

A socio-economic assessment of cavy production in the Western Highlands of Cameroon

Yiva, C. H.

Department of Agricultural Economics, Faculty of Agronomy and Agricultural Sciences,
University of Dschang, B.P. 96 Dschang, Cameroun

Corresponding author: ycherman@yahoo.com

ABSTRACT

The general objective of this study was to improve the livelihoods of cavy farmers in the Western highlands of Cameroun by describing their socio-economic characteristics, identifying cavy market chains, estimating the contribution of cavy production to livelihood and identifying specific constraints to increased cavy production. Data were collected from 250 cavy farmers and 12 cavy traders by the use of structured pretested questionnaires. The computer program SPSS was used for data analysis. The results revealed that people of all age groups keep cavies, but majority were women. Motivations for cavy keeping were for income generation, manure and meat production. Cavy markets exist and cavy traders play a central role in cavy production and marketing. Challenges farmers face include: inbreeding, seasonal lack of forages and inadequate finances. Despite these, cavy farming remains a key source of income and a sustainable livelihood amelioration mechanism for smallholder.

Key words: Houshold income, protein intake, smallholder farmers, traders, women

Résumé

L'objectif général de cette étude était d'améliorer les conditions de vie des éleveurs de cobaye dans les régions à haute élévation du Cameroun, en évaluant leurs caractéristiques socioéconomiques, les chaînes de commercialisation, la contribution de la production aux moyens de subsistance. Les données ont été collectées auprès de 250 producteurs et de 12 commerçants à l'aide de questionnaires structurés pré-testés. Le programme informatique SPSS a été utilisé pour l'analyse des données. Les résultats ont révélé que les personnes de tous âges conservent les cobayes, mais la majorité est des femmes. Les motivations pour l'élevage des cobayes comprenaient la génération de revenus, le fumier et la production de viande. Les marchés des cobayes existent et les commerçants jouent un rôle central dans la production et la commercialisation des cobayes. Les défis auxquels les agriculteurs sont confrontés sont les suivants: consanguinité, manque de fourrage saisonnier et manque de moyens financiers. Malgré cela, l'élevage des cobayes reste une source essentielle de revenus et un mécanisme d'amélioration durable des moyens de vie pour les petits exploitants.

Mots clés: revenu des ménages, apport en protéines, petits exploitants agricoles, commerçants, femmes

BACKGROUND

About 13% of the world's population are chronically undernourished with 200 million children under the age of five suffering from protein and energy deficiencies in a world that can produce sufficient food for every one (AusAID, 2004). World population was estimated at 7 billion in 2012 and expected to reach 9.1 billion by 2050, highlighting the challenge for global food security and expected increasing demand on land, water and food (IFAD, 2011). International food prices doubled between 2006 and 2008 further exacerbating food production challenges, particularly the need for proteins. It is calculated that feeding a global population of just over 9 billion will require a 70% increase in global food production, while ensuring food security for all will require improvement in smallholder agriculture (IFAD, 2010). Global poverty and food insecurity continue to remain critical issues, especially in rural areas. Developing and fostering agricultural systems that will both increase food availability while ensuring conservation of the environment remains a challenge (Lammers *et al.*, 2009). Larger conventional animal species (cattle, sheep, goats, pigs and poultry) fail to meet the required animal protein intake gap (Dikko *et al.*, 2009). Cavies (*Caviidae* spp.) are promising mini livestock species for food security and wealth creation (Ngoupayou *et al.*, 1995) and thus, could be used in reducing the animal protein intake gap and for wealth creation.

Extension and research on cavy production are still lacking in many countries due to traditional emphasis on larger domestic animals. Cavy keeping is ignored by scientists, extension agents, agricultural sector decision makers and state institutions in most African countries. Despite these, the cavy has a great potential in livelihood improvement of smallholder (Lammers *et al.*, 2009). Published research information on cavies under different ecological and socio-economic conditions is needed in Cameroon to show that raising cavies is one way for farmers to inexpensively produce meat for home consumption or for sale and that cavy manure is a valuable source of organic fertilizer for backyard crop production (Nuwanyakpa *et al.*, 1997). This study therefore sought to answer the following questions: What are the socio-economic characteristics of cavy farmers in the western highlands of Cameroon? Which are the existing cavy market chains in this zone? Of what contribution is cavy production to the livelihoods of cavy farm families in this zone? What are the constraints to increased cavy production? Therefore, the objective of the study was to a) describe the socioeconomic characteristics of cavy farmers in the Western highland of Cameroon (WHC); b) identify cavy market chains; c) determine the effect of socioeconomic factors on income level of cavy farm families; and d) identify specific constraints to increased cavy production in WHC.

METHODOLOGY AND APPROACHES

This study was conducted in the Western Highland agro-ecological zone of Cameroon. This zone is located between latitudes 5° 20' and 7° North and longitude 9° 40' and 11° 10' East of the Equator (Nchinda and Mendi, 2008) and is made up of the West and North West Regions of Cameroon.

The Snowball sampling technique was used as cavy farmers have still not yet been identified in the WHC. In all 250 cavy farmers were sampled, 175 from the North West and 75 from the West regions of Cameroon. Upon availability, 12 cavy traders were sampled in the West region of the WHC as cavy trading is very periodic in the North West region. Table 1 gives a summary of the objectives of the study and methods used in attaining them.

Table 1. Summary of objectives and methods used to realize them

| Objectives | Methods |
|--|---|
| To describe the socio-economic characteristics | Using structured pretested questionnaires on cavy farmers |
| To identify cavy market chains | Inquiries and informal discussions with cavy producers, traders and consumers Using a structured questionnaire on cavy traders |
| To estimate the effect of socioeconomic income level of cavy farm families | Using the pretested structured factors on questionnaire. Informal discussions with cavy farmers |
| To identify specific constraints to increased production | Interview with key cavy production cavy informants. |

RESULTS

Socio-economic characteristics of cavy farmers. The socio-economic characteristics studied were age, gender, level of education, religion, occupations, cavy keeping motivation and income levels. Some of these characteristics are presented in Table 2. The results showed that cavy farming is carried out by both men and women of all age groups (9 to 90 years), an indication that cavy keeping is an activity carried by both the young and elderly people. The majority (71.30%) of the respondents had some education. Education levels varied from no education to some university education. Cavy keeping motivations were largely for income generation (44.53%), however other motivations were for manure production (29.96%) and consumption (27.76%).

The survey revealed that religion was not a restriction to cavy keeping as Muslims, Christians and those practicing traditional religions kept 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 and the provision of academic needs and also as a retirement activity. Monthly household income levels of the respondents revealed that the majority (62.92%) of the respondents were low income level earners with less than USD 100 per month. This is consistent with Nuwanyakpa *et al.* (1997) who reported 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 USD 1000.

Table 2. Socio-economic characteristics of cavy farmers

| Characteristics | Number of farmers | Percentage of farmers |
|--------------------|-------------------|-----------------------|
| Sex | | |
| Male | 115 | 46.00 |
| Female | 135 | 54.00 |
| Age (in years) | | |
| 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 |
| Level of Education | | |
| None | 66 | 28.70 |
| Primary | 91 | 39.57 |
| Secondary | 56 | 24.35 |
| Higher school | 11 | 4.78 |
| Higher education | 6 | 2.60 |
| Keeping motivation | | |
| Sale | 110 | 44.53 |
| Manure | 74 | 29.96 |
| Consumption | 49 | 19.84 |
| Company (pet) | 10 | 4.05 |



Picture 1. Woman and child holding their cavies



Picture 2. Cavies farmed on the floor of an abandoned building.

Cavy markets. Twelve cavy traders were interviewed in the West region of the WHC. Their socio-economic characteristics revealed that men made up the majority (66.67%). The ages of the traders ranged between 19 and 48 years. The sampled traders had a great mastery of cavy marketing as trading experience ranged from three to 15 years with average

experience being nine years. Bangang, Bansoa and Batcham village markets were the key markets from which traders sourced the cavies they traded. They also travelled out of the WHC to towns (Yaoundé and Douala) in other agro-ecological zones to sell cavies. Figure 1 shows the central role which cavy traders play in production and marketing of cavies in the WHC, while Figure 2 shows the cavy value chain in the WHC.

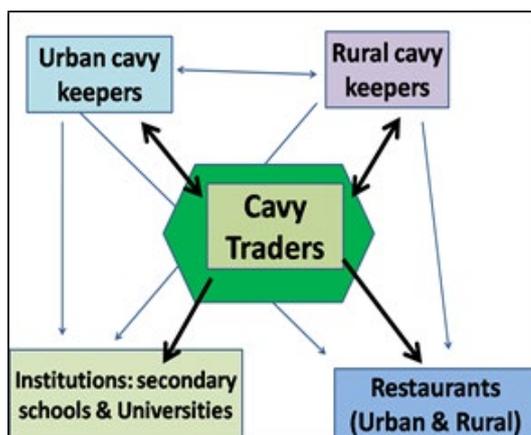


Figure 1. The central role played by cavy traders in cavy marketing in the Western highland of Cameroun
Source: Survey results, 2012.

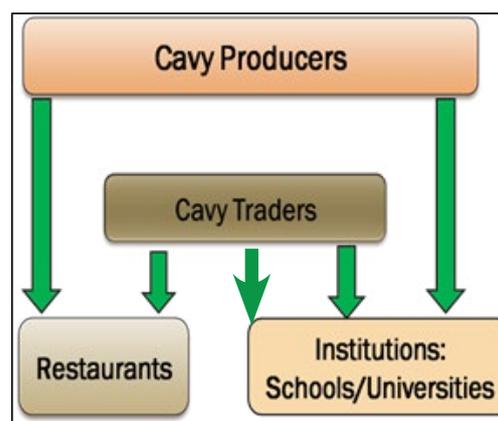


Figure 2. Cavy channels in the Western highland of Cameroun

Effects of socio-economic factors on income. A regression equation was used to estimate the contribution of socio-economic factors (sex, age, level of education, cavy farming experience, cavy flock size, family size and respondents’ occupation) on the respondents’ monthly household income. The results revealed that positive relationships existed between the monthly household income levels of cavy farmers and the: level of education of the cavy farmer, the cavy farmer’s flock size, the cavy farmers’ family size and the principal activity of the cavy farmer. Figure 3 provides a glimpse of cavy keeping in the WHC according to the respondents.

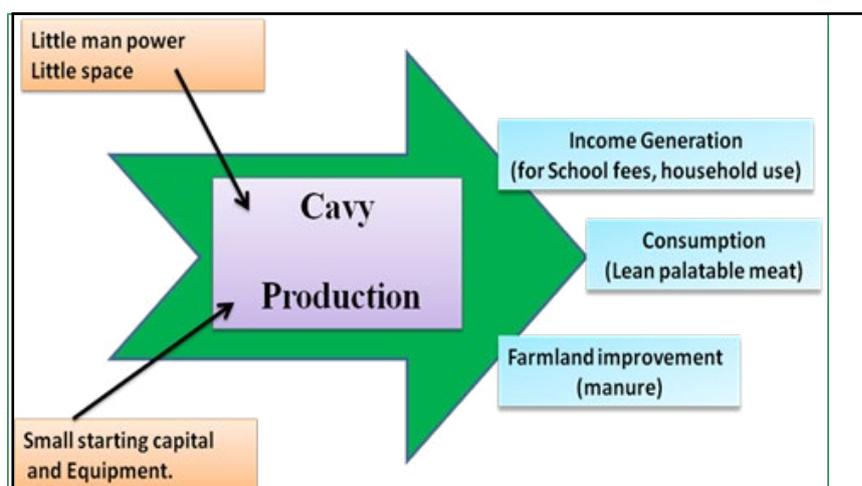


Figure 3. Respondents’ perception of cavy keeping in the Western highland of Cameroun

Constraints to increased cavy production. The constraints to increased cavy production that the respondents faced are: Inbreeding and unexplained mortalities, seasonal lack of forages, and inadequate finances.

DISCUSSION

Cavy production was carried out by both males and females of all ages (active or retired). It was however, commonly carried out by women and children. Some of the cavy farmers were literate while others were not. Cavy farming has existed for more than four decades with principal motivation of income generation, followed by manure and consumption, respectively. Cavies were generally fed with local forages and off-cuts from various crops, fruits and tree leaves. Most cavy farmers were low income level earners. Cavy markets existed and cavy trading was a profitable but tedious activity, possibly why most cavy traders were men. Cavy traders played a central role in the production and consumption of cavies within and outside the WHC. Level of education of the cavy farmer, the cavy farmer's flock size, the cavy farmers family size and the principal activity of the cavy farmer all had positive effects on the cavy farmer's household revenue. Thus, Cavy production has a positive contribution to the livelihoods of cavy farm families.

Cavy farmers in general faced two types of problems: production related problems and marketing related problems. For production related problems the following were identified:

- Little or no technical knowledge on cavy farming available
- Inbreeding as farmers fail to replace their parent stock
- Predation by cats and dogs as lodgings are poorly constructed (when they exist) as most often cavies are produced on kitchen floors that have cracks in walls, doors and windows which these predators use to prey upon the cavies
- Inadequate veterinary care by veterinary service providers
- Lack of steady, reliable and profitable markets
- Exploitation of cavy producers by cavy traders

CONCLUSION

Cavy production is a lucrative business which has a positive contribution to the livelihoods of Cavy farmers. The study recommends that farmers consider production and trade in groups to increase their bargaining power, and capacity to negotiate with traders and other buyers. Also by grouping themselves cavy farmers would benefit from experience and knowledge sharing which would in turn improve on their cavy production techniques.

ACKNOWLEDGEMENTS

The study was funded by the Australian Agency for International Development

(AusAID) through the project “Harnessing husbandry of domestic cavy for alternative and rapid access to food and income in Cameroon and the eastern Democratic Republic of Congo.”

REFERENCES

- Australian Agency for International Development (AusAID), 2004. Food Security Strategy. Accessed from website www.ausaid.gov.au/publications on the 13/03/13.
- Dikko, A.H., Egena, S.S.A., Malik, A.A. and Ibrahim, H. 2009. Guinea pig (*Cavia porcellus*) as an untapped protein source for man: The potentialities, opportunities and challenges. Proceedings of 14th Annual Conference of Animal Science Association of Nigeria (ASAN), 14th-17th September 2009, LAUTECH Ogbomoso, Nigeria.
- Hardouin, J., Demey, F. et Fransolet, M.F. 1991. Le cobaye, *Cavia porcellus* L., animal de boucherie en pays tropicaux. *Annales de Gembloux* 97: 69-80.
- International Fund for Agricultural development (IFAD). 2011 “The future of world food security” Accessed from: www.ifad.org/pub/index.htm on the 28/03/12.
- International Fund for Agricultural Development (IFAD), 2010. Rural poverty report. Accessed from: www.ifad.org/rpr2010 on the 13/03/12.
- Lammers, P.J., Sarah, L.C., Gretchen, A. Z. and Mark, S. H. 2009. Reducing food insecurity in developing countries through meat production: the potential of the Guinea pig (*Cavia porcellus*). *Renewable Agriculture and Food Systems* 24 (2): 155-162.
- Nchinda, V.P. and Mendi, S.D. 2008. Factors influencing the adoption of yoghurt technology in the Western Highlands Agro-ecological zone of Cameroon. *Livestock Research for Rural Development* 20 (7):1-6. Accessed from <http://www.lrrd.org/lrrd20/7/nchi20102.htm> on 22/03/2012.
- Ngoupayou, J.D., Kouonmenioc, N.J., Tagny, J. M. F., Cicogna, M., Castroville, C., Rigoni, M. and Hardouin, J.1995. Possibilités de développement de l'élevage du cobaye en Afrique subsaharienne: le cas du Cameroun. *World Animal Review FAO/AGA* 83 (2): 20-28.
- Nuwanyakpa, M., Lukefar, S.D., Gudahl, D. and Ngoupayou, J.D. 1997. The current stage and future prospects of guinea pig production under smallholder conditions in West Africa; 2. Cameroon. *Livestock Research for Rural Development* 9 (5):10. accessed from <http://www.cipav.org.co/lrrd/lrrd9/5/gp951.htm> on the 15/04/2012.