

Full Length Research Paper

The contribution of Secondary School agricultural knowledge in farm business management to farmers in Uasin-Gishu County, Kenya

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This paper examines usefulness of secondary school agricultural knowledge in farm business management to small-scale farmers in rural Kenya. The study focused on the contribution of secondary school agriculture knowledge on rural agricultural productivity. The research used *ex-post facto* design. The author adopted the proportionate sampling technique. A total of 200 farmers were interviewed: 49 % of the farmers had obtained agriculture knowledge while 51% did not obtain agriculture knowledge at secondary school. The Data collected were analyzed using descriptive statistics. The observation showed that farmers with secondary school- agriculture knowledge perform better in crop and livestock management as compared to farmers without the secondary school agriculture knowledge. As such there is need to ensure that the mechanism is set in place to see into it that the time set for practical agriculture lessons indicated in the timetable is actually used for the purpose intended. The results from the study indicate that the learners are handy in most of the crop and livestock management skills. The study contributes to economic development in the sense that having been established that students who study agriculture in secondary schools become better farmers, then more students would be encouraged to take the subject so that they become better farmers and hence producers of agricultural products.

Keywords: Agricultural Education, Contribution, Small Scale Farmers, Farm Business, Management

INTRODUCTION

Agriculture subject became officially established in the schools' curricula at several phases in the slow development of colonial education (Sheffield *et al.*, 1976). The Ominde Commission (GOK, 1964) observes that very little had been done towards training pupils in practical skills. The commission emphasized the need to prepare secondary school pupils to take an active role in agricultural processes besides preparing youths for further studies in agriculture.

A number of national development plans prepared after 1964 (GOK, 1966, 1970, 1974, 1979) took the Commission's observations seriously and made provisions for expansion of agricultural education to have more secondary schools teaching the subject.

Subsequent reports (Weir, 1967; Bessey, 1972; GOK, 1976) and studies (Maxwell, 1970; Sheffield, 1973; Onyango, 1975; Sheffield *et al.*, 1976; Kathuri, 1981, 1986b, 1990) have consistently shown that there is a lot of potential for making the subject more pragmatic and useful to the national development of the country.

Mosher (1971) describes various ways in which agricultural expansion and development can be purposefully accelerated. One of the ways is provision of agricultural education and training through schools, colleges and extension education, including youth clubs. According to a World Bank report (1988), "without education, development will not occur. Only an educated person can command the skills necessary for sustainable economic growth".

The General objective was to examine the contribution of secondary school agricultural knowledge in farm business management to small scale farmers in Uasin

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Relevance of Agriculture Syllabus to the Practical Skills_

Bessey (1972) advises the Government of Kenya that methods suited to the needs of small-scale intensive crop production be incorporated into agriculture education programme. The committee also suggested that school teaching facilities should include small crop and livestock enterprises to assist the learners gain the practical skills.

The Gachathi Commission (GOK, 1976) also suggested that the curriculum for both primary and secondary schools should prepare learners for agriculture budgeting, the family welfare and community development. It suggested that the teaching of agricultural Science, including the economics of production, be incorporated into the syllabus. The same report recommended that secondary education be geared towards the rural and informal sector by diversifying the curriculum and giving priority to teaching agricultural science (GOK, 1976). This is a further emphasis on practical agriculture. It is from the above reports from the committees set by the government that the general objective of teaching agriculture was developed.

General Objectives of the 8-4-4 Secondary Agriculture

The secondary education agriculture syllabus (KIE, 1992) has the following general objectives:

- a) To reinforce interest and awareness of opportunities existing in agriculture
- b) To demonstrate that farming is a dignified and profitable occupation
- c) To expand-the knowledge of the basic principles and practices in agriculture
- d) To develop an understanding of the value of agriculture to the family
- e) To provide a background for further studies in agriculture
- f) To develop self-reliance, resourcefulness, problem solving abilities and occupational outlook in agriculture
- g) To ensure that schools take an active part in rural development by integrating agricultural activities in the curriculum

The teaching of agriculture should accomplish the above stated objectives. The learner should be involved in practical work aimed at assisting him or her acquire the necessary skills which are useful in agricultural practices. While he or she has the knowledge of how various practices are carried out, the learner should also be involved in actual agricultural production.

The secondary school agriculture programme has incorporated the practical aspect in the agriculture project

done by the Form Four class. The question is: does this project work provide the student enough practice to apply the same skill after school? General preliminary observations show that students participate in this work for the main purpose of passing examinations (Kathuri, 1990).

Efforts Made to Make Agriculture more Practical

Teaching of skills necessary for self-employment and self reliance is only possible where there are adequate and proper material and human resources (KIE, 1992). The resources include a viable school farm. The teaching of agriculture has improved over the years to reflect the practical oriented approach.

Among the steps undertaken by the Kenya Government through the Ministry of Education, include ensuring that every school offering agriculture as an elective subject either own or hire a farm for practical purposes as well as including project work (Agriculture Practical Paper 3) in the Kenya National Examinations where students fully participate in developing their psychomotor skills through carrying out of project work on their individual allocated plots. The major aim is to reinforce the students interest in agriculture and development of the psychomotor skills so that they have positive attitudes towards the subject as well as developing their agricultural skills hence become better farmers after completing their formal education (KIE, 1992).

Farm Management

This is defined as the professional administration of skill or care of the farm for maximum production (Martin, 1978). Improvement in crop and livestock management accounts for a significant share in production and productivity. Farmers are producers of food and other useful commodities from plants and animals. Management describes the function of taking decisions about how land, labour, and capital resources should be used in carrying out these decisions. All production implies the taking of some risks, since decisions are made and inputs committed on the basis of expected yields and prices. Actual outcomes may be better or worse than projected outcomes because of either bad luck or bad decisions. In farming, the farmer himself takes the risks and bears the consequences of his decisions. The decisions about what to produce, how much to produce and what methods of production to use, can be found through agricultural science and technology. Thus the question of what to produce might be decided by considering the soils, natural vegetation and natural climate suitable for crops and livestock. The question of how much to produce might be decided by

producing the highest possible yield. The method of production to use may depend upon the special field of interest of the farmer.

The technical solutions suggested above provide the range of alternative choices open to farmers, from which they choose those courses of action which seem most likely to achieve their objectives. This needs a level of education that guides one to make such critical decisions (Martin, 1978).

Importance of Agricultural Knowledge in Farm Business Management

One of the general objectives of including agriculture in the 8-4-4 secondary school curriculum (KIE, 1992), is to ensure that schools take an active part in rural development by integrating agricultural activities in the curriculum. This would be through provision of technical knowledge, reinforcing interest in and awareness of opportunities existing in agriculture among the secondary school graduates (GOK, 1976). However, little has been done to establish whether there is any significant difference in agricultural management between farmers who graduate with secondary school agriculture knowledge and those without. The main question is: does agriculture knowledge at secondary school level make any difference in farm business management?

Limitations of the Study

Kenya has diversified ecological zones that influence agricultural production. These ecological zones may also influence the opportunities and resources that are available for agricultural production. It would therefore, be advisable to draw a sample from the whole nation, but time allocated for the study and availability of resources limited such widespread sampling procedure. Therefore, one zone was chosen and a limited sample was used.

MATERIALS AND METHODS

The study utilized the Ex-Post facto research design. The study was undertaken in Uasin Gishu District, Rift Valley Province Kapseret and Turbo Divisions, out of the six divisions in the County two were selected for the study because the two divisions had more small-scale farmers as compared to the others. In each of these Divisions two groups of farmers were identified - those with secondary school agriculture knowledge and those without this knowledge.

Uasin Gishu County is a highland plateau situated at an altitude of 1500 metres above sea level around Kipkaren and 2100 metres above sea level around Timboroa (District Annual Report, 2010). It receives

rainfall of approximately 960mm/year, which is evenly distributed. This rainfall is bimodal with the two peaks coming in March and September. The wettest areas are Ainabkoi, Kapseret and Kesses Divisions. Turbo, Moiben and Soy Divisions receive relatively lower amounts of rainfall as compared to Ainabkoi, Kapseret and Kesses Divisions (District Annual Report, 2010). Temperatures range from a minimum of 8.8^oC to a maximum of 21.6^oC. The average temperature is 18^oC during the wet season and a maximum of 21.6^oc during the dry season. February is the hottest month, while June is the coolest month (District Annual Report, 2010).

Farmers generally prepare land for planting, especially for maize, during the months of January and February. However, wheat is usually planted in the months of April and May. Due to favourable topographical and climatic conditions, the entire County has a high potential for agricultural and livestock activities. According to the County Population projection, Uasin Gishu County was expected to have a population of 693,882 by the year 2001. Out of the above population, Kapseret Division would have a population of 107,336 and Turbo Division, a population of 126,194 (Uasin Gishu District Development Plan, 2005-2010 [GOK, 2010]). The study took a sample of 200 for the two divisions to ensure that the main characteristics of the farmers were captured. The sampled farmers were the heads of farm families or managers of the farm.

An interview schedule was used in the study to collect data for the: farm output quantities and level of farm management. The responses from the respondents were coded and entered into a data sheet. The final data were then keyed into the computer for analysis. The Statistical Package for Social Sciences (SPSS) computer program was used to analyse the data. The analysis was based on a sample size of 200 small scale farmers comprising of 98 of them with secondary agriculture knowledge and 102 of them without this knowledge.

RESULTS

Farmers' Competence in Farm Business Management

The farmers were asked questions based on farm management practices. The management practices were as follows: keeping farm records, analyzing and using records, planning and practicing cropping systems, planning and practicing livestock systems, and planning for sales and purchases. The farmers' responses were assessed and their competence ranked using a 4 point rating scale. The 4-point rating scale is as follows: 1 for "poor", 2 for "fair", 3 for "good" and 4 for "Very Good". Results are shown in Table 1.

Table 1. Keeping Farm Records

Farmers with Secondary School Agriculture knowledge			Farmers without Secondary School Agriculture knowledge		
Frequency	Percent	Cumulative Percent	Frequency	Percent	Cumulative Percent
Poor	36	36.7	43	42.2	42.2
Fair	27	27.6	37	36.3	78.4
Good	31	31.6	20	19.6	98.0
V. good	4	4.1	2.0	2.0	100.0
Total	98	100.0	102	100.0	
Mean	2.03		Mean	1.81	

Table 2. Analysing and Using Farm Records

Frequency	Percent	Cumulative Percent	Frequency	Percent	Cumulative Percent
46	46.9	46.9	49	48.1	48.1
32	32.7	79.6	45	44.1	92.2
20	20.4	100.0	8	7.8	100.0
-	-	-	-	-	-
Total	98	100.0	102	100.0	
Mean	=	1.73	Mean	=	1.60

Table 3. Planning and Practicing Cropping Systems

Frequency	Percent	Cumulative Percent	Frequency	Percent	Cumulative Percent
Poor	17	17.3	24	23.5	23.5
Fair	42	42.9	53	52.0	75.5
Good	37	37.8	24	23.5	99.0
V. good	2	2.0	1	1.0	100.0
Total	98	100.0	102	100.0	
Mean	2.24		Mean	2.02	

Farmers' Competence in Keeping Farm Records

The mean score for the farmers with secondary school agriculture knowledge was 2.03 and that of farmers without this agriculture knowledge was 1.81 as shown in Table 1.

The mean value for both groups of farmers was approximately two. The implication to this is that both groups of farmers were fair in their management skills of keeping farm records.

Farmers' Competence in Analyzing and Using Farm Records

The mean score for the farmers with secondary school agriculture knowledge was 1.73 whereas the mean score for the farmers without this knowledge was 1.59 as shown in Table 2. This suggests that both groups of farmers were generally fair in their Management skills of

analyzing and using farm records.

Farmers' Competence in Planning and Practicing Cropping Systems

The mean score value for the farmers with secondary school agriculture knowledge was 2.24 whereas the mean score value for the farmers without this knowledge was 2.02 as shown in Table 3. The mean value for the two groups of farmers was approximately two; indicating that both groups of farmers were fair in their managerial skills of planning and practicing cropping systems.

Farmers' Competencies in Planning and Practicing Livestock System

The mean score value for farmers with secondary school agriculture knowledge was 2.32 and for those farmers

Table 4. Planning and Practicing Livestock Systems

Farmers with Sec. Sch. Agri. knowledge			Farmers without Sec. Sch. Agri. knowledge		
Frequency	Percent	Cumulative Percent	Frequency	Percent	Cumulative Percent
-	-	-	3	3.0	3.9
16	16.3	16.3	18	17.6	20.6
39	39.8	56.1	42	41.2	61.8
39	39.8	95.9	35	34.3	96.1
4	4.1	100.0	4	3.9	100.0
Total	98	100.0	102	100.0	

Table 5. Farmers' Overall Average Score in Farm Business Management

Farmers with Sec. Sch. Agri. knowledge			Farmers without Sec. Sch. Agri. knowledge		
Frequency	Percent	Cumulative Percent	Frequency	Percent	Cumulative Percent
Poor	13	13.3	16	15.7	15.7
Fair	60	61.2	72	70.6	86.3
Good	24	24.5	14	13.7	100.0
V. good	1	1.0	-	-	
Total	98	100.0	102	100.0	
Mean	2.13		Mean	1.98	

without this knowledge was 2.19 as shown in Table 4. The mean value for both groups of farmers was two. This implies that both groups of farmers were fair in their management skills of planning and practicing livestock systems.

Farmers' Competencies in Planning for Sales and Purchases

The mean value for the- farmers with secondary school agriculture knowledge was 2.28 whereas those farmers without this knowledge was 2.25. The approximate mean value for the two groups of farmers was two. The implication is that the two groups of farmers were fair in their management skills.

Farmers Overall Average Score in Farm Business Management

The mean overall average score for the farmers with secondary school agriculture knowledge was 2.13 whereas for those farmers without this knowledge was 1.98 as shown in Table 5.

The approximate mean value for the two groups of farmers was two; implicating that the two groups of farmers were fair in their farm Business Management skills. Generally, it appears that the two groups of farmers were not so much keen in management competence of

farm business as indicated by their low mean values.

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

The observation showed that farmers with secondary school agriculture knowledge perform better in crop and livestock management as compared to farmers without the secondary school agriculture knowledge. In crop management, they had a mean score value of 2.78 and 2.65, respectively, whereas in livestock management, they had a mean score value of 2.56 and 2.38, respectively. The implication to these is that farmers with secondary school agriculture knowledge perform better because of the knowledge they acquired in school either theoretically or practically. Results indicate that there was significant association between the secondary school agriculture knowledge and farmers level of crop management. When the farmers' secondary school agriculture knowledge and level of livestock management were compared, the association was not significant. The implication of this could be that there is little practical knowledge provided to the learners, as far as livestock management is concerned. This could be because most schools do not own livestock for practical purposes by the learners, therefore, the students learn the topics on livestock management theoretically which is soon forgotten after school because the skill was less internalised. That is psychomotor skills were not fully

acquired in livestock management.

There is need to ensure that the mechanism is set in place to see into it that the time set for practical agricultural lessons indicated in the timetable is actually used for the purpose intended. The results from the study indicate that the learners are handy in most of the crop and livestock management skills. There are two practical and two theory agriculture lessons in a week each taking 40 minutes. It appears that most schools utilize the time allocated for the practical lessons to cover the theory classes. This is consistent with the finding by Kathuri (1990) that hardly do students participate in the practical agriculture. If the time set for agriculture practical is not enough then the syllabus should be revised so that only very important topics are taught and more time created for the practical agriculture. In line with this also is for the Ministry of Education, Science and Technology to ensure that schools offering agriculture own or hire land and own some livestock to enhance the livestock management practical skills. This will ensure that those students completing the fourth form, having done agriculture in secondary school, become better farmers and hence become agents of poverty alleviation as it is a common knowledge in our country that agriculture is the backbone of Kenya's economy.

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