

*Full Length Research Paper*

# **Cavies for income generation, manure for the farm and meat for the table**

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**This study was carried out in the Western Highlands of Cameroon (WHC) to determine the motivations and contributions of cavy production to the livelihoods of cavy farm families. The sample was made up of 250 cavy farmers who were selected through the snowball sampling technique. The data was collected by the use of a pre-tested structured questionnaire. The results revealed that cavy keeping is being practised by low income persons of all age categories (ranging from 09- 90yrs) with most of the keepers between 36 and 65 years of age. They are slightly more females (54%) than males with a large majority being able to read and write (with men having an edge over the women). Religion was not a restriction to cavy keeping. Cavies are valuable species as they improve on the livelihoods of cavy farm families. Cavies rearing motivations are for income generation (45%), manure (30%), consumption (20%) and company (5%). The income generated is used in the provision of planned and emergency household needs and the manure produced is either sold or ploughed onto the family farms for crop production.**

**Key words:** Cavies, rearing motivations, livelihood amelioration, western highlands Cameroon.

## **INTRODUCTION**

Cavies are valuable species that can improve on the livelihoods of smallholders (Lammers *et al*, 2009). Food security is greatly threatened as growing populations implies more demand for land, water and food (IFAD, 2011). As such, global poverty and food insecurity continue to remain critical issues (Lammers *et al*, 2009). Moreover, food security in most parts of Africa remains a real challenge; especially when quantity and quality of animal food source is concerned. Regular supply of small quantities of animal protein on the other hand, has proved to be crucial for adequate physical and cognitive development of children and adults (Grillenberger *et al*, 2006). Larger conventional animal species (cattle, sheep, goat and poultry) cannot meet the protein deficiency gap

because their multiplication rate is not commensurate with rapid increase in human populations (Dikko *et al*, 2009). The natural resources on which agriculture is based (land and water) above all are becoming degraded and there is growing competition for their use (IFAD, 2010 rpr)

Cavies are promising mini livestock species as they require little capital or labour for keeping, provide an inexpensive readily available meat that is odourless and are suitable for keeping indoors (NRC 1991). Cavy breeding assures a food security margin of about 87% and 46% as source of income for its breeders (Ngoupayou *et al*, 1995). Therefore published research information on cavies under different ecological and socio-economic conditions is needed to clearly show that the raising of cavies is one way for farmers to raise income, inexpensively produce meat for home consumption and produce organic manure for backyard

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**Table 1:** Socio-economic characteristics of cavy farmers

| Characteristics              | Number of farmers | Percentage of farmers |
|------------------------------|-------------------|-----------------------|
| <b>1. Sex</b>                |                   |                       |
| Male                         | 115               | 46.00                 |
| Female                       | 135               | 54.00                 |
| <b>2. Age (in years)</b>     |                   |                       |
| Below 15                     | 19                | 7.66                  |
| 16-25                        | 34                | 13.71                 |
| 26-35                        | 25                | 10.08                 |
| 36-45                        | 49                | 19.76                 |
| 46-55                        | 43                | 17.34                 |
| 56-65                        | 41                | 16.53                 |
| 66 and above                 | 37                | 14.92                 |
| <b>3. Level of Education</b> |                   |                       |
| None                         | 66                | 28.70                 |
| Primary                      | 91                | 39.57                 |
| Secondary                    | 56                | 24.35                 |
| Higher school                | 11                | 4.78                  |
| Higher education             | 6                 | 2.60                  |

Source: Field survey, 2012

crop production (Nuwanyapka, 1997). The objective of this paper is to show the motivations of cavy rearing and the contribution of cavy production to the livelihoods of cavy farm families in this zone.

## METHODOLOGY

### Location

The geographical references of the Western Highlands of Cameroon are latitudes 5° 20' and 7° North and longitude 9°40' and 11°10' East of the Equator (Nchinda and Mendi, 2008) made up of the West and North West Regions of Cameroon. Elevations reach as high as 3011m and as low as 500m above sea level, with the highest points being Mt. Bamboutos 2740m in the West Region and Mt. Oku 3011m in the North West Region. The climate is marked by a short dry season from November to mid March and a long rainy season from mid March to October. Rainfall ranges between 1300-3000 mm with a mean of 2000 mm. Minimum and maximum temperatures have means of 15.50°C and 24.5°C, respectively; although temperatures can go above 30°C. Three types of soils exist in the western highlands: volcanic, hydromorphic and ferralitic soils. The human population is estimated at 1.82 million inhabitants, being one of the highest population densities in the country, with at least 79 inhabitants per km<sup>2</sup> and a population growth rate of 3.1% (Nchinda and Mendi, 2008).

### Data collection and analysis

Data was collected by the use of a structured pretested

questionnaire from 250 cavy farmers in the study zone. The sampling technique used was the snowball sampling technique. Uneven responses were recorded. The data was analysed using the statistical package for the social sciences and the Chi square and T tests were used to show for significant differences where they occurred.

## RESULTS AND DISCUSSIONS

### Socio-economic characteristics of the respondents

The socio-economic characteristics are presented in table 1. The results showed that cavy farming is carried out by both men and women of all age groups (9 to 90 years). Thus, this is an indication that cavy keeping is an activity carried out by people between the young and elderly age groups. The greater majority (71.30%) of the respondents had some education. Education levels varied from no education to some university education. The survey revealed that religion was not a restriction to cavy keeping as Muslims, Christians and those practicing traditional religions keep cavies. Furthermore, the majority (58.59%) of the respondents were farmers by occupation. Respondents that were still in-school represented 14.98% and those retired 3.96%. Thus it could be concluded that cavy keeping is an activity from which income is raised for the payment of school fees, the provision of academic needs and also a retirement activity from which income is generated for household usage. Monthly household income levels of the respondents revealed that the majority (62.92%) of the respondents were low income level earners with less than 50 000 FCFA/month (USD 100). This is consistent with Nuwanyapka *et al*, (1997) findings which showed

**Table 2:** Purpose for cavy keeping

| Purpose            | Frequency (Main purpose) |            | Frequency (secondary purpose) |            |
|--------------------|--------------------------|------------|-------------------------------|------------|
|                    | Frequency                | Percentage | Frequency                     | Percentage |
| Sale (Cash Income) | 110                      | 44.53      | 96                            | 39.18      |
| Consumption        | 49                       | 19.84      | 73                            | 29.80      |
| Manure             | 74                       | 29.96      | 68                            | 27.76      |
| Company (pet)      | 14                       | 5.67       | 8                             | 3.27       |
| Total              | 247                      | 100.00     | 245                           | 100.00     |

Source: Field survey, 2012.

that cavy keeping is a secondary family activity carried out by low-revenue smallholder farmers. Some of the respondents (2.54%) were very high income level earners, earning more than 500 000 FCFA/month (USD 1000) thus it could be concluded that cavy keeping has no income class restriction.

### Purpose for cavy keeping

The responses provided by the respondents concerning their purposes for cavy rearing are shown in Table 2. Almost 45% of the farmers keep cavies for sale (income generation). As such, cavies serve as excellent sources of supplementary income for small holder farmers (Manjeli *et al*, 1998). About 30% keep cavies for manure production for backyard crop production and/or for sale to other farmers. Cavy manure is an excellent fertilizer for farm use (Hardouin, 1991). Almost 20% keep cavies for consumption as meat that is lean and palatable. Its meat is of high value due to its low cholesterol and high protein level compared to chicken, beef and lamb (Rico-Numbela and Rivas-Valencia, 2003). Approximately six percent of the respondents keep cavies as pets.

Table 2 shows that almost 45% of the respondents keep cavies for cash income (through sales) as main purpose, followed by approximately 30% for manure, and 20% for consumption. For the second most important purpose for which the sampled farmers keep cavies, about 39% said they keep cavies for cash income, 30% for consumption, and 28% for manure. These results imply that cavy keeping can be a veritable source of income for farmers; this is consistent with Manjeli *et al.*, (1998) findings which reported that cavies serve as excellent sources of supplementary income for smallholder farmers. Cavy keeping is also very useful as it generates rich organic manure that is used to improve farm output as 29.96% of the respondents keep cavies for manure generation besides being a source of income. This is consistent with Hardouin *et al.*, (1991) which reported that cavy manure is an excellent fertilizer for farm use. Cavy keeping serves as a veritable source of animal protein for the cavy keeper's family as 19.84% of the respondents keep cavies for consumption as quality meat. This is consistent with Numbela-Valencia (2003) and Egena *et al.*, (2010) that reported that cavies

produce meat of very high quality. Secondary reasons for keeping cavies were the same as primary reasons although with minor difference in rankings.

### Cavy flock inventory

Cavy flock inventory of the respondents revealed for about 4400 cavies that the starting cavy flock ranged from one cavy to 30 cavies, with the modal starting cavy flock being two (a male and a female). The majority of the respondents (59.20%) admitted to have bought their starting cavy flock from either friends or neighbouring markets. It was observed that 2.80% of the respondents received their starting flock from either the government or non-governmental development organisations as loans or gifts. Thus, it can be concluded that little attention is paid to cavy culture in the western highlands by the government and non-government developmental organizations. The rural poor started their cavy farm by purchasing the starting flock themselves.

### Contribution to livelihood

The respondents see cavy production as a veritable livelihood ameliorating activity. To them it requires little man power, space, small starting capital and equipment. When all of these are put together in cavy farming, income is generated for the wellbeing of the farm household, organic manure is provided for farmland improvement and meat that is lean and palatable for consumption is provided for the table. Figure 1 shows the perception of cavy production according to these cavy farmers.

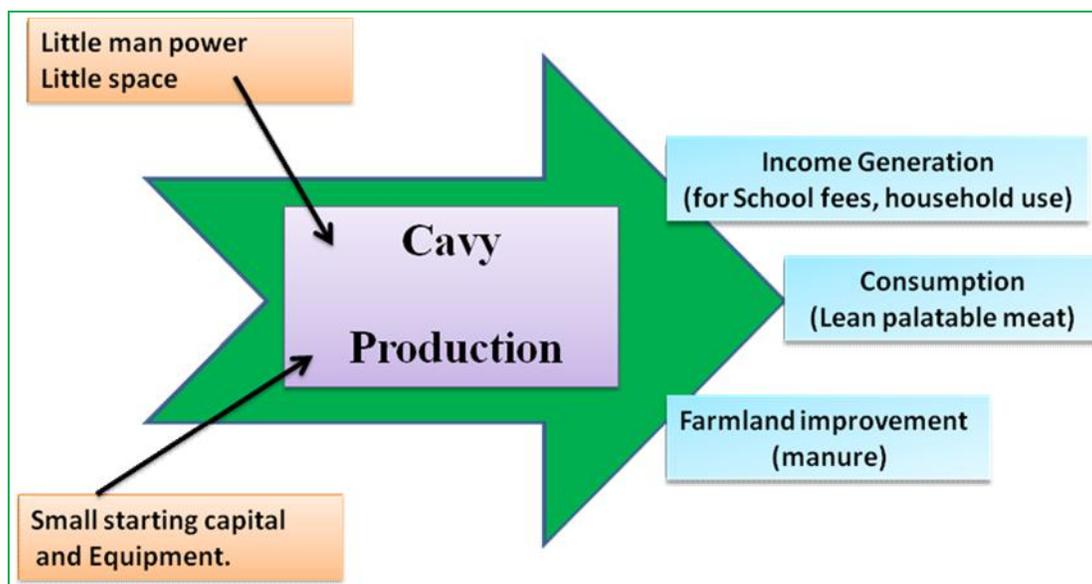
A regression analysis was also used to determine the effect of some socio-economic factors on the income levels of the cavy farm families. The socio-economic factors verified were: the farmer's gender, age, level of education, cavy farming experience, cavy flock size, family size and the farmer's principal activity.

$$\text{Implicitly } Y_1 = f(X_1, X_2, X_3, \dots, X_7) + \mu$$

$$\text{Explicitly } Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \mu$$

Where,

Figure 1: Perception of cavy production in the western highlands of Cameroon



Source: Field survey, 2012

$Y_i$ : Income level of the cavy farmer.  
 $X_1$ : Gender of the cavy farmer.  
 $X_2$ : The cavy farmer's age.  
 $X_3$ : Level of education of the cavy farmer.  
 $X_4$ : The farmer's experience in cavy farming.  
 $X_5$ : The farmer's cavy flock size.  
 $X_6$ : The cavy farmer's family size.  
 $X_7$ : The principal activity (occupation) of the cavy farmer.  
 $\beta_i$ : Coefficients of the regression.  
 $\mu$ : Error term.

The following results were obtained:

$$Y_i = 0.817 - 0.046X_1 - 0.002X_2 + 0.296X_3 + 0.002X_4 + 0.003X_5 + 0.076X_6 - 0.034X_7$$

(0.348) (0.106) (0.003) (0.050) (0.007) (0.003)  
 (0.022) (0.024)

NB: values in parentheses are standard errors

Results from the analysis show that positive relationships exist between the cavy farmer's household income ( $Y_i$ ) and the cavy farmer's: Level of education ( $X_3$ ); Cavy flock size ( $X_5$ ); Family size ( $X_6$ ); and Principal activity or occupation ( $X_7$ ). That is the higher the level of education the more the income the farmer generates. For cavy flock size; the bigger number of herds, the higher the income generated. Since members of the household provide labour towards cavy keeping the larger the family size so is their involvement in cavy keeping and thus more income is generated. For the principal activity of the cavy keeper, the more time he or she devotes to cavy rearing the more income is generated. Thus, the cavy farm

family's household income is influenced positively by the socio-economic factors (level of education, cavy flock size, family size and occupation) of the cavy farmer.

### CONCLUSION

Cavies are produced by both males and females; with women and children making the majority. In the study zone, principal motivations for keeping cavies are for income generation, manure and meat production. However, some farmers keep cavies just for the company, Thus, cavy farming is a veritable livelihood ameliorating activity as its keepers are able to raise income for the provision of planned and emergency household needs by selling the cavies and/or their manure; dietary protein content is increased for cavy consumers as cavy meat is very rich in proteins.

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