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Short Communication

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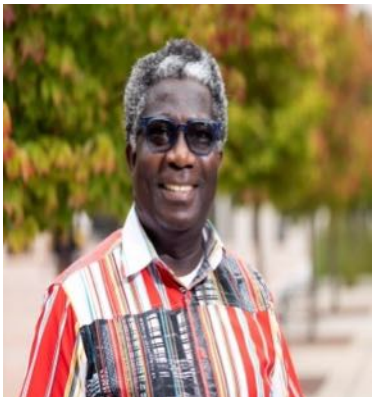
GUINEA FOWL PRODUCTION: THE POTENTIAL FOR NUTRITION AND INCOME GENERATION IN RURAL HOUSEHOLDS IN BURKINA FASO

Anderson AK[1*], Nianogo AJ[2], Some S[3], Pousga S[2] and WS Kisaalita[4]



Alex Kojo Anderson

Corresponding author email: fianko@uga.edu

[1]Department of Nutritional Sciences, College of Family and Consumer Sciences, University of Georgia, Athens, Georgia, USA

[2]Department of Livestock Production, Institute of Rural Development, Nazi Boni University, Bobo-Dioulasso, Burkina Faso

[3]Africa's Sustainable Development Council (ASUDEC), Ouagadougou, Burkina Faso

[4]3p Innovations Laboratory, College of Engineering, University of Georgia, Athens, Georgia, USA

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ABSTRACT

Small-scale poultry keeping is a common practice particularly among low-income households in sub-Saharan African countries. Due to the limited resources of these households, the flock is raised on a free-range basis, where the birds are left to fend for themselves, mostly affecting their performance. Well-structured poultry farming among these low-income households has the potential to improve not only the financial standing, but also the nutrition and health of the households. The purpose of this survey was to understand existing household food practices and aspirations for expanded poultry business among mothers of young children involved in smallholder guinea fowl farming in Burkina Faso. This was a cross-sectional study of a convenience sample of women engaged in small-scale poultry. A semi-structured questionnaire was used for data collection. Questionnaire for data collection was administered in a face-to-face interview format by trained research assistants. All interviews were conducted in MORE, the predominant language spoken in the study area. Descriptive analysis was performed using Microsoft Excel and reported as frequencies and percentages for categorical variables, and means for continuous variables. One hundred and fifty women with children under 5 years of which 98.7% were the biological mothers participated in the study. About 68% of participants were 28 years or older, 45% have no formal education and 30% had 6 or more children in the household. Although over 58% of participants reported household income from agriculture, only 8.7% was livestock related. About half of the participants reported they would market/sell products from expansion of guinea fowl farming to raise additional income to support the household, while another half would use some of the meat and eggs to improve the nutrition of the household. Findings from this study suggest mothers from low-income rural households are interested in income-generating avenues, particularly, expansion in their smallholder guinea fowl farming to improve the socio-economic standing and nutritional health of their household.

Key words: Guinea Fowl Production, Low-income Households, Nutrition, Nutritional Health, Poultry

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INTRODUCTION

Although global food security has been on the decline since the last decade, low- and middle-income countries (LMICs) are disproportionately affected [1]. Evidence show a global burden of all forms of malnutrition [1]. Even though there has been some progress towards reducing the impact of malnutrition, wasting and stunting continue to be a major public health problem in LMICs, particularly countries in sub-Saharan Africa [2,3].

In LMICs, single parent households, especially those headed by women carry majority of the malnutrition burden with children in such households more likely to be stunted. These mothers engage in menial jobs, subsistent farming and do not own the land they cultivate therefore affecting their economic standing [4,5,6,7,8,9]. Their diet tend to lack variety, high in carbohydrate and lacking animal source protein. Though most low-income households diet lack animal source protein because of cost [10], the egg being a relatively cheap animal food source but of high protein quality has the potential to improve child nutrition and growth [8,11].

Guinea fowl is not only a delicacy in Burkina Faso and other African countries, but it exhibits a higher resistance to poultry diseases [12], which has the potential to make farmers with large flocks of the birds, less vulnerable to poultry diseases. Secondly, in comparison to chicken, guinea fowl provide higher protein (23% versus 21%) and lower fat (4% versus 7%) content [13]. Finally, in comparison to chicken, guinea fowl, when managed as free-range control insects and pests [14]. These make guinea fowl meat of greater nutritional and economic value. The study sought to understand current household food practices and aspirations for expanded poultry business among mothers of young children involved in smallholder guinea fowl farming because of the potential to improve household finances, endemic stunting and food insecurity.

METHODS

This cross-sectional study was conducted in partnership with a local non-governmental organization (ASUDEC) in Burkina Faso, West Africa. Households engaged in smallholder poultry farming, were recruited from 11 villages participating in ASUDEC activities. A convenience sample of 150 women with younger children were selected from these households and interviewed using a semi-structured questionnaire developed purposely for this study. These households were targeted on the basis of their rurality and long-time residence in

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ASUDEC activity area similar to the communities in the USAID Rize zones in central eastern and central northern, Burkina Faso.

Because of the low level of literacy in the study communities, information sessions were held with the women to explain the purpose of the study, the protocol and time commitment to participate. The information sessions and interviewer-administered questionnaire were conducted in MORE, the predominant language spoken in that part of Burkina Faso. The women were made aware that their participation in the survey was voluntary and will not affect their involvement in ASUDEC activities. Eligibility criteria included having a young child (≤ 5years) and involved in smallholder poultry farming. This eligibility criteria is as a result of high risk for undernutrition and stunting among children from low-income households. All participants provided their consent before enrollment in the study. Trained research assistants administered the semi-structured questionnaire with both closed- and open-ended questions for data collection. The questionnaire administration lasted for an average of 45 minutes per participant. The study was approved by the Human Subject Institutional Review Board of the University of Georgia (PROJECT00000350).

RESULTS AND DISCUSSION

Majority of the participants (98.7%) were biological mothers of the children. Age of participants ranged between 17 and 46 years, with about two-thirds (66%) being 28 years or older. Majority of the mothers were married or cohabiting with 7.4% in polygamous marriages. Almost half (45%) of the participants did not have any formal education. Number of children within a household ranged between 1 and 9 with 30% of households having 6 or more children. Of the 150 participants interviewed, 62 mothers (41%) had children below 2 years (Table 1).

Majority (58.7%) of the participants reported the main source of household income to be agriculture-related while 8.7% reported livestock production to be the main source of income (Table 2), which is lower than reported for other African rural households [13]. On the question of how participants intend to use additional income from expanded guinea fowl husbandry, 50% said they would invest in developing their breeding and agriculture business, 39.3% would expand general business activities, while 35.3% said they would improve household food security. This observation is in line with a report by Bruinsma [15].

A greater percentage of the participants interviewed reported carbohydrate rich foods such as cereal (96.7%) and rice (83.3%) as the main component of their

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daily diet (Table 3). The main source of protein reported in the household diet is beans/legumes followed by meats and fish (Table 3). Only 0.7% of participants reported milk to be a source of protein for the household. Finding from the current study is in direct conflict with the EAT-Lancet Commission report of overconsumption of animal source foods across the globe [16]. On the source of protein for children under 5 years in the household, 33.3% and 10.0% of the participants reported breastmilk and fish, respectively. On a question to ascertain the food preference of children, mothers reported foods consisting of carbohydrate and protein rich foods and breastmilk. About 32.7% of younger children were reported to prefer breast milk as their main source of food. Other reported preferred foods included rice (22.7%), cereal meal (16.7%), fish (16.0%), beans/legumes (13.3%), porridge (12.0%) and bread (8.7%) (Table 3).

On the question of use of potential income from improved guinea fowl farming, 50.0% of participants reported they would invest in their livestock production and other agricultural activities. Other participants would want to invest this potential income to expand their retail activities (39.3%), 35.3% would want to improve the household food, health and education security, 22.0% would want to invest in their children's education while 1.3% would want to improve their housing (Table 2). This finding is similar to observation in a review by Maizonneuve and colleagues [17].

The study also ascertained possible uses of products from potential expansion of guinea fowl farming. Almost half (49.3%) of the participants reported they would market/sell the livestock products for additional income to support the households. Another 48.7% of the participants reported they would sell and use some of the meat and eggs from the expansion of guinea fowl farming to improve the nutrition of their families while 2.0% reported they would use products solely for home consumption. A study from Ecuador demonstrated one egg a day for children reduces the risk for stunting by 47% [18], while Headley and colleagues [19] have reported general consumption of animal source food to be inversely associated with child stunting.

CONCLUSION

Findings from the study suggest rural low-income mothers are interested in exploring other income generating avenues to improve the socio-economic standing and nutrition of their household. Therefore, expanded guinea fowl husbandry may be a means of improving the socio-economic status of low income women and support the financial and nutritional needs of the household.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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Table 1: Characteristics of Participants (N=150)

	N	%
Participant Age (in years)		
< 25	21	14.0
25 – 28	30	20.0
> 28	99	66.0
Marital Status		
Married	128	85.3
Cohabiting	20	13.3
Single	2	1.3
Polygamous marriage/arrangement	11	7.4
Type of Parent		
Biological mother	148	98.7
Adopted mother	2	1.3
Years of Formal Education		
None	68	45.3
1 – 5	16	10.7
6 – 10	60	40.0
> 10	6	4.0
Number of Children in Household		
1 – 2	45	30.0
3 – 5	87	58.0
≥ 6	18	12.0
Age of Youngest Child (in years)		
< 1	22	14.7
1 – 2	40	26.7
> 2	88	58.7

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Table 2: Source of Household Income and Allocation of Additional Income

	N	%
Main Source of Income		
Trading	23	15.3
Agriculture/gardening	88	58.7
Livestock production	13	8.7
Guarding	4	2.7
Salaried worker	10	6.7
Artisan	12	8.0
Intended Use of Additional Income		
Expand business activities	59	39.3
Improve food security & health	53	35.3
Invest in breeding & agriculture	75	50.0
Improve housing	2	1.3
Children's education	33	22.0
Intended Use of Guinea Fowl Products		
Household consumption	3	2.0
Consumption & marketing	73	48.7
Marketing	74	49.3

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Table 3: Household Food Customs and Preferences

	N	%
Household Food Custom		
Cereal	145	96.7
Rice	125	83.3
Beans	70	46.7
Pasta	9	6.0
Legume	9	6.0
Main Source of Protein in Household Diet		
Beans	63	42.0
Meats	53	35.3
Fish	31	20.7
Porridge	2	1.3
Milk	1	0.7
Source of Protein in Child's Diet		
Porridge	22	14.7
Breastmilk	50	33.3
Fish	15	10.0
Rice	83	55.3
Cereal	99	66.0
Beans/legumes	49	32.7
Other	15	10
Child's Food Preference		
Porridge	18	12.0
Breastmilk	49	32.7
Coffee with milk	2	1.3
Fish	24	16.0
Cake	9	6.0
Rice	34	22.7
Cereal meal	25	16.7
Candy	17	11.3
Cookies	20	13.3
Bread	13	8.7
Beans	21	14.0

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