

Country: Ethiopia

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Type of livestock produced: Chicken Bird koekoek breed

Site of Farm: Afar agro-pastoral communities

Number of Animals on farm: at back yard stage 25 koekoek per household

Years of operation: 2013

Title: Popularization of Chicken Production in Smallholder Women Agro-pastoralist of Ethiopia: Case of Afar Regional State

1. INTRODUCTION

Ethiopian chicken population is about 39.5 million (CSA, 2008) million. Although Ethiopia has a huge resource of poultry, the country is not getting the required benefits from this sector. Reasons for this are poor productivity of local hens and cocks, the production is not well developed to full fill the demands, high disease prevalence for both exotic and local birds (Tadesse, 2000; Alemu, 1987).

In Ethiopia, chicken are widespread and almost every rural family owns chicken, which provide a valuable source of family protein and income (Tadelle *et al.* 2003a). The majority (99%) of these chickens maintained under a traditional system with little or no input for housing, feeding or health care. Rural chicken in Ethiopia represents a significant part of the national economy in general and the rural economy in particular and contribute to 98.5% to 99.2% of the national egg and chicken meat production, respectively (Tadelle 1996; Aberra 2000). However, the economic contribution of the sector is still not proportional to the huge chicken numbers, attribute to the presence of many technical, organizational and institutional constraints.

Commercialization of subsistence agriculture is an indispensable pathway towards economic growth and development for many agriculture dependent developing countries (von Braun 1994; Pingali and Rosegrant 1995). Sustainable household food security and welfare also requires commercial transformation of subsistence agriculture (Pingali 1997). Commercialization agriculture production is likely to result in welfare gain through the realization of smallholder women, advantages, economies of scale, and for dynamic technological, organizational and institutional change effect that arise the flow of ideas due to exchange based interactions. Commercialization enhances the links between the input and output side of agricultural market furthermore, changes in the livelihood of the agro-pastoral in consideration of this project.

Animal production in general and chicken production in particular play important socio-economic role in developing countries (Kondombo 2005). According to Sonaiya (2004), smallholder farming families, land less laborers and people with low incomes below the poverty line are able to raise chicken with low inputs and harvest the benefit of eggs and meat via scavenging feed

resources. The proportional contribution of poultry to the total animal protein production of the world by the year 2020 believed to increase 40%, the major increase being in the developing world (Delgado *et al.* 1999). However, most communities lack the required husbandry skill; training and opportunity effectively improve their household chicken production (Mlozi *et al.* 2003).

Chickens are among the most adaptable domestic animals and more people are directly involved in production throughout the world (in Ethiopian case too) than any other agricultural enterprise. The impact of village chicken in the national economy of developing countries and its role in improving the nutritional status, income, food security and livelihood of many smallholders is significant owing to its low cost of production (FAO 1997; Abdelqader 2007; Abubekar *et al.* 2007).

Chicken provide major opportunity to increase protein production and incomes for the smallholder farmers because of short generation interval, high rate of productivity, the ease with which its product can be supplied to different areas, the ease with which its product can be sold due to their relatively low economic values, its minimal associations with high cost of transportation.

Livestock Operation and Impact

From the total sample taken in Amibara 85.6% sales egg once in a week at Saturday market day while 85.4% sales in Afambo respectively. the sale in daily bases are very small since there is no market at each day (Table 1). The price of egg in the area in *Ethiopian Birr* costs 2.75 at the weekly market while in door marketing it might escalated to 2.95.

Table 1: Frequency of Egg sales

Activities	Sample area	
	Amibar	Afambo
Frequency of sale egg		
Once in a week	85.6	85.4
Twice in a week	12.2	12.5
Daily	2.2	2.1

Source: survey data computed, 2013

Challenges faced

- Infrastructural development for the agro-pastoral communities like access to electric power and transportation
- Financial limitation in research and development to reach the intervention to number of societies
- limitation in research facilities like laboratories and training

Solutions Tasted

- For agro-pastorals to use ventilated house for the chicken birds that can be easily made from the available materials using plastics, wood and iron sheets
- agro-pastoral have to walk to the market in shift based to supply all the neighborhood egg
- Apply for external funds like ASARECA, PRIME and others for financial and infrastructural development

Impact generated

The household chicken bird owners characteristic presented from Table 1 to Table 2. From the total interviewed household participated in the popularization activities 92.4 and 81.9% are women in Amibara and Afambo *Woredas*, respectively. The average age of the respondents is 42.9 year in Amibara and 39.8 year in Afambo. The overall family size of the sample households is 6.4 in Amibara and 5.9 in Afambo districts, which is higher than the national average of 5.2 persons (CSA 2007). However, this is similar to the finding of (Asefa 2007) who reported 7 person per household for the Awassa Zuria *Woreda* in the SNNPR.

Table 2: Socio-economic status of koekoek owners in the district

Variables	Amibar	Afambo
Sex of respondent households (%)		
Man	7.6	18.1
Women	92.4	81.9
Average age of the respondents (year)	42.9	39.8
Average family size /hh (mean± SD)	6.35±2.12	5.88±2.17

Source: survey data computed, 2013

As stated in Table 3 91.1% of the households have access to information about the egg market price in Amibar district where the 42% of the information is channeled from other suppliers in the area. While in Afambo 68.8% of the households have market information where most of the information comes from the buyers.

Table 3: Market information for chicken bird and egg

Activities	Sample area	
	Amibar	Afambo
Access to market information of egg		
Yes	91.1	68.8
No	8.9	31.3
Source of market information		
Other producers	42.0	31.3
Development agents	23.6	0.0
Buyers	14.0	35.4
Relatives	11.6	

Source: survey data computed, 2013

Poultry housing system and facilities

The results of poultry housing and facilities assessment are presented in Table 4. The highest proportion of the respondents, 80% in Amibara and 68% in Afambo districts, constructed a separate house entirely for poultry. No respondent in Afambo and 4.0% in Amibara districts kept their chicken birds with other animals. In both districts, only 22% of the respondents share the same house with their chicken.

Table 4: housing system and facilities

housing system and facilities	Districts					
	Amibara N=25		Afambo N=25		Cumulative N=50	
Poultry Housing system	Frequency	%	Frequency	%	Frequency	%
Separate house	21	80.0	17	68.0	38	76.0
Share with people	3	12.0	8	32.0	11	22.0
Share with other livestock	1	4.0	0.0	0.0	1	2.0
Housing facilities						
With electric city	0.0		0.0	0.0	0.0	0.0
Adequate ventilation facility	20	80.0	23	92.0	43	86.0
Litter material used	5	20.0	2	8.0	7	14.0

Source: survey data computed, 2013

There was no any household who have electricity in poultry house in both sample districts. Adequate ventilation facilities in poultry house were provided by 100% and 92% in Amibara and Afambo districts, respectively. Only 20% and 8% of the respondents in Amibara and Afambo districts, respectively, used litter for rearing chicken.

Estimated Yield

Egg production

Information on egg production performance of significant difference ($p < 0.05$) among Koekoek on average number of eggs laid under village production system.

Table 5: Mean annual egg production of the breed

Chicken Bird	N	Number of eggs laid/ hen/year	
Koekoek	50	Mean	SD
		189.23	14.56

Source: survey data computed, 2013

Management Practices

The Koekoek was bred from crosses between the Black Australorp and the White Leghorn and is recognized as a locally South African developed breed. These birds reach sexual maturity at 130 days. They have a characteristic black and white speckled color pattern, also described as barred, which is present in as many as nine different poultry breeds. The kook inherited the bar gene, a sex linked gene and they are easily distinguished, having light grey bars on the feathers, while the hen are darker (Van Marle-Koster and

Nel, 2000).The average egg weight is 55.7g and the color of the eggs is brown (Ramsey *et al.*, 2000).

Feeds and feeding practices

In both districts, 97.8% of the respondents were using scavenging with additional supplements and only 2.2% used only scavenging with no additional feed supplements for chicken (Table 6). 3.4% respondents in Amibara and 2.3% respondents in Afambo district were using purchased commercial feeds.

Table 6: Poultry feeds and feeding practices in percentage

Feeding practices	District		Cumulative N=50
	Amibara N=25	Afambo N=25	
Only scavenging	2.2	2.2	2.2
Scavenging and additional supplement	97.8	97.8	97.8
Purchased feed	3.4	2.3	2.8
Additional feed type			
Wheat and maize	96.6	97.7	97.2
Kitchen waste	100	100	100
Crop barns	3.3	3.3	3.3
Frequency of feeding			
Three times a day	81.1	76.7	78.9
Two times a day	18.9	23.3	21.1

Source: survey data computed, 2013

All respondents provide kitchen waste as supplement in both districts. Approximately, 97% of the respondents provide maize and wheat as additional supplements, while, 3.3% and 3.3% used crop bran as supplement in Amibara and Afambo districts, respectively. Regarding frequency of

feeding, 81.1% and 76.7% of the respondents in Amibara and Afambo districts, feed their chicken three times per day respectively, while 18.9% and 23.3% provide two times per day in the same order.

Key Stakeholders: Afar regional pastoral and agro-pastoral office, Amibara worda pastoral and agro-pastoral office, Afambo woreda pastoral and agro-pastoral office, the agro-pastoral communities and Debrezeit research center.

Lesson learned and next steps

- Women agro-pastoral communities will be more productive if they engaged in back yard chicken bird production
- Koekoek breed is adaptable to the semi-arid and arid districts of agro-pastoral communities in Afar regional districts
- Poultry production at small scale level will create an opportunity for women access and control to resource
- Poultry production has contribution to families nutrition and as it is production system confined in specific area especially at back yard level it will no created over grazing or other environmental factors
- Poultry product can generate income in a sustainable manner and can create an opportunity stabilize markets
- If there is a possibility to access stakeholders fund for the project to reach other agro-pastoral communities and create an impact in livelihood of producer with availing the technology and contribute for food security, nutrition and create a market linkage



Figure 1: Women koekoek popularization site



Figure 2: an agropastoral women with her hausband feeding Koekoek



Figure 3: Field day



Figure 4: Women giving supplementary feed