2 marks)

b) Three policy objectives (3 marks)

c) 5 Policy interventions. Justify each choice. (15 marks)

QUESTION 4

a) Read the passage below and answer the questions that follow.

Micronutrient deficiencies, particularly iron and vitamin A deficiency, are considered a major public health problem in the Dominican Republic. In 2003, to respond to this problem and to take advantage of the opportunity to receive financial support from a global funding donor, the Dominican Republic developed a proposal to implement a national wheat flour and sugar fortification policy to improve the micronutrient status of its population. Food fortification has led to rapid improvements in the micronutrient status of large proportions of a population at very low cost and is generally considered highly cost-effective compared with other public health interventions.

The decision to implement a food fortification policy is complex, however, involving critical analysis of the evidence of need; of the types and amounts of the micronutrients to be delivered within the constraints of safety, technology, and cost; of the quality and adequacy of the fortified foods; and of trade-offs with other intervention strategies. A food fortification policy as a public health intervention requires continuous multisectoral collaboration. Specifically, it calls for collaboration by three key sectors: the public sector or government, the private sector or food producers, and the civil society or consumers.

Within the collaborative process, there is some natural tension between the public sector emphasis on consumer rights, equity, and health context and the private sector focus on consumer demand, commercial viability, and revenue. A balancing of public and private perspectives is thus necessary. A food fortification policy must also be developed in the country-specific context, with clear designation of roles and responsibilities at the various levels of the policy. Food fortification is just one of many possible public health measures, and the relative importance of other strategies must be weighed under local conditions and the specific mix of local needs.

a) Your assignment is to consider any possible unintended consequences of the proposed national food fortification policy, recommend 3 policy alternatives to mandatory mass fortification, and identify the pros and cons of such policy alternative(s).

(20 marks)

END OF EXAMINATION PAPER