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AN INVESTIGATION OF THE RELATIONSHIP BETWEEN STUDENTS' ENROLMENT IN YOUNG FARMERS CLUB OF KENYA (YFCK) AND ESTABLISHMENT OF INDIVIDUAL FARM PROJECTS AT HOME: A CASE OF PUBLIC SECONDARY SCHOOLS IN NJORO SUB- COUNTY, KENYA

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Abstract

Agriculture is a hands on subject that requires students to put into action what they learn in school. The role of young Farmers club of Kenya (YFCK) is to train young people to be productive future farmers. Secondary school education is terminal to the majority of the youth, non-attainment of lifelong skills in agriculture may lead to low standards of living and a decline in agricultural productivity. The main aim of the study was to determine relationship between student enrolment in young farmers' clubs of Kenya and their performance in agricultural co-curricular activities in public secondary schools in Njoro sub-county, Nakuru County, Kenya. The research employed a descriptive survey design. A sample of 150 agriculture students from 15 schools was selected using purposive random sampling technique. Data was collected using a questionnaire and interview schedule. Data analysis was done using descriptive statistics using statistical package for social science (SPSS version 25). Reliability of research instrument was estimated using Cronbach alpha. The findings of the study indicated that at least (71.0%) of students who were members of YFC were able to establish either crop or animal projects at home. The mostly kept animals by students at home was chicken, sheep, cows, rabbits and goats. However, those who kept animals, (73.3%) indicated their projects were not successful. (57.3%) the students who grew crops like cabbages, maize, carrots, beetroots trees and onions indicated that of their crops did not grow successfully. The results indicated that there was a relationship between student enrolment in YFC and establishment of projects at home.

Keywords: Young farmer club, agriculture, individual projects, secondary schools in Kenya

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1.1 Relevant scholarship

In USA co-curricular activities have shown positive correlation with improved education level, competence and higher attention level (Craft, 2012). Through a variety of programming options, the National Future Farmer of America (FFA) organization seeks to actualize its agenda of making a positive impact in lives of students by developing their potential for premier leadership, personal growth and career success through agricultural education (FFA, 2018). Kagay et al., (2015) reported that Future Farmers of America (FFA) has an effective leadership program. Students who participate in Future Farmers of America (FFA) activities have better self-perceptions and understanding of their leadership skillsState hypotheses and their correspondence to research design.

In china, agriculture schools have started to take action systems and to strengthen their vocational programs. The participation of students in any co-curriculum activity gives students the opportunity to develop their talent and interest beyond the formal classroom environment. Various examples and sources have been presented to prove that the importance of co-curriculum is the most appropriate and realistic tool for developing a holistic student and thinking outside the box of thought (Stoyanets et al., 2020).

In Kenya, secondary school students participate in agricultural co-curricular activities mostly through the Young Farmers Club of Kenya (YFCK) project activities. The YFCK is an organization in both secondary and tertiary institutions involved in agriculture co-curricular activities like crop production, livestock production, Agricultural field trips, ASK show activities, ploughing contests and YFCK national rallies. The YFCK is an organization under the Agricultural Society of Kenya (ASK) and it functions under the auspices of ASK which registers it for administrative purposes (MOA, 2000). Agricultural Society of Kenya has a calendar of events which specify program of activities to be taken by YFCK. Through these activities, the students apply agricultural principles and practices learnt in class (Njoroge et al., 2014). This aimed to underscore the significance of engaging students taking agriculture as a subject in agricultural co-curriculum activities and if such activities have a relationship with their performance in agriculture as a subject. The research question of the study is formulated as “Is there a relationship between students’ enrolment in young farmers’ club of Kenya (YFCK) and establishment of individual farm projects at home? A case of public secondary schools agriculture learners in Njoro sub- county, Kenya?”

2. Method

2.1. Research design

The study adopted Ex-post facto Cross-sectional survey research design. The design has been defined by Ndiritu, (1998) as a systematic empirical inquiry in which the scientist does not have direct control of independent variables because their manifestation has already occurred or because they are inherently not manipulatable. Inferences about relationships among variables are made without direct intervention from concomitant variation of independent variables (Mugenda 1999). Ex-post facto cross-sectional research design is considered most suitable for this research because it involves studying conditions or events that have already occurred and the researcher has no direct control of independent variables. The dependent variables performance in agriculture subject has already occurred while the independent variables, Young Farmers Clubs of Kenya activities and Agricultural Society of Kenya show activities cannot be manipulated.

2.2. Sampling procedures

Multistage stage sampling technique was used to select a sample of the 152 respondents for the study. In the selection process, first of all a list of schools Njoro Sub-county was sought from the Sub-County Ministry of Education office. Agriculture is not a compulsory subject and therefore it might not be taught in all the schools. From the list, all schools with agriculture as a teaching subject shall be chosen. The second stage of sampling narrowed down the number of schools that were used for study. The final stage of sampling was the choice of the respondents, the actual students. With the assistance of the agriculture teachers of the schools identified for the study, a list of students taking agriculture was obtained. The respondents were picked using systematic random sampling. The number of respondent picked from each school depended on the number of schools doing agriculture as a subject. To ensure proportionate representation of the sample in all schools; the following formula was applied:

$\frac{X}{Y}$ X 152; where X will be the total number of from two and three agriculture student in a given school; Y is the total number of form two and three agriculture students in the sub-county and 152 is the required sample size. The list of student generated was first randomized before being subjected to systematic random sampling. The skip factor used in each school depended on the proportionate sample provided**.**

2.3. Sample size, power, and precision

According to Kathuri (1993) sample size should be large enough to allow an accurate interpretation of the results and at the same time ensure that the data is manageable. In this study, the sample size was determined from students in forms two's and three's in all the 43 public secondary schools in Njoro Sub-County. The sample size of these population was calculated using Nassiuma's formula. The formula is as follow:

$$n = \frac{NC^2}{C^2 + (N-1)\, e^2}$$

Where:
= sample size (see calculations below),
N = population size (5,143)
C= The Coefficient of variation (0.25)
e = Margin of error (2% = 0.02),
Given that there is a total 2143 agriculture students between the years under study, then, n;

$$= n = \frac{5{,}143 \text{ X } 0.25^2}{0.25^2 + (5{,}143-1)0.02^{\ 2}}$$

$$n = \frac{321.4375}{2.1193}$$

= 150 students
N= Population size
N= Sample size
C= coefficient of variation (0.25)
e= Margin of error (0.02)
The sample size from each school will be calculated by: $\frac{X}{P}$ X 152 where by
X= Sample size from each school
P= Total number of students who are members of YFCK in Njoro Sub-County

2.4.Measures and covariates

A researcher-administered questionnaire and interview guide were used to collect data. The questionnaire design was guided by the objectives of the study. The interview guide enabled in determining the nature and quality of projects both at school and at home.

3. Results and Discussion

3.1. General information of YFC Agriculture students

3.1.1. Gender of the students

The gender of the students was crucial in the study in understanding who was mostly involved in YFC activities, crop and animal projects among the male and female students as indicated in figure 1.

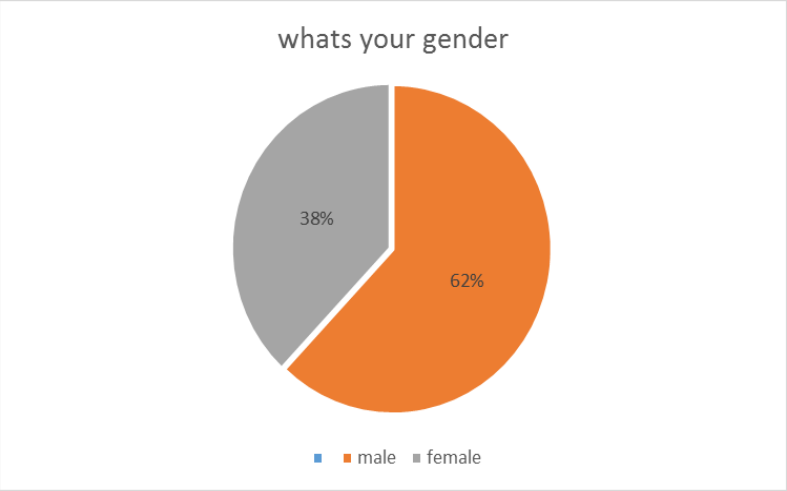

Figure 1**:** Gender distribution

In relation to results of figure 1, there were more male (62%) students than female (38%) students. The low number of female students could be attributed by the fact that agriculture being an art and science it has more hands on activities which could be demanding in terms of time and resources which female students may not meet due to having more responsibilities than boys. The findings are in conformity with a research done by Darko et al., (2016) on gender differences in attitude towards the learning of Agricultural science in senior High Schools in Ghana. In their findings, Darko et al (2016) they found that (76%) were males and (34%) females. This was attributed that male students prefer both art and science subjects since they do not fear trying new knowledge outside class. Also male students were found to believe that agriculture had greater contribution to their future life in generating income than female students.

3.1.2. Enrolment in YFCK

The study sought to find out when the agriculture students decided to join the YFC in their schools. As per results in table 2, (43.3%) of students joined the club while at form two, (33.3%) in form one and (23.3%) joined while in form three. The high percentage (43.3%) of students joining at form two level could be attributed by the fact that at form two students are familiar with various school clubs and the potential importance of each club both at school and after school. The students joining at form three (23.3%) are the ones who may have changed membership from other clubs. In addition agriculture is an elective subject and at form three some students may have dropped the subject thus reducing the number of YFC joining at form three. At form one students are found to be exploring various clubs in the schools thus contributing to (33.3%) enrollment.

Table 1: How long did it take you to enroll in YFCK?

		Frequency	Percent	Valid Percent	Cumulative Percent
	Immediately I joined Form one	50	33.3	33.3	33.3
	Form two	65	43.3	43.3	76.7
	Form three	35	23.3	23.3	100.0
	Total	150	100.0	100.0	

3.1.3. Students' motivation in joining the YFCK

There was need to find out from the students' reasons behind them joining the YFC programme. Findings in figure 2 indicate that (66%) of students joined YFC due to their activities like attending agricultural society of Kenya, tree

Planting and field trips. (17%) of students joined due to teacher motivation, (11.33%) joined since it was a school require net and (4.67%) joined through friends motivation. This results indicate that despite the teacher having have introduced students to YFC, majority (66.67%) joined to explore the activities done by the YFC. The activities done by YFC may have attracted many students given that students will always want to explore and try new activities outside classroom environment.

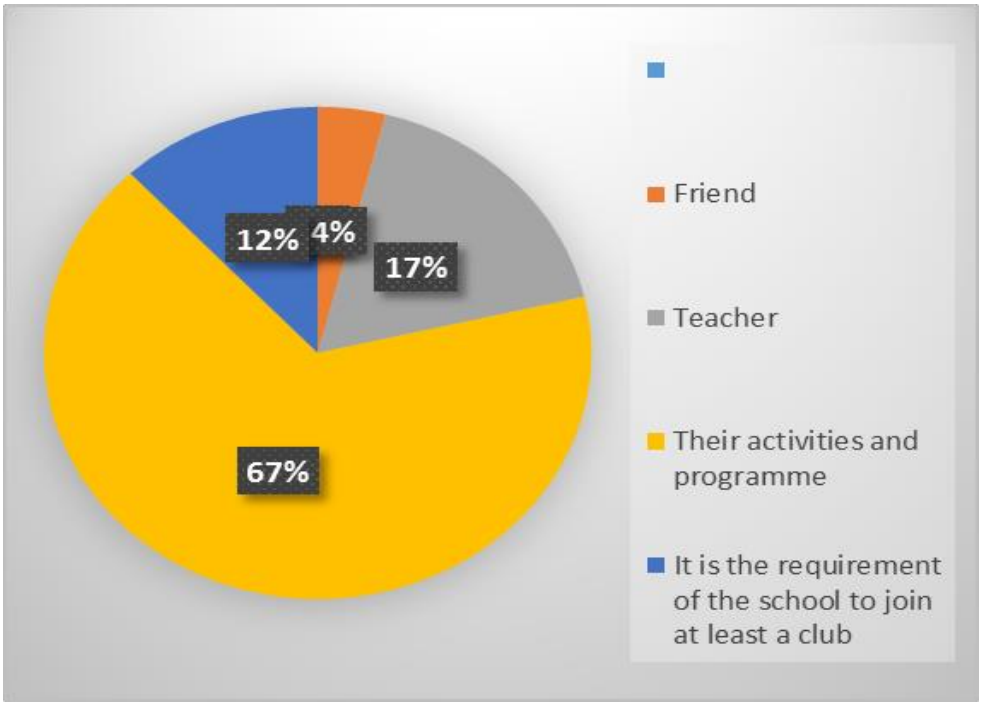

Figure 2: Motivation to join YFC

3.2. Experience while in YFC

The students were asked on their level of satisfaction about the YFC activities given that majority joined to explore the YFC activities. In reference to table 2, (64.7%) said the activities were strongly satisfying and enriching, (24%) indicated that the activities were satisfying and enriching, (9.3%) confirmed activities were somehow enriching, (1.3%) indicated activities were less satisfying and (0.7%) was strongly dissatisfying and not enriching. The high satisfaction percentage (64.7%) could be as a result of students joining due to having interest ij the programmes of YFC programmes. Voluntary joining the club means that students had intrinsic motivation to explore co-curricular activities in the club. In addition, the (64.7%) could be students having family members employed in agricultural related fields or these students may have intentions to apply agriculture knowledge after school. The (9.3%), (1.3%) and (0.7%) felt the activities were less satisfying. This may be due to the fact that they maybe the students who joined by following friends or feeling it is a school requirement to join.

This findings are in conformity to the findings of Mukembo et al., (2015)on the intentions of Young Farmers Club (YFC) members to pursue career preparation in agriculture In Uganda. According to them, majority of students (70.6%) indicated either one (50.0%) or both parents (20.6%) had an agricultural career, and 29.4% reported neither of their parents had a career related to agriculture. In addition, nearly (59.8%) responded that a sibling or another relative had a career related to agriculture (40.2%) said they did not have close relative in the agriculture related jobs. Therefore, the students who had greater satisfaction (64.7%) may be willing to pursue agriculture related courses after secondary school.

Table 2:Experience while in YFCK

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly dissatisfying and not enriching	1	.7	.7	.7
	dissatisfying and less enriching	2	1.3	1.3	2.0
	somehow satisfying and enriching	14	9.3	9.3	11.3
	Satisfying and enriching	36	24.0	24.0	35.3
	Strongly satisfying and enriching	97	64.7	64.7	100.0
	Total	150	100.0	100.0	

3.3. Frequency of participation in the YFC activities

The students were asked to state the frequency of attending YFC where: Always meant at least once a week, sometimes meant at least after two weeks, rarely once in a term, very rare means once a year while never meant none. This was necessary in assessing the habit of learners in attending YFC activities in. The result of the analysis was as shown in table 3:

Table 3: Young Farmer Club Activities

Activity	**Always**	**sometimes**	**Rare**	**Very rare**	**never**
Attending club meetings	**(41.3%)**	**(43.3%)**	**(2.0%)**	**(3.3%)**	**(10%)**
Attending to club activities	**(16.7%)**	**(24.0%)**	**(10.0%)**	**4.7%)**	**(44.6%)**
Working in groups in establishment of crop and livestock projects at school	**(44.0%)**	**(38%)**	**(9.3%)**	**(1.3%)**	**(7.3%)**
Working individually in establishment of crop and livestock projects at school	**(22.7%)**	**(31.3%)**	**(10.7%)**	**(4.7%)**	**(30.3%)**
Attending ASK	**(41.3%)**	**(30.7%)**	**(10.0%)**	**(4.7%)**	**(13.3%)**
Attending YFC rallies	**(40%)**	**(30.7%)**	**(8%)**	**(1.3)**	**(20.0%)**

Working in groups in establishment of crop and livestock projects at school (44%), attending ASK (40.0%), attending club meetings (41.3%) and attending rallies (40.0%) were the most frequent activities that agriculture students in YFC attended. Attending club activities and working individually were the least activities among the YFC members. At least (30.3%) of students neither worked individually nor attended club activities. On average students attended YFC activities once in every two weeks. This indicates that teaching and learning activities in YFC should be directed to students' learning groups, student's club meetings, ASK meetings and YFC rallies. Students should be encouraged to work in groups rather than individual. Furthermore, complementing students' groups with ASK and YFC rallies may lead to more performance in agriculture co-curricular activities both at school and at home. Since most students preferred to work in groups than individual, schools should establish guidelines that will ensure much of the teachings and learning is conducted through group work. In addition, students reported that individual work was not common, the patron in YFC should develop mechanisms of motivating students towards individual work in order to achieve self-efficacy. The teaching and learning resources maybe limited in most schools leading to teachers adopting group work than individual assignments.

The result agrees with the finding by (Nzomo, (2021) whereby in the study conducted to determine relationship between teaching of Agriculture and use of Field trips and rallies. In the

study, (70%) students who attended filed trips and rallies were able to relate agriculture concept taught in class and what they saw outside classroom environment thus contributing to improvement in students agriculture related crop and animal projects. in addition, students who participate in agriculture co-curricular activities demonstrate high level of thinking and are able to gain confidence and intrinsic motivation in approaching social life (Behrendt & Franklin, 2015).

3.4. Crops projects at home

Students were asked if they had crop projects at home and the number of crop projects. Figure 3 gives a summary of the response on crop projects whereby (44.7%) of students had no crop project, (28.7%) had a single crop, (21.3%) grew two crops and (5.3%) of students had more than two crops. The (44.7%) may have failed to establish crop projects due to financial challenges, inadequate land to run students projects or were from a family that is able to provide for them all their needs thus they had no pressure for running some projects to earn money. In addition these students' maybe operating animal projects or they stay in rentals where land to crop production is limited. Maize was the most grown crop by many students (9.3%), carrots (4.0%), cabbages and potatoes had (3.3%) each, maize and beans (1.3%), maize and onions (1.3%)

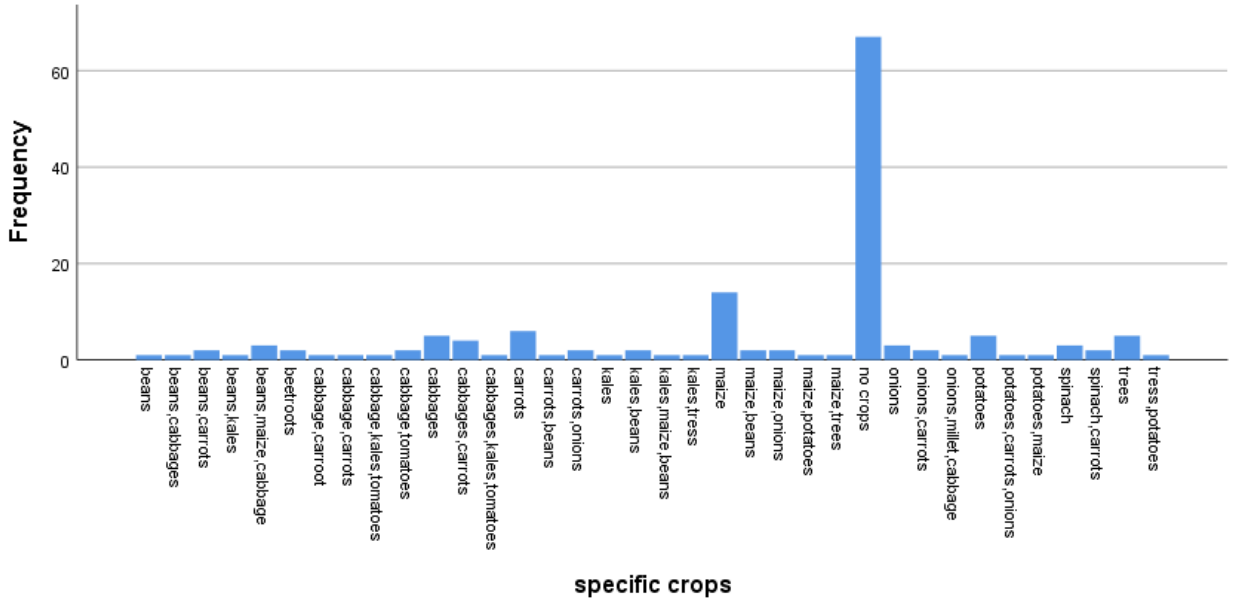

Figure 3: specific crops grown at home

Maize is among the top 6 crops grown in Kenya after wheat, sugarcane, coffee, tea and cotton contributing to 17.5% of Kenya's overall Gross domestic product (GDP) (Ombuki, 2018).Maize was the most grown crop with (9.3%) simply because maize is a stable crop in Kenya. Most students grew maize since it has easy routine management field practices compared to other crops.

3.5. Number and type of animals kept at home

Students were asked if they had animal projects at home. In addition, the number of animals was required since students learn how to keep different animal species. This was important in finding out multidimensional skills learned in keeping unique animals. From figure 4, (52.7%) of students did not have any animals, (25.9%) of students kept single animal, (20.7%) kept two animals, (0.7%) had three animals.

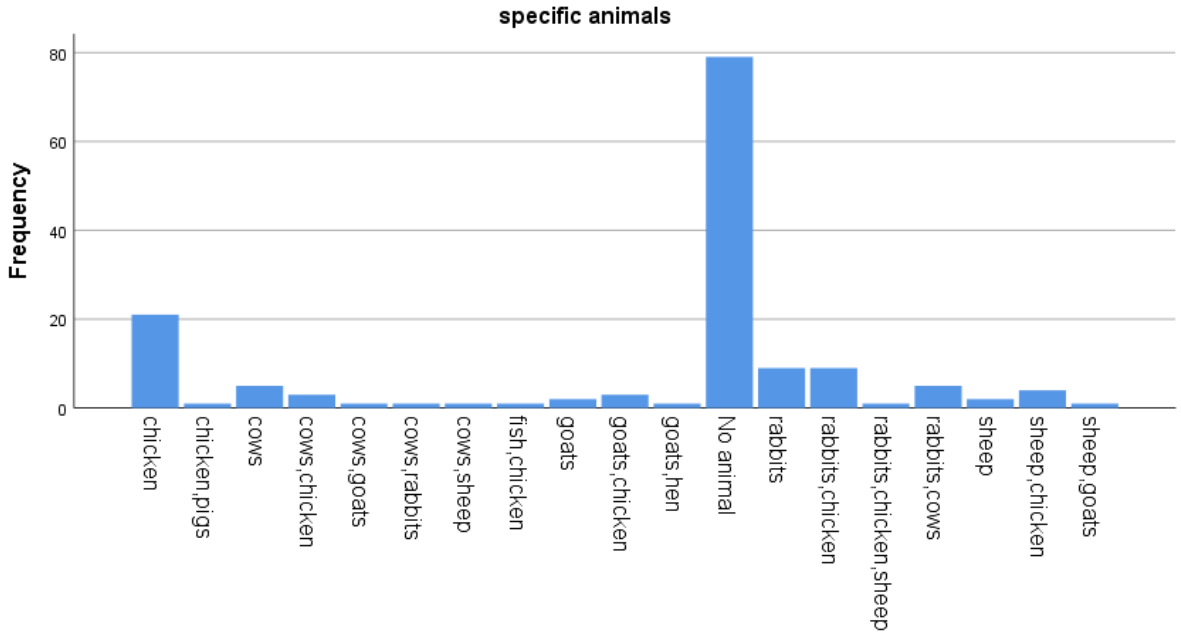

Figure 4: Specific animals kept at home

3.6. Duration taken to establish the first crop or animal project at home after joining the YFC

The students were asked the duration taken to establish the crop and animal projects at home. This was important in in determining the importance of students joining YFC and establishment of projects at individual homes. The role of YFC is to guide and expose students to various crop and animal production activities such that they may have insight in agriculture related activities. (29.0%) of students had not established any project at home, (21.0%)

established two months after joining, (15.0)% joined four months after joining, (14.0%) established project immediately they joined the YFC, (7.0%) established project after eight months and(14.0%) established project after one year as shown in figure 5. The students with no projects at home (29.0%) could be a category of students who felt agriculture is a risk enterprise. In addition the students may be having a perception that agriculture is a profession that is not respected or they have seen friend's relatives or parents who have trained in agriculture and they have not secured employment. This study is in c conformity with a study conducted in Nigeria on evaluation of students willingness to establish agriculture projects after schools at their homes where by students were not willing to venture into agriculture due to high capital requirement to establish projects, unemployment after several years of graduation, being advised by parents not to participate in agriculture (Ojebiyi, et al., 2015).

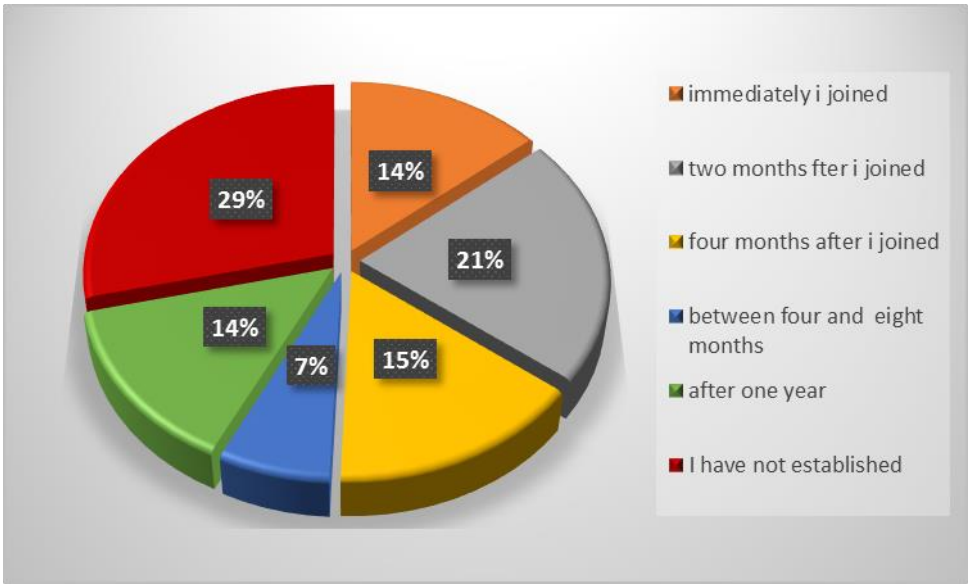

Figure 5: Duration taken to establish the project at home

At least (71.0%) of students established projects between the one month and after one year after joining the YCF. These students preferred doing projects since they were encouraged by the training they received, encouragement by parents and friends, their parents were farmers, students had a desire the create self-employment and even they felt agriculture is about 'seeing and doing' so it's easy. This findings agree with a study conducted in Ghana evaluating willingness of students to establish projects at home after joining agricultural clubs. The finding on the study indicated that (67.0%) of students had a desire to establish projects at home (Bosompem et al., 2017).

3.7. Source of capital used in establishing projects at home

Establishment of either crop or animal project rely on funds. Students were asked how they obtained funds for the projects established at home. (36.7%) of students indicated they obtained the funds from their parents, (30.0%) of students obtained funds from individual personal savings, (4.7%) from club fund, (1.3%) got funds from school and (27.3) had no means of getting funds. Table 4 shows the summary of the results. Funds availability determines the nature, quality and management of individual projects.

Table 4: The source of the capital used to establish home project

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I had no means of getting capital	41	27.3	27.3	27.3
	school	2	1.3	1.3	28.7
	parents	55	36.7	36.7	65.3
	personal saving	45	30.0	30.0	95.3
	club fund	7	4.7	4.7	100.0
	Total	150	100.0	100.0	

3.8. Why establish projects at home

Students were asked the reason for them establishing the project at their homes. The training and skills the agriculture students obtain from YFC activities are meant to enable them establish reputable projects. There was need to know if students developed projects due to intrinsic as a result of getting knowledge and skills or extrinsic motivation which could be as a result of feeling they need to make projects to fear failing exams in case of being assessed by their schools. (38.7% of students established projects to earn themselves income, (30.0%) established projects for the purpose of gaining knowledge, (2.7%) felt it was a school requirement for them to have projects at home and (28.7%) of students had not established a project. The students who had not established the projects (28.7%) could be having financial challenges. In addition, the students could have joined the YFC due to influence by friends and this may contribute to low interest in agriculture projects.

Table 5: Reasons for establishing a project at home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I don't have a project	43	28.7	28.7	28.7
	school requirement	4	2.7	2.7	31.3
	earn self-income	58	38.7	38.7	70.0
	purpose of gaining knowledge	45	30.0	30.0	100.0
	Total	150	100.0	100.0	

The long term effect of getting exposure and training in agriculture is to enable youths be self-reliant by being individuals who can make projects that will enable the generate income in order to be self-employed. This findings is in conformity with a study conducted on evaluating youth empowerment and livelihoods improvement through horticulture by Mary & Wanjira, (2018). According to Mary and wanjira, (58.3%) of the youths who had training in vocational subjects established projects at homes with an aim of generating income. Students with less/no exposure to agriculture training do not make good crop and animal projects due to inadequate skills in agriculture.

3.9. Most successful crop project you ever established at home

Students were asked to list the most successful crops from their projects. In reference to figure 5, (57.3%) of students indicated that no crop grew to give them returns while (42.7%) had their crops growing to maturity**.** (11.3%) of students reported that maize was most successful, (9.3%) grew carrots, (4.7%) grew trees and cabbages, (6.0%) grew potatoes, (2.7%) grew beans, (2.0%) grew onions, (1.3%) grew beetroots and (0.7%) grew kales.

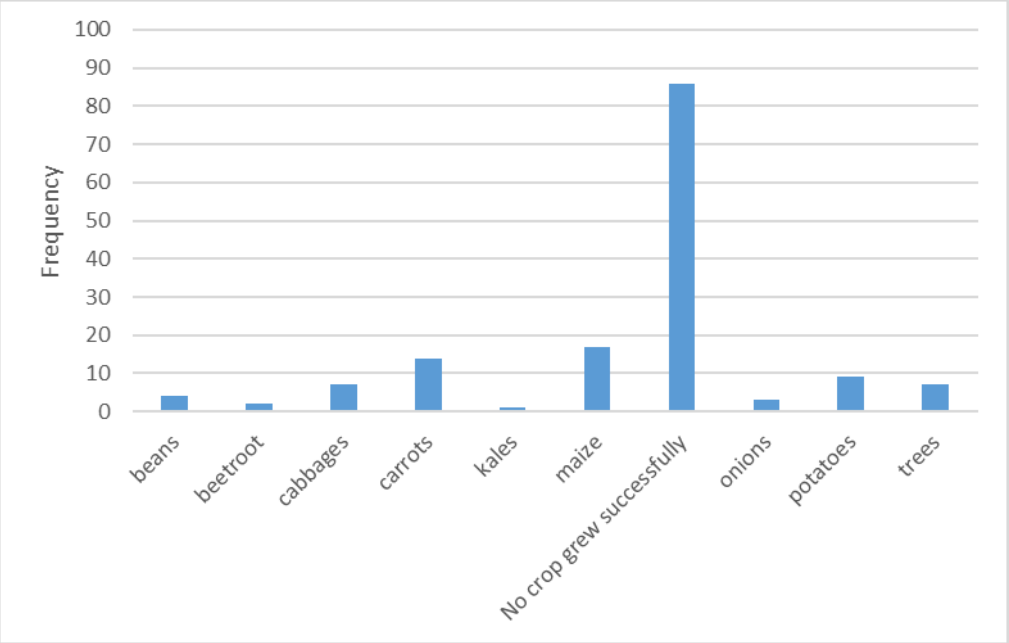

Figure 5: Most successful crop projects

Maize and carrots remained the most successful project for students both at school and at home. In addition, maize was the crop that was most preferred by many students compared to other crops. This could be attributed by the fact that agronomic practices for maize was easy compared to other crops like tomatoes which was did not successfully grow due to its intensive labour and capital requirement. According to Naseem et al., (2018), tin their study they noted that maize is the staple crop in Kenya accounting to 40% of cultivated area and more than 75% of maize production is generated by smallholder farmers. Carrots, cabbages, potatoes were commonly grown by students since they were short seasoned crops and could enable them make more returns in a year since majority of students established projects for the purpose of getting money. According to Schreinemachers (2018),most schools supplement students meals with vegetables like carrots, potatoes, kales, onions and cabbages and thus this had an influence in the kind of projects established by individual farmers. Most farmers preferred growing vegetables since they had a ready market and the returns were high since the crops grew between 3-4 months.

4. Conclusions and recommendations

The findings of the study indicated that at least (71.0%) of students who were members of YFC were able to establish either crop or animal projects at home. The mostly kept animals by students at home was chicken, sheep, cows, rabbits and goats. However, those who kept animals, (73.3%) indicated their projects were not successful. (57.3%) the students who grew crops like cabbages, maize, carrots, beetroots trees and onions indicated that of their crops did

not grow successfully. The results indicated that there was a relationship between student enrolment in YFC and establishment of projects at home.

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Declaration of Conflicting Interests and Ethics

The authors of this article do hereby declare to have no conflict of interest.

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