

# Effects of Socio-Economic Characteristics on Livestock Production Among Youths in the Savelugu-Nanton District

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## ABSTRACT

The contribution of the youths to socio-economic development of farm households in rural societies is significant. The objective of this study was to ascertain the state of engagement by the youths and the factors influencing the youths to engage in livestock production. Using a semi-structured questionnaire, 350 respondents, aged 14 to 24 years were interviewed in the Savelugu-Nanton district of the Northern Region. Using descriptive statistics and the logit regression model, it was found that 70.9% of the youths are engaged in livestock production. Also, a significant number (77%) of the respondents were currently at different levels of schooling, from primary to junior high school, but have difficulty in financing their education. Majority (67.8%) of the respondents also chose to rear small ruminants (sheep and goats) against other species such as cattle, rabbits, local fowls, guinea fowls and grasscutters. All the respondents considered combining livestock rearing with what they envisaged to become (Teachers, Doctors, Nurses, Soldiers, police, businessmen and women) in the future. The factors that influence the youth into livestock rearing are education, gender, saving of income and contact with Agricultural Extension Agents (AEA). It is hereby recommended that the capacity of the youths should be built through skills training and mentorship programmes.

**Keywords:** Engaged in agriculture, youth, livestock production, Socio-economics, Logit model, Future jobs, Savelugu-Nanton.

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## INTRODUCTION

Worldwide, the youth is over 1.8 billion. About 90% of whom live in developing countries, where they tend to make up a large proportion of the population and need to be empowered since this is an important means of improving food security, youth livelihoods and employment (United-Nations, 2011). Agriculture is a viable venture that contributes to the socio-economic wellbeing of a larger proportion of people in Africa, for that matter Ghana (Adu et al., 2018; World Bank, 2008). Africa is a youthful continent, and the growing youth population, with age range of 16 to 24 years, do not regard agriculture as a profitable opportunity, but rather, regards it as subsistence farming, or a dead-end (Anyidoho et al., 2012; Naamwintome and Bagson, 2013). It has been noted that African youth do prefer jobs outside farming with the notion that farming is not

attractive to them (FAO, 2013). There is, therefore, the need to improve various ways of sustaining agricultural production. One way to do so is to engage young rural people (FAO, 2013). The population pyramids of the various regions of Africa generally show that Africa's population is largely young (African-Union, 2017). Specifically, 43.5% of the population of the district is youthful (0 to 14 years) depicting a broad base population pyramid (Ghana Statistical Service, 2014). Apart from the numerous management skills for successful agricultural productivity, the sector, in general, is laborious, and therefore needs economically active individuals, mostly the youngsters to partake in the sector. There is the need, therefore, to harness the current young segment of the population through investment in education, health and employment

creation to set the future right for the current working population in preparation for its social security during old age (African-Union, 2017). Ghana, like many other African countries, faces a high youth population growth rate and a serious employment challenge (Lambon-Quayefio, 2017). According to Akpan (2010) and Diao et al. (2017), Ghana's farming population is aging. For this reason, interventions in agriculture should include not only the adult population but the youth as well. Countless numbers of developmental projects are directed towards adults in farm households of our society.

In the implementation stages of such projects, the target beneficiaries, the adults are usually represented. But the reality is that the activities that have to be done until the next visits by project implementation agents are conducted by other household members, mostly the youth, whose ages are usually between 14 to 24 years. This group of young people (15 to 24 years), constitutes the majority of Africa's population with over 200 million people (United Nations Population Fund, 2011). In Ghana, empirical findings allude higher vulnerability of youths and urban dwellers to unemployment with education and gender explaining unemployment in some instances (Baah-Boateng, 2013). To change the status quo, there is, therefore, the need to consider the youth as future farmers (Naamwintome and Bagson, 2013) which will eventually contribute to the socio-economic development of Ghana. The most food insecure and poverty endemic regions of Ghana are the three northern (Northern, Upper East and Upper West) regions (Amanor-Boadu et al., 2013). Livelihoods in Northern Ghana depend largely on rain-fed agriculture or natural resources (Armah et al., 2011). As high as 89.3% of households in the Savelugu-Nanton district, the study area, are engaged in agriculture. In the rural localities, eight out of ten households (93.3%) are agricultural households (Ghana Statistical Service, 2014). This could be the reason unemployment in urban cities is about six times higher than unemployment in rural settings (Baah-Boateng, 2013). According to Löwe (2017), the notion of 'youth' as a social construct is a socially defined concept that describes the period of transition between childhood and adulthood. The youth are involved in both crop cultivation and livestock rearing, thus an integral part of a mixed farming system (Maass et al., 2012). In the livestock sector, the youth have the responsibility of shepherding, carting feed, provision of water, opening and driving animals into pens, and assisting in catching animals during medication among others. Thus the youth play a majority role in animal agriculture (Jothilakshmi et al., 2013). The youth is, therefore, an important resource in the development process especially in view of the great assets of youth, resilience, resourcefulness and perseverance (Naamwintome and Bagson, 2013), but are often not considered in the decision-making process. They are in most cases given authority to do one thing or the other as far as activities related to

livestock production are concern (Bonye et al., 2013). In this regard, the contribution of the youth to the socio-economic development of farm households in rural societies is therefore significant (Jothilakshmi et al., 2013). In spite of their high involvement in livestock rearing, their control over animal ownership and usage are limited (Naamwintome and Bagson, 2013). These engagements by parents and guardians of the youth into project activities and indeed their own farm practices have improved the experience levels of the youth. In spite of all these potentials of the youth, employment generation remains a challenge, thus the youth face a number of challenges as compared to their older folks that expose them to the challenges of securing employment (Baah-Boateng, 2013). Engagement in animal agriculture acts as a buffer for supplementary income to youths and women and provides additional food and nutrition security to individuals (Jothilakshmi et al., 2013). From the foregoing, the study sought to investigate how youth contribute to the food security improvement in farm households by establishing youth role in livestock production and the factors influencing the youth to engage in livestock production. The study will also contribute to, perhaps reminding the youth about the advantages of engaging in agribusiness-like ventures, so that, they will consider livestock production as an occupation, which can be produced for commercial purposes rather than a mere smallholder production.

## METHODS AND MATERIALS

### The Study Area

This study was undertaken in the Savelugu-Nanton district of the Northern Region of Ghana. It shares boundaries with West Mamprusi in the North, Karaga to the East, Tolon and Kumbungu to the West and Tamale Metropolitan Assembly to the South and has a total land area of about 2,022.6 sq. km., with a population density of 68.9 persons per sq. km (Abanyie et al., 2017). The Savelugu-Nanton District lies between latitude 90 37'N and longitude 0028'W (Abanyie et al., 2017). The district is characterized by high temperatures with an average of 34°C. The maximum temperature could rise to as high as 42°C and the minimum as low as 16°C. The average annual rainfall is about 600 mm (Ghana Statistical Service, 2014). The district is located in the Savanna woodland which could sustain large scale livestock farming, as well as the cultivation of food crops such as rice, groundnuts, yams, cassava, maize, cowpea and sorghum (Ghana Statistical Service, 2014).

### Sources of Data and Sampling Procedure

#### Reconnaissance Survey

A reconnaissance survey (RS) was conducted by the

**Table 1.** Number of respondents from each community.

| <b>Communities/Community Characteristics</b> | <b>Number of Houses</b> | <b>Number of Household</b> | <b>Estimated Population</b> | <b>Number of Respondents Interviewed</b> |
|----------------------------------------------|-------------------------|----------------------------|-----------------------------|------------------------------------------|
| Kpano                                        | 40                      | 40                         | 600                         | 102                                      |
| Gbumgbum                                     | 50                      | 50                         | 875                         | 132                                      |
| Afayili                                      | 13                      | 13                         | 245                         | 57                                       |
| Kpachilo                                     | 62                      | 62                         | 1136                        | 60                                       |

Source: Field survey (2015).

collaborating institutions (Animal Research Institute and Heifer International) for the purpose of familiarization and to identify how to approach the data collection process. The RS survey served three main purposes; first the communities in which the baseline was conducted were known, and secondly, community leaders especially the contact persons were being introduced to the data collection team and finally the purpose of the project and the type of respondents needed were being explained to the contact persons for identification. Table 1 indicates the number of respondents in each community. In all the communities, more than 90% of the youth interviewed were either currently going to school, had just completed Junior High School (JHS) and are waiting for their results and some are also currently in Senior High School (SHS) or had completed. It is surprising to note that, In Kpachilo community, for instance, the estimated population is higher than the rest of the communities understudied, but has less number of respondents interviewed. This may be as a result of higher number of people below and above the age range of 14 to 24 years considered for our study.

### Sampling Procedure

The study district, Savelugu-Nanton, was purposively selected due to the fact that Heifer International (HI), the donor collaborator, had conducted some work in the district, and they, the donors were willing for the data collection to be taken place in the District. With the help of a list of communities in the District, we used simple random sampling method to select four communities for the study. The data collection process was mainly through the primary source. All youth within the age range of 14 to 24 years were identified and interviewed. In his work on the determinants of unemployment in Ghana, Baah-Boateng (2013) described youths as people whose ages are from 15 to 24 years. This definition of youth, age range 15 to 24 years, is not significantly different from the age range 14 to 24 years, for which this research used. Having considered the population of all youth with age range 14 to 24 years, 350 respondents were being interviewed in the study communities. We considered the total population of the age ranged because, most of the youth, especially the girls did not know how old they were, and some were suspected to have overestimated their years beyond

our age range for this work, where their physical appearance could give us a hint of their ages. Having faced these challenges at the pre-testing stage, the parents of the youth and two of our community contact persons who are very knowledgeable about the youth in the community helped us to identify the respondents for the actual study. In instances where the age of a respondent was ambiguous, the birth certificate was resorted to. Also in situations where the birth certificate was no near to be found or non-existent at all, another respondent who has about the same age was identified by the parents, and which was used as a basis for inclusion as a respondent.

### Methods of Data Analysis

#### *Descriptive Statistics*

The data were analysed using descriptive statistics of the STATA software (version 12). The results were presented in the form of tables, frequencies, means, percentages and charts.

#### *Factors Influencing Educated Youth into Livestock Production*

In analysing the data, we modeled a relationship between the dependent variable, engaged in livestock production or not engaged in livestock production. In determining factors influencing educated youth into livestock production, we made use of the logit model. The logit model is one of several choice models used by researchers to explain an interrelationship among endogenous and exogenous variables. Some of such models are multinomial logit, multinomial probit, binary logit and binary probit models. However, both multinomial logit and multinomial probit models are used in cases where the dependent variable has more than two choice options. We could use the binary probit model to determine the factors, but logit model is mathematically convenient and simple to work with than with the probit model (Greene, 2008). Other studies like Adams and Ohene-yankyera (2015); Amadou et al. (2012); Foti et al. (2007) have used the logit model over the probit model. The binary logistic regression is a type of regression where the dependent variable is converted into a dichotomous binary variable coded 0 and 1. Youth who have engaged in agriculture are

**Table 2.** Definition of explanatory variables for the logistic regression model.

| Variables   | Definition             | Unit of Measurement         | A Priori Expectation |
|-------------|------------------------|-----------------------------|----------------------|
| Dependent   |                        |                             |                      |
| ENGAGRIC    | Engaged in Agriculture | Dummy (1=Yes, 0, otherwise) |                      |
| Independent |                        |                             |                      |
| EDU         | Attending school       | Dummy (1=Yes, 0, otherwise) | +                    |
| AGE         | Age                    | Years                       | +/-                  |
| GENDR       | Gender                 | Dummy (1=Male, 0 otherwise) | +                    |
| MRRIGE      | Marital Status         | Dummy (1=Yes, 0, otherwise) | +                    |
| SAVNGS      | Savings                | Dummy (1=Yes, 0, otherwise) | +                    |
| AEA         | Contact with AEA       | Dummy (1=Yes, 0, otherwise) | +                    |

assigned the value of 1 and those not engaged in agriculture are assigned 0. We are testing if the coefficients are equal to zero (0) or the odds ratios are equal to one (1). The logit model is based on the cumulative logistic distribution function expressed as:

$$P_i = \frac{1}{1 + e^{-z}} \quad (1)$$

Where  $P_i$  is the probability of engaging in agriculture while  $1 - P_i$  is the probability of not engaging in agriculture. In the logistic function,  $1 - P_i$  can be expressed as:

$$1 - P_i = 1 - \frac{1}{1 + e^{-z}} \quad (2)$$

$$= \frac{1}{1 + e^z} \quad (3)$$

The ratio of Equation (1) and (3) gives the odd ratio:

$$\frac{P_i}{1 - P_i} = \frac{1 + e^{-z}}{1 - e^{-z}} \quad (4)$$

$$= \frac{P_i}{1 - P_i} = e^z \quad (5)$$

Equation (5) is the ratio in favour of engaging in agriculture to the probability of not engaging in agriculture. Taking the natural log of both sides of the equation (5), we generate equation (6) as;

$$z = \ln \frac{P_i}{1 - P_i} \quad (6)$$

Therefore, the function will be expressed as:

$$\ln \frac{P_i}{1 - P_i} = \beta_0 + \beta_i X_i + \mu \quad (7)$$

Where;

$X_i$  denotes the factors influencing an engagement in agriculture

$\beta_i$  denotes the vector of parameters to be estimated using the maximum likelihood method, and

$\mu$  denotes the error term which is normally distributed with zero mean-variance.

The empirical specification of the logit model for the engagement in agriculture (ENGAGRIC) by the youth is:

$$\text{Log} \left( \frac{P_i}{1 - P_i} \right) = \beta_0 + \beta_1 \text{EDU} + \beta_2 \text{AGE} + \beta_3 \text{GENDR} + \beta_4 \text{MRRIGE} + \beta_5 \text{SAVNGS} + \beta_6 \text{AEA}$$

The definition of the variables, unit of measurement, and the apriori expectation are presented in Table 2.

## RESULTS AND DISCUSSION

### Demographic Characteristics of the Respondents

The demographic characteristics of the respondents are presented in Table 3. Out of 80 drop-outs, 61 of the youths said they have the intention of going back to school if they get support. None of the respondents were widowed or divorced under marital status as at the time this study was undertaken. Also, none of the respondents were engaged in traditional religion. It is important to state that, though age as a variable was being categorized as in Table 3, it was treated as a continuous variable in the logistic regression, since all the specific ages of all respondents were known. In Ghana, however, a person is considered as an adult if the age is from 18 years and above. Therefore from this study, we can deduce two types of youth to include juvenile youth and adult youth. From the results, there were nearly twice of juvenile youth than adult youth who participated in the study. Adult youth are expected to

**Table 3.** Demographic characteristics of youth livestock farmers.

| Characteristics of Farmers | Frequency | Percentage |
|----------------------------|-----------|------------|
| Gender                     |           |            |
| Male                       | 218       | 62.3       |
| Female                     | 132       | 37.7       |
| Age Groups (years)         |           |            |
| 14-<18                     | 228       | 65.1       |
| 18-24                      | 122       | 34.9       |
| Origin of Respondents      |           |            |
| Native                     | 336       | 96         |
| Settler                    | 13        | 3.7        |
| Visitor                    | 1         | 0.3        |
| Marital Status             |           |            |
| Single                     | 317       | 90.6       |
| Married                    | 33        | 9.4        |
| Religion                   |           |            |
| Islam                      | 347       | 99.1       |
| Christianity               | 3         | 0.9        |
| Educational Status         |           |            |
| Schooling                  | 270       | 77.1       |
| School Drop-outs           | 80        | 22.9       |
| Other Occupation           |           |            |
| Not working                | 189       | 54         |
| Crop farming (own farm)    | 43        | 12.3       |
| Livestock production       | 14        | 4          |
| By-day                     | 62        | 17.7       |
| Artisan                    | 18        | 5.1        |
| Shea-nut picking           | 6         | 1.7        |
| Trading                    | 18        | 5.1        |

Source: Field survey (2015).

make decisions for themselves, especially regarding which type of animals to rear or which crop types and/or varieties to sow. The type of livestock rear (Table 4) by the respondents include grasscutter, rabbit, sheep, goats, cattle, local fowls and guinea fowls. Majority (70.9%) of the respondents rear at least one species of an animal. It was common to find a respondent rearing more than one animal type. The following table indicates the proportion of respondents who rear a particular animal type.

Majority (95%) of the respondents agreed that the free-range/extensive system is the main production system being practiced. Other production systems include; semi-intensive and intensive. Usually, the rabbits and grasscutters are reared on an intensive system, where they are confined and feed and water are provided.

### Engagement in Animal Rearing

The results as shown in Table 5 shows that 248 of the respondents were engaged in animal rearing, this represents, 70.9% of the total number of respondents

considered for this survey. It was observed that all the 248 (70.9%) respondents were willing to be trained to acquire further skills in animal production. Furthermore, all the 248(70.9%) respondents reported they have access to land for expansion. This finding is contrary to Löwe (2017)

who found young people having difficulty in accessing land for agricultural purposes. However, 102 of the respondents, representing 29.1% were not engaged in animal rearing. Out of this, 88 (86.3%) of them were out of school, but are willing to rear animals. Likewise, 99% of those who are not currently engaged in animal rearing reported that they have access to land for future rearing of animals. Also, 263 of the respondents were currently in school but have difficulty in financing their education. That is 100% of all those who were currently attending school are faced with problems of financing their education. Finally, all the respondents were willing to undergo skills training and mentorship since they have not had such a training module before. This finding corroborates with Löwe (2017) in his studies of creating opportunities for young people in Ghana's

**Table 4.** Proportion of respondents rearing animals.

| Animal Type  | Frequency | Percentage |
|--------------|-----------|------------|
| Cattle       | 4         | 1.13       |
| Sheep        | 237       | 67.5       |
| Goats        | 239       | 68.1       |
| Rabbits      | 18        | 5.13       |
| Local fowls  | 16        | 4.56       |
| Guinea fowls | 12        | 3.42       |
| Grasscutter  | 2         | 0.57       |

Source: Field survey (2015).

**Table 5.** Showing engagement and commitments of respondents to livestock rearing.

| Experience and Commitments                                                                                          | Number (%)  | Experience and Commitments                                                                                                 | Number (%) | Total      |
|---------------------------------------------------------------------------------------------------------------------|-------------|----------------------------------------------------------------------------------------------------------------------------|------------|------------|
| Engaged in animal rearing                                                                                           | 248 (70.9%) | Not Engaged in animal rearing                                                                                              | 102 (29.1) | 350 (100%) |
| Number Engaged in animal rearing and willing to be trained to acquire further skills                                | 248 (100%)  | Not willing to be trained to acquire skills                                                                                | 0(0%)      | 249 (100%) |
| Number engaged in animal rearing and have access to land for expansion                                              | 249 (100%)  | No access to land for expansion                                                                                            | 0 (0%)     | 249 (100%) |
| Number of respondents in school and have difficulty financing their education, but are willing to rear animals      | 263 (75.1%) | Number of respondents out of school but are willing to rear animals                                                        | 87 (24.9%) | 350 (100%) |
| Number of respondents willing to undergo skills training and mentorship for a period of 6- 12 months                | 350(100%)   | Number of respondents not willing to undergo skills training and mentorship for a period 6- 12 months                      | 0 (0%)     | 350 (100%) |
| Number of respondents not currently engaged in animal rearing but have access to land for future rearing of animals | 101(99%)    | Number of respondents not currently engaged in animal rearing but do not have access to land for future rearing of animals | 1(1%)      | 102 (100%) |

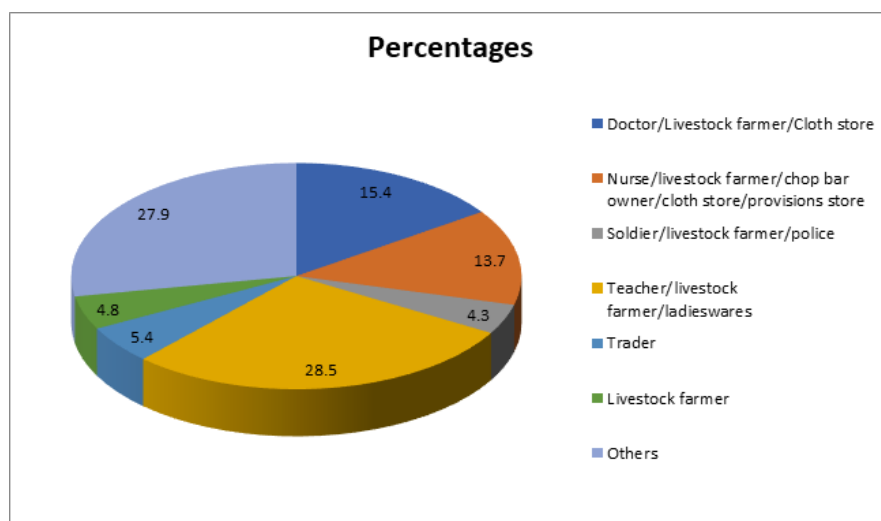
Source: Field Survey (2015).

cocoa sector.

### Future Career Goals of Respondents

Following Anyidoho et al. (2012), respondents were asked about their future career goals. The results in the following pie chart give the percentage of different jobs that the respondents anticipated to be engaged in the future. Majority of the respondents (28.5%) want to be professional teachers as well as livestock farmers whereas 15.4% want to be doctors, 13.7% mostly the female, want to be nurses. There were several different jobs that were mentioned by respondents. Percentage-wise, those jobs were very few, and are therefore described as “others” as far as this work is concern. Those jobs also have a high percentage of 27.9% which is 0.6% less than those who want to be teachers. The category of job types that the respondents want to be and which are captured under “others” include disease control officer, journalist, geographer, pilot, mason, nutritionist, seamstress, tailor, artist, carpenter, banker, engineer, politician, footballer, lawyer and so on and so forth. Except for trading and others, all the job types do not stand in isolation. Those who want to be doctors are as well want to own a livestock farm or own a store.

Likewise, those respondents who want to be nurses in the future also want to own livestock farm, chop bars, cloth or provisions store. These responses mostly came from female counterparts. Only 4.8% of the respondents said they want to be livestock farmers, and these were those who were not actually going to school. The following figure (Figure 1) illustrates the outcome from the respondents. All the respondents considered combining livestock rearing with what they envisaged to become (Doctors, Nurses, Soldiers, police, businessmen and women) in the future. During the data collection, respondents were given the chance to make any comments regarding the project. From the data gathered much of the comments where on knowledge and skills in grasscutter and small ruminant production. Respondents gave different views as to why they prefer certain species of livestock to the other. Below are some responses that respondents gave during the data collection. Whereas few respondents gave the reasons for their choice of a particular livestock species, most of them just made their choices without given reasons for that. From the responses, Table 6, 34.2% of the respondents prefer to rear sheep only. Some of the reasons they gave were that sheep are easier to



**Figure 1.** Pie chart showing the different future career goals by respondent. Source: Field survey, August 2015.

**Table 6.** Choices made by respondents during the field survey.

| Type of Choice                    | Frequency | Percentage |
|-----------------------------------|-----------|------------|
| Sheep only                        | 120       | 34.2       |
| Goats only                        | 51        | 14.5       |
| Small ruminants (sheep and goats) | 46        | 13.1       |
| Grasscutters                      | 5         | 1.4        |
| Capacity building                 | 5         | 1.4        |
| Livelihood improvement            | 17        | 4.8        |
| Educational Support               | 16        | 4.6        |
| Others                            | 15        | 4.3        |
| No choice or comments             | 76        | 21.7       |
| Total                             | 351       | 100        |

Source: Field Survey, August 2015.

manage than goats and grasscutters. Thus, sheep are less aggressive, hence they can be tethered and herded, unlike goats which will either twist the rope around their neck and legs when tethered and can run away on an attempt to herd them. Also, unlike goats that are very selective in feeding, sheep eat a variety of leaves. Some respondents claim that, though schooling, they are shepherds as well, and therefore have experience in sheep management more than goats and grasscutters. These are some unedited comments by some respondents:

*I prefer sheep because I can easily manage it as compared to goats. I have heard of grasscutter but don't know it. But, since its management is like that of the rabbit, I will be glad to receive that one too.*

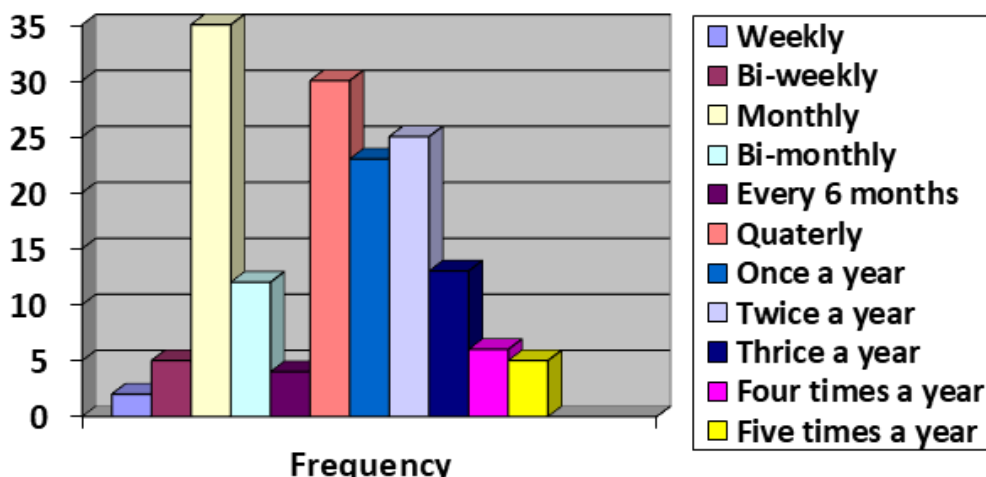
*I prefer sheep because they are easy to manage. Before I go to school, one can easily send the sheep and tether them in the pasture. But for the goats, I need to go and harvest leaves for them, which is very difficult. On the contrary, 14.5% of the respondents said they*

*would want to rear goats only.*

The results further gave that, 90.3% of those who chose to rear goats said goats are easy to multiply than that of sheep while 9.7% of the respondents did not have any reason for choosing goats. The results also show that 95.7% of female respondents chose to rear goats. The reason for their choice was that they do not have time to herd or send the sheep for grazing. They rather prefer to keep goats under a shed and provide it with feed. Find below some unedited comments by respondents.

*I prefer goats because I am a student and have already started facing financial difficulties. Goats therefore easily multiply about 2 or 3 times a year which some can be sold to finance my education.*

*I prefer goats because I am a female and do not have the time to herd the sheep, but for the goats, I can go and harvest feed for them. However, for grasscutters, I do not know them and will find it very difficult to manage them.*



**Figure 2.** Bar chart showing the frequency of visits by AEAs and community livestock workers. source: Field survey, August 2015.

Another important finding was that 13.1% of the youth chose to rear small ruminants (goats and sheep). This is in line with Lowe (2017) who found young people to have made investment in small ruminants. These categories of the respondents did not make preference to either goats or sheep. They, however, rejected to rear grasscutters. They claim that small ruminants are commonly reared in that area, therefore they are able to tolerate the weather (semi-arid environment) in the area than grasscutters which survive well in a humid environment. The results further show that only 1.4% of the respondents chose to rear grasscutters for the following reasons: those who chose to rear them claim they are special animals that are getting extinct, especially in the northern part of Ghana. Therefore, rearing them will help to multiply their numbers. The low choice of grasscutters for rearing was so because most of the respondents claim they have only heard about the name but have never set eyes on it. Others were hearing the name for the first time. Some respondents disclose it needs special attention since it has to be reared in an intensive system. In general, most of the respondents claim they lack the required capacity and skills to rear it and that; it will be difficult to find its feed in the area.

*I prefer grasscutter because I already have some experience/knowledge in small ruminants' production.*

The results further show that 1.4% of the respondents did not make the choice of any livestock species, but rather prefer that their capacity be built-in livestock management since they are already involved in livestock management. Also, 4.8% of the respondents said they will welcome any support from the project if that support is geared towards improving their livelihood. This means that these respondents are indifference as to the type of support they want, but that support should be one which will improve their livelihood. Furthermore, 4.6% of the respondents want

their education to be supported by the project. They, however, did not give which form the support should be. In addition, other comments summed up to 4.3%. These categories were not really choices but a form of prayer and hope. It includes comments such as "I am very happy for the project", "May God support us all", "I hope this initiative will not just end at the survey level", etc. Finally, 21.7% of the respondents made no comments as to whether they prefer to rear sheep, goats or both, grasscutters, capacity building, livelihood improvement or support of their education.

### Contacts with AEAs or Community Livestock Workers

The results show that 48.3% of the respondents said they have contacts with the AEAs or community livestock workers while 51.7% did not have any contacts with these service providers. Of those who had contacts with the service providers, the frequency of visits was quite good because 21.9% of the respondents reported that they have contacts with these service providers monthly. A significant percentage, 14.4 and 15.6% of the respondents reported that they have contacts with the service providers once and twice a year, respectively. In another breath, 18.8% of the respondents said they have contact with the service providers quarterly. Figure 2 illustrates the various frequency of visits by AEAs and community livestock workers. AEAs and community livestock workers play three (3) major roles when they visit farmers in these communities. These roles include treatment of animals, vaccination and training. The results show that 84.7 and 14.7% of the respondents have their animals treated and vaccinated, respectively when visited by these service providers, whereas 0.7% of the respondents received training from them.

**Table 7.** Results of the logit regression.

| Variable              | Co-efficient | Standard Error |
|-----------------------|--------------|----------------|
| Education             | 0.789*       | 0.448          |
| Age                   | -0.072       | 0.068          |
| Sex                   | -1.247***    | 0.324          |
| Marital status        | 0.381        | 0.648          |
| Savings               | 2.383***     | 0.583          |
| AEA contact           | 3.269***     | 0.558          |
| Test diagnosis        |              |                |
| LR Chi2 (6)           | 145.01       |                |
| Prob>Chi2             | 0.000        |                |
| Log Likelihood        | -125.65      |                |
| Pseudo R <sup>2</sup> | 0.3659       |                |

\*=Significant at 10%, \*\*\*=Significant at 1%.

**Table 8.** Marginal effects of explanatory variables on livestock production.

| Variable       | dy/dx   | Standard Error |
|----------------|---------|----------------|
| Education      | 0.0813  | 0.0554         |
| Age            | -0.0063 | 0.0060         |
| Sex            | -0.1092 | 0.0343         |
| Marital Status | 0.0334  | 0.0568         |
| Savings        | 0.2086  | 0.0508         |
| AEA Contact    | 0.3010  | 0.0466         |

Average probability of engagement in livestock production= 0.90.

The frequency of visits by the extension workers could be influenced by the distance from the MoFA office to the various communities. The distance of the communities to the nearest Ministry of Food and Agriculture (MoFA) office was estimated by respondents based on the location of the community. All the communities are located at few distances from the main feeder road that links Savelugu and Nantong. However, the communities are quite closer to Nantong except Kpachilo that is somewhat at the middle of Nantong and Savelugu. Nantong and Savelugu are separated by a fourteen (14) Km distance.

The MoFA office is located at the district capital, Savelugu. Kpachilo and Kpano communities are the nearest and furthest to the nearest MoFA office as the distance between these two communities and the MoFA office is 7 and 13 km, respectively. Also, Afayili community which is separated by about 1 Km from Gbumgbum community are 10 and 9 Km away from the MoFA office, respectively.

### Factors Influencing Educated Youth into Livestock Production

The logit estimates of the factors influencing youth involvement in agriculture, especially livestock production, are presented in Table 7 and 8. The socio-economic variables included in the model are

education, age, gender, marital status, savings and contact with the AEA. Thus, the decision of the youth to engage in or not to engage in livestock production was regressed on those socio-economic variables. The regression results (Table 7) show a Likelihood Ratio Statistic value of 145.01 which is significant at 1%. This indicates that the decision to or not to engage in livestock production is jointly explained by the explanatory variables. The logit regression (Table 7) provides an estimated pseudo R<sup>2</sup> value of about 0.37 which implies that all the explanatory variables included in the model were able to explain about 37% of the probability of the decision of the youth to engage in livestock production. The results have shown that education (significant at 10%), savings and contact with AEA (both significant at 1%) have positive effects on engagement in livestock production. Gender (significant at 1%) on the other hand has negative effects on youth's engagement in livestock production.

The results further show that engagement in livestock production is not sensitive to the age and marital status of the youth. The results are contrary to (FAO, 2013) who found that age-appropriate tasks couple with responsibilities that are of lower risk can improve the experience level of the youth. However, the signs of the coefficients give an indication of the direction of influence despite their statistical insignificance. The coefficient of age is negative indicating that, youths are

less likely to produce livestock as compared to elderly people. This is theoretically consistent since younger individuals are often engaged in other non-agriculturally related ventures other than agriculturally related ones. The coefficient of marital status is positive which implies that couples are more likely to engage in livestock production. Married individuals often have social problems that require more financial needs. Such farmers will, therefore, have financial problems that would enable them to explore livelihood options including the production of livestock. The result further indicates that the coefficient of the variable, education was positive. This implies that youth who are educated or attain some level of education are more likely to be engaged in livestock production. This result agrees with Etwire et al. (2013) who posited that educated farmers are mostly engaged in agriculture. Additionally, the marginal effect value shows that any additional year of education attained by a boy or girl in the community increases the probability of engaging in livestock production by about 8%. Our a priori expectation, in this case, has been met. In rural settings, parents do not foresee the full potential to spend a lot in educating their children. For this reason, children who are students double as farmers in the production of livestock as an insurance cover for their future educational needs. Diao et al. (2017) argue that as rural youth become more educated, different technology packages are needed for agricultural intensification to be attractive to them. The gender of the farmer, though significant, did not conform to the a priori expectation. It had a negative influence on the decision to be engaged in livestock production. Thus, a farmer is less likely to be engaged in livestock production if the farmer is a male. More importantly, for boys who attain age 14, the probability that they will engage in livestock production decreases by about 10.9%.

The reason is that most male farmers use a significant portion of their time in the cultivation of crops than they use in livestock production. Thus, more female farmers are engaged in livestock production than they are engaged in crop production. In addition, young males are able to explore other livelihood options such as carpentry and masonry. This limits their time spent on livestock production. This is in line with Abdullahi et al. (2015). The relationship between savings and engagement in livestock production was expected. Savings made by the youth farmers had a positive influence on the decision to be engaged in livestock production. That is youth farmers who save are more likely to be engaged in livestock production than those who do not save. As savings of the youth increases, the probability that they will invest in livestock production increases by about 20.9%. This revelation confirms with Löwe (2017) who found that young people of at least 15 years are more likely to invest in livestock having made some money working on their parents' farm or as hired or by-day labour. The sources of income were found to be from wages.

Wages were made by working in other peoples' farms mostly known as "by- day". The mode of savings were mostly in the form of "home savings" and in mobile money accounts. This was expected as they had no access to save in rural banks and other micro-finance institutions. Having contact with AEAs met the a priori expectation of positive relationship and was found to be significant at 1%. This means that youth farmers who depend on information from an AEA are more likely to be engaged in livestock production than those who do not rely on the AEAs. As more often AEAs visit the communities in the study District, the probability of youth having the interest and engaging in livestock production increases by about 30%. Information dissemination is usually in the form of livestock management strategies such as keeping animals surrounding clean, regular vaccination and treatment, good feeding methods among others. On the contrary youth farmers in cocoa-growing areas of Ghana did not have access to extension services (Löwe, 2017). But Etwire et al. (2013) and Abdullahi et al. (2015) result in extension contact by farmers is in line with the result of this study.

## CONCLUSION AND RECOMMENDATION

It is concluded that the youth plays an important role in livestock management, from helping their parents to owning their own animals. We observed that access to land for expansion of livestock farms for those who already own animals and for start-ups is not a difficulty. We also conclude that those people who have access to education, save some amount of income for their livestock production activities and have contact with AEAs are more likely to engage in livestock production. Therefore, despite the youth envisaging to be engaged in other white colour jobs in the future, they have stated not to reject livestock production wholesale. We recommend that livestock development policies that target the adults should include the youth. The youth can serve as counterfactuals in measuring the weaknesses or otherwise of the adults in livestock development projects. Also, skills training and mentorship programmes, such as Junior Farmer Field and Life Schools (JFFLS), on techniques of livestock production should be provided to the youth in order to build their capacity. Building their capacity, through appropriate tailor-made pieces of training, would help them to manage their own futures.

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## RESEARCH LIMITATION/IMPLICATION

The research was on youth engagement in agriculture. But the major problem was how various organizations or divisions have defined who youths are. In our context, we considered the age range of 14 to 24. In other jurisdictions, the age range of up to 35 is considered as a youth. This made it difficult in writing the literature review as some important literature concerning this study could not be included. Also, because of questionnaire fatigue, we limited the questionnaire only to livestock production. It would have been more interesting if questions about their crop involvement were asked.

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