

Review on Exotic Chicken Status, Production Performance and Constraints in Ethiopia

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Abstract

This study reviews the exotic chicken status, production performance and constraints with the aim of delivering summarized and synthesized information for the beneficiaries and reader. Poultry production and its product consumption are progressively increasing globally. In Ethiopia, chicken production plays a great role as a primary supply of eggs and meat in rural and urban area and as a source of income for small holder farmers. Although traditional practices continue to dominate domestic poultry production in Ethiopia, there has been a shift to industrial production. Attempts have been made to introduce different exotic poultry breeds to small holder farming systems of Ethiopia because of low performance of indigenous chicken. The egg production potential of local chicken is 30-60 eggs /year/ hen with an average of 38 g egg weight under village management conditions, while exotic breeds produce around 250 eggs/ year/hen with around 60 g egg weight in Ethiopia. Even though, all available evidence indicates that all the imported breeds of chickens performed well under the intensive management system but still the contribution of exotic chicken to the Ethiopian economy is significantly lower than that of other African countries. Poultry meat and egg production is the most environmentally efficient animal protein production system. But, weak agricultural extension service, feed shortage, disease and predation, housing and other critical gaps that need to be filled by the institutions of research and development to improve the productive performance of exotic chicken breed in Ethiopia.

Keywords: constraints, chicken, exotic, performance, Ethiopia.

1. INTRODUCTION

1.1 Background

Agricultural production dominates the Ethiopian economy and contributes 45% of gross domestic product (GDP) and provides more than 80% of employment. The major source of foreign exchange is coffee, which provides 65% of export earnings. Other agricultural export products are oilseeds, pulses, cotton, sugar cane, flowers, hides and skins and livestock - mainly sheep and cattle. Ethiopia has the highest livestock populations in Africa and accounts for 17% of cattle, 20% of sheep, 13% of goats and 55% of equines in sub-Saharan Africa. In fact, Ethiopia is the first in Africa and tenth in the world in livestock populations. Livestock contributes 16% of GDP. Seventy per cent of cattle, 75% of sheep, 27% of goats and 80% of equines are found in the highlands (Tangka et al. 2002). Of all domestic animals in the country poultry is the most numerous, all of which are represented exclusively by chickens.

Poultry species are originated in from south East Asia, where there are still wild species in the area known as jungle fowl [FAO., 2004, and CSA., 2011]. The word poultry include all domestic birds kept for the purpose of human food production such as chickens, turkeys, ducks, geese, ostriches, guinea fowls, doves and pigeons. However, in Ethiopia, except chickens, all the others are found in their natural habitat. Geese and turkeys are not common [Tadelle et al., 2011]. Thus the word poultry is synonymous with chickens under the present Ethiopian condition. The global poultry population has been estimated to be about 16.2 billion, with 71.6 % in developing countries, producing 6.7million metric tons of chicken meat and 5.8 million metric tons of hen eggs (Gueye, 2005). In Africa, village poultry contributes over 70% of poultry products and 20% of animal protein intake (Kitalyi, 1998). In East Africa over 80% of human population live in rural areas and over 75% of these households keep indigenous chickens, the remaining keeps exotic and hybrids. The Ethiopian poultry population (chicken) is estimated to be about 56 million (Kitalyi, 1998).

Poultry contribute important socio-economic roles for food securities, generating additional cash incomes and religious/cultural reasons [Salam, K., 2005]. Poultry is the largest livestock species worldwide (Jens Christian et al., 2004), accounting for more than 30% of all animal protein consumption (Gueye, E.F., 1998). In Ethiopia, Poultry (chicken) production plays a significant role in the supply of human food (eggs and meat) in rural and urban area and as a source of income, especially to small holder farmers. The role of poultry in Ethiopia became very important over time (Alemu et al.2009).

In Ethiopia, about 99% of the total national poultry products (eggs and meat) are contributed by indigenous chickens kept under village management system while the remaining 1% is obtained from intensively kept exotic breed of chickens (Serkalem et al., 2005). Unfortunately however, the productivity of Ethiopian indigenous chickens is low as a result of which attempts have been made to introduce different exotic breeds of chickens to be used by their own or for crossbreeding with the indigenous chickens. Thus Modern poultry production started in Ethiopia in the early 1950s mainly in colleges and research stations. The activities of those

institutions focused on the introduction of exotic breeds of chickens into the country for distribution to the farming population along with management i.e. feeding, housing and health care practices (Tadelle, 2011).

There are a number of challenges and obstacles (constraints) limiting the success and profitability of Exotic chickens kept under both backyard and semi-intensive production system in Ethiopia. Therefore, a comprehensive literature review on the current status of exotic chickens and/or modern poultry production in the country seems to be appealing. There is a need for reviewing the production trend, production performance and constraints of exotic chickens. Moreover, information's on either weak sides or the success stories of modern poultry production including its socioeconomic contributions could be used by beneficiaries. These being the cases, the objective of this seminar are to review the status of performance of exotic chicken in Ethiopia with the following specific objectives

- To review on exotic poultry production trend and its production performance
- To review on major constraints of exotic chicken production performance

2. REVIEW

2.1 Introduction of Exotic Breeds of Chickens

There is no recorded evidence indicating the exact time and locations of introduction of the first batch of exotic breeds of chickens into Ethiopia for genetic improvement (Avery, 2004). However, it is widely believed that the importation of exotic breeds of chicken goes back to the early 1950s. Unfortunately, the Ethiopian modern poultry industries remain rudimentary and the country exports almost no poultry meat. According to Demeke (2008) attempts have been made to introduce different exotic breeds of chickens to be used in their pure form or to distribute them to the farming communities aimed at genetic improvement of the indigenous flock through crossbreeding. Different breeds of exotic chickens (Rhode Island Red, Australorp, New Hampshire and White Leghorns) were imported to Ethiopia in 1952. Since then higher learning institutions, research organizations, the Ministry of Agriculture and certain Non-Governmental Organizations (NGO's) have disseminated many exotic breeds of chicken to rural farmers and urban-based small-scale poultry producers. And yet the traditional practices continue to dominate the Ethiopian poultry production with minor shift to industrial type modern poultry production (FAO, 2008).

The Ethiopian poultry population is estimated to be 56 million, of which 99 and 1% of the total population comprises of indigenous and exotic breeds of chicken, respectively. There was an increase in the number of exotic breeds of chickens in the recent years and at present it is estimated that the exotic breeds of chicken makes up about 2.56% of the total national poultry population (CSA, 2007). It has been reported that many exotic breeds of chicken (White and brown Leghorns, Rhode Island Red, Bovans, New Hampshire, Cornish, Australoup and Light Sussex) were introduced over the past years. The most important inputs have been the introduction of improved (exotic) breed, improved feed, vaccine and medicaments and credit aiming at increased productivity (Tamir et al (2015). According to Teklewold et al (2006) and Reta (2009), the past genetic improvement efforts of the Ethiopian village chicken through cross breeding with exotic chicken extension was constrained by lack of comprehensive poultry technology extension package for distribution to the end users. By contrast currently, one of the extension options to attempt is the use of full packages of improved exotic breeds of chickens with better productivity, adaptability and disease resistance. The Extension Department of the Ministry of Agriculture (MoA) of Ethiopia has shown more preference and interest in the use of the Rhode Island Red (RIR) breed of chicken, dual purpose that could serve both as source of egg and meat. In the recent years, the Egyptian Fayoumi breed has been imported with the expectation of better productivity, adaptation and disease resistance than the other exotic breeds in rural setting of Ethiopia (Wilson, 2010). There has been an increase in the number of exotic breeds of chickens in Ethiopia as shown in Table 1.

Table – 1 Exotic chicken status in Ethiopia

Years	Breeds in percent		
	Indigenous	Hybrid	Exotic
2010	97.3	0.38	2.32
2012	97	0.58	2.42
2013	96.83	0.8	2.37
2014	96.9	0.54	2.56

Source: summary from CSA, from 2010 – 2014

The production performance of exotic birds under the Ethiopian condition needs to be monitored regularly to provide guidelines for policy makers. Lack of recorded data on the productive performance of chicken makes it difficult to assess the importance and contributions of the past attempts made to improve the sector (Moges et al., 2010). It was indicated that all the imported breeds of chickens performed well under the intensive management system in Ethiopia. The idea of distributing exotic chickens particularly Rhode Island Red (RIR) to the farming population was to improve the productivity of local birds by mating them with improved cocks (Yami and Desie, 1997). This scheme usually failed to work due to the fact that the introduced breeds

could not adapt to the hot climate, low feeding and extensive management (Permin, 2008)

2.2 Current Status of Exotic poultry Farming

In Ethiopia, poultry production systems show a clear distinction between the traditional, low input system on the one hand and modern production system using relatively advanced technology on the other hand (Yami, 1995). All the available evidences tend to indicate that the modern poultry sector in Ethiopia could be characterized into two major production systems based on some selected parameters such as breed, flock size, housing, feeding, health care and bio-security (Alemu & Tadelle, 1997; Bush, 2006; Goutard & Magalhaes, 2006). These are small scale intensive poultry production system and large scale commercial poultry production system.

2, 2, 1 Small scale modern poultry farms

The small-scale intensive production system is characterized by medium level of feed, water and veterinary service inputs and minimal to low bio-security. Most small-scale poultry farms obtain their feed and foundation stock from large-scale commercial farms (Nzietchueng, 2008). Small scale flock sizes usually ranging from 50 to 500 exotic breeds kept for operating on a more commercial basis are common in the urban and per-urban areas of Addis Ababa (Alemu et al, 2012). Reliable economic data concerning the value of commercial poultry products sold in any one year is not available. The general indications are that they supply eggs and meat to urban and per-urban population, particularly to supermarkets, kiosks and hotels. Some of the small scale modern poultry producers, along with Bureau of Agriculture, Cooperatives and Debre Zeit Agricultural Research Center distribute breeding seeds and promote improved poultry and feeding technologies (Nzietchueng, 2008).

2, 2, 2 Large Scale Commercial farms

There are few private large scale commercial poultry farms, all of which are located in Debre Zeit. ELFORA, Alema and Genesis are the top 3 largest commercial poultry farms with modern production and processing facilities. ELFORA annually delivers (www.ethiomarket.com elfora), around 420,000 chickens and over 34 million eggs to the market of Addis Ababa. Alema poultry farms is the 2nd largest commercial poultry farms in the country delivering nearly half a million broilers to Addis Ababa market each year. The farm has its own broilers parent stock, feed processing plants, hatchery, slaughter houses, cold storage and transportation facilities. The large scale commercial poultry Provide fertile eggs, table eggs, day old chicks, broiler meat and adult breeding stocks to the small scale modern poultry farms. They are kept as full time business and highly dependent on market for inputs. The general indications are that the intensive poultry industry plays a key role in supplying poultry meat and eggs to urban markets at a competitive price. The industry also provides employment for a range of workers from poultry attendants to truck drivers to professional managers.

According to Bush (2006) the large-scale commercial production system is highly intensive production system involves an average of greater or equal to 10,000 birds kept under indoor conditions with a medium to high bio-security level. This system heavily depends on imported exotic breeds that require intensive inputs such as feed, housing, health, and modern management systems. It is estimated that this sector accounts for nearly 2% of the national poultry population. According to Getinet (2007) founding most of the supply of poultry products to the Addis Ababa market is in the form of local eggs and chicken sold in several market places and street corners as well as door-to-door by individual traders. Commercial chicken (broilers) and eggs are supplied at farm gates and through the various outlet shops of ELFORA, Alema, Almaz and Tsedey poultry farms; while commercially organized suppliers of table eggs competing for the market are ELFORA, Kalehiwot, Genesis and NACID. These Commercial suppliers have fairly established production and distribution facilities. The share distribution of commercial suppliers of poultry meat and eggs to Addis Ababa market is shown in Table 2 and Table 3 respectively.

Table-2: Commercial Supplies of Poultry Meat (2005/06)

supplier	Quantity(Tons)	Share (%)
ELFORA	368.6	52.0
Almaz Poultry Farm	168.5	23.8
Alema Poultry Farm	156.0	22.0
Tsedey Poultry Farm	15.6	2.2
total	708.7	100

Source: Annual Performance Review of ELFORA (2005/06).

Table 3: Commercial Supplies of Table Eggs (2005/06)

supplier	Quantity		
	piece	Tons	Share (%)
ELFORA	28,136,377	1,406.8	71.4
Genesis	7,200,000	360.0	18.3
Kalehiwot	3,456,000	172.8	8.8
Alema	500,000	25.0	1.3
NACID	96,600	4.8	0.3
total	39,388,977	1,969.4	100

Source: Annual Performance Review of ELFORA (2005/06).

2.3 PRODUCTION PERFORMANCE OF EXOTIC CHICKEN

2.3.1 Egg production

According to Alganesh et al., (2003) the egg production potential of local chicken kept under village management conditions, is 30-60 eggs/year/ hen with an average egg weight of 38g while exotic breeds of chicken kept under intensive condition produce around 250 eggs /year/hen with average egg weight of 50-56g (Table4). The egg production performance the Egyptian Fayoumi, Rhode Island Red and White Leghorn was reported to be 156, 185 and 176 eggs/year respectively (Abraham and Yayneshe,2010).

Alem (2014) reported that average egg production per clutch per hen of exotic chicken (RIR) was 38.5 and 45.2 in lowland and highland agro-ecological zone of central Tigray, respectively. Lemlem and Tesfaye (2010) reported 173eggs, 185 eggs and 144 eggs /year/ hen for White leghorn, Red Island Red and Fayoumi chicken under village household condition. Demeke (2004) also reported 82 eggs/hen for White leghorn under rural household condition with supplementary feeding. Geleta et al. (2013) indicated that egg weight of Fayoumi chicken under Adami Tulu Research center (44.3 g) was similar to Fayoumi (43 g) but lower than egg weight of Rhode Island Red (52.5 g) and White Leghorn (52.1 g) as reported by Abraham and Yayneshet (2010).

Solomon (2004) reported that, there was no significant deference between Leghorn and local pullets assigned to household condition with or without supplementation in rate of maturity as measured by age at first egg. Under household conditions local hens produced 69% of the egg production of Leghorn layers. The egg production of Leghorn and local layers increased by 46% and 15% as a result of supplementation with a daily ration of 60 g/head, respectively. These results clearly showed that Leghorn layers kept under rural household conditions were superior in egg production to local layers kept under similar conditions and found to be more responsive to supplemental feeding than local hens. In contrast Hailemariam (1998) and Aberra et al. (2005) showed that the overall performance of the crossbreeds was better than either the native or the exotic parents under the existing management condition. The average length of egg-laying period/hen was also determined in breeds and environmental managements systems of which estimated numbers of days were 21, 36 and 105 days for local, hybrid and exotic breeds, respectively (CSA,2011). Demeke (2004& 2007) reported that the Sexual maturity of White Leghorn under intensive and extensive management ranged from 149-169 days.

2.3.2 Meat production

Bogale (2008) indicated that the meat production ability and growth performance of indigenous chicken are limited and Local males may reach 1.5kg live weight at 6 months of age and females about 30% less. Teketel (1986) reported that the local stocks reached 61 % and 85 % of the body weight of White leghorn (WLH) at 6 months of age. Moreover, Abebe [1992] reported that local chicken in Eastern Ethiopia attained 71.5 % of the body weight of WLH at 6 months of age. On the contrary, Solomon [2003] reported that there was no difference between White Leghorn and indigenous chickens raised under scavenging condition in mean daily body weight gain at 2 months of age.

Table – 4 production performance of exotic chickens

production performance	Breeds		
	Indigenous	Hybrid	Exotic
Egg production/year/hen	30 – 60	156-200	250
Egg weight in gram	38	49 - 56	60
Egg laying period in days	21	36	105
Body weight at 6 months	1.5	1.6 – 1.65	1.76

Source: summary from researches

2.3.3 Economic contribution of exotic chickens

According to Sonaiya (2004), smallholder-farming families, landless labourers and people with incomes below the poverty line are able to raise chicken with low inputs and harvest the benefits of eggs and meat via scavenging feed with small amount of supplementation. Family chicken meat and eggs contribute 20–30% to the total animal protein supply in low-income and food-deficit countries. Yami and Desie (1997) suggested that the

contribution of exotic poultry to the Ethiopian economy is significantly lower than that of other African countries (Table 5).

Table – 5 Percentage contribution of exotic breeds of chicken in selected African countries to the total poultry population.

number	Country	Contribution (%)
1	Cameroon	35.0
2	Ethiopia	2.0
3	Gambia	10.0
4	Kenya	20.0
5	Malawi	10.0
6	Nigeria	9.0
7	Zimbabwe	70.0

Source: Alemu Yami and Tadelles Dessie, 1997

2.3 Production Performance of Cross breeds

According to Cunningham and Syrstad (1987) one way of improving the productivity of indigenous chickens for egg production is through crossbreeding with exotic chickens that are known for higher egg production. Such crossbreeding has widely been used as method of combining the high egg production potential of exotic breeds with the adaptability of the indigenous breeds. Apart from the additive contribution of each breed to meet those requirements, there are also large non additive heterotic effects in egg yield and fertility traits which combine to result in high total productivity of the first generation (F1) of these crosses.

Laris-Erik Liljedahal (1994) reported that genetic effect on egg production in diallel mating system of six white Leghorn strains, showed a marked increase in genetic variance and heterotic effect with environmental variance. According to DZARC (1991), Joseph (1995) and Mekonnen (1998) cross-bred with 62.5% indigenous-White Leghorn were found to be superior to other crossbreeds (25% and 50% crosses). Rahman et al (1997) reported that the egg production at smallholder level could be doubled in the existing production system through intervention of crossbreeding in the semi-scavenging poultry model. Sonali (RIR x Fayoumi) performed best among eight exotic breed combinations with highest egg production (156 eggs/hen/ year), lowest mortality and highest profit per hen (Rahman et al 1997). The productivity of Sonali was found to be higher and more profitable compared to RIR and Fayoumi under smallholder farming condition with feed supplementation.

According to Sorensen and Ssewanyana (2003) cocks from the brown-egg layer hybrid BB were crossed with local hens under field conditions in Uganda. The 25 percent Bovan cross was obtained by back crossing the F1 hens to local cocks. The daily gain of the 50 percent Bovan cross proved to be superior to that of the local chicks by 30 percent at one month of age, increasing to 38 percent at three months of age. According to Van Marle-Koster and Nel (2000) Potchefstroom Koekoek (PK) 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. According to Ramsey et al (2000) the average egg weight of Pk is 55.7g and the color of the eggs is brown. And according to Grobbelaar et al (2010) PK breed is one of the most promising breeds, it is second to white leghorn, Fayoumi in terms of hen-housed egg production per hen and hatchability.

According to DZARC (1991) the current extension package in Ada'a and Lume districts were based on the distribution of hybrid layers (IB and BB) and dual-purpose chicken (PK) from large scale poultry importers based at Debre Zeit. The purpose of supplying these hybrid chicks was solely for egg production under improved village management systems.

2.4 Major constraints OF Exotic chicken production Performance

2.4.1 Diseases

According to Moges et al. (2010), Getu and Birhan (2014), Negussie and Ogle (1999) and Mengesha et al. (2011) under farmer management poultry production, prevailing disease, predators and veterinary services were reported as the major constraint. Moges et al (2010) suggestion improvement in veterinary and advisory service could help to achieve control of diseases at village level. According to Besbes and B., (2009) as well as Halima and H., (2007) high incidence of chicken diseases, mainly (NCD) is the major and economically important constraints for village exotic chicken production systems. Niguse et al (2003), Serkalem et al (2005) and Newanta et al (2008) showed that NCD is highly infectious and causes more losses than any other diseases in the tropics, spreads rapidly through the flock and mortality could reach up to 100%. High mortality of chicks under village chicken production in the central highlands of Ethiopia was due to diseases, parasites, predation, lack of feed, poor housing and insufficient water supply (Tadelles and Ogle, 2001).

According to Hailu et al (2012) the most important aspects of village-based exotic chicken production in three agro-climatic zones of Amahara Regional State, Northwest Ethiopia is placed on its genetic potential for higher production, rather than on its acclimatization to odd environments or ability to resist disease. Better care

of the flock starting from the age of hatching, maintenance of healthy environment, protection of birds from extreme climatic conditions, proper cleaning and disinfection of houses, equipment and workers, and appropriate floor and house construction are the key factors in preventing higher mortality. The farmers engaged in village-based exotic chicken development strategy manage chickens under backyard low input system in all three agro-climatic zones. Farmers raising improved exotic chickens have been applying various husbandry practices and management while rearing these chickens. However, low supply of inputs like balanced ration, veterinary drugs and vaccines are the major bottle-necks for production of village-based exotic chickens. Moreover, higher mortality of chicken is seriously affecting the survival of these chicken breeds and contribution of chickens to the households.

Exotic chicken distributed to farmers in different agro-climatic zones are exposed for to various risk factors that predispose for high chicken losses. Furthermore, the existing improper management such as improper nutrition, substandard hygienic standard, lack of appropriate disease prevention and control program are major constraints for exotic-chicken production and these contributed for high mortality rates chickens (Hailu et al, 2012).

Newcastle disease (ND), Infectious Bursal disease (IBD) or Gumboro, Marek disease (MD), Fowl typhoid, Cholera, Mycoplasmosis and Coccidiosis are widely distributed in most African countries. According to Chaheuf (1990), Ethiopia is not exception to this situation (Adene, 1996). Losses attributed to Newcastle disease is estimated at about 57.3% of the overall annual chicken mortality whereas fowl pox, Coccidiosis, and predation accounts for about 31.6%, 9.4% and 1.7% of the total annual flock mortality respectively (Negussie and Ogle(1999). Survey conducted in Southern Ethiopia identified Fowl cholera followed by New Castle Disease, Coccidiosis, Fowl influenza [Infectious Bronchitis], Fowl pox, Fowl typhoid and Salmonella to be the major poultry diseases respectively (Abera, 2007) .

According to Solomon (2007) the health status of the backyard poultry production system is very poor and risky, since scavenging birds live together with people and other species of livestock. Poultry movement and droppings are very difficult to control and chickens freely roam in the compounds used by households and children. There is no practices (even means) of isolating sick birds from the household flocks and dead birds could sometimes be offered or left for either domestic or wild predators. Yilma (2007) reported that health measures at the government owned poultry breeding and multiplication centers were extremely poor. The basic hygienic practices are often disregarded and husbandry know-how are generally lacking. Foot-bath application, if at all it is practiced, was only when people enter the poultry houses but not when they leave poultry houses. Almost all the breeding and multiplication centers were devastated by the outbreak of Infectious Bursal Disease i.e. Gumboro disease. The health status in many of the small scale intensive poultry farms is extremely poor (Abebe, 2006).

2.4.2 Nutritional constraint

According to Tegene (1992), Tadelle and Ogle (1996b), and Alemu and Tadelle (1997) crop analysis result indicated that the physical proportion of seeds was higher in the short rainy season and the concentration of crude protein; calcium and Phosphorus were below the recommended requirements for egg production. Mbugua (1990) indicated that egg production and egg size vary with season, as the quality and availability of feed varies. The scavenging feed resource is deficient in protein, energy and probably calcium for layer birds, indicating the role of supplementation in bringing a considerable increase in egg production (Tadelle and Ogle (1996b).

2.4.2.1 Feed availability

According to Tadelle et al (2010), Demeke (2004), Dessie et al (2013) and Mazengia et al (2012) poultry feed and nutrition is one of the most critical constraints to poultry production under both the rural small holder and large-scale systems in Ethiopia. The problem is mainly associated with lack of processing facilities, inconsistent availability and distribution and sub-standard quality of processed feeds. Regular availability of good quality feed ingredients and a fully balanced complete feed are essential for efficient poultry production. Grains, cereal by-products, oil seed cakes and meat and bone meal are obtained locally. The shortage in the supply of grains especially corn is improving due to the increase in the production of corn in recent years. The most serious problems arise from the unavailability of suitable micro-nutrient sources: vitamins and minerals.

2.4.2.2 Feed quality

Yami and Desie (1997) reported that the quality of mixed feed for commercial poultry production is generally poor in Ethiopia. Most formulations available do not have vitamin/mineral premixes. Ingredients and processed feeds vary in nutritive value and there is no regular quality control mechanism in the country. Unavailability of feed quality legislation and laboratory facilities for chemical analysis also contributes greatly to the poor quality of processed feeds. Currently, understanding the problem the Ethiopian Quality and Standards Authority is working with the Ethiopian Society of Animal Production (ESAP) on feed quality standards and legislation (Tadelle et al., 2002; Demeke, 2004; Dessie et al., 2013; Mazengia et al., 2012).

2.4.2.3 Feed cost

The price of raw materials varies according to source of supply and region. Little attention is given to the least

cost formulation of rations. It is believed that considerable scope exists to reduce the price of feed in some areas without reducing its nutritive value. Transport costs add significantly to the cost of feed in areas distant from the source of supply. Similarly, Achoja et al. (2006) in Nigeria reported that the price per bag and poor road network (market access condition) were the major problems affecting efficient marketing of poultry feeds in the study area. The lack of feed mills and dependence on supplies of some ingredients from large cities and its surroundings add to the overall cost of feed in many parts of the country. The absence of bulk deliveries and storage has increased feed costs. In some cases, a lot of wastage occurs due to weevil infestation. The shortage in the supply of protein supplements of animal origin has made the price of abattoir by-products extremely high. In many instances, the cost of mixed feed does not seem to follow reductions in ingredient cost. Prices of mixed feed remains unduly high even at times when the price of the major component of mixed rations (e.g. corn) fall by more than fifty percentage (Tadelle et al., 2002; Demeke, 2004; Dessie et al., 2013).

2.4.3 Lack of proper housing

According to Dwinger et al (2003) lack of housing is one of the constraints of the village exotic poultry production systems. In some African countries, a large proportion of village poultry mortality accounted due to nocturnal predators because of lack of proper housing. Some research works also indicated that the mortality of scavenging birds reduced by improved housing. For instance, in the Gambia livestock improvement program, which included improved poultry housing resulted in lower chick mortality (19%) relative to that observed in Ethiopia (66%) and Tanzania (33%), where no housing improvements were made (Kitalyi, 1998).

2.4.4 Weak agricultural extension services

According to Moges et al (2010b) reported that agricultural extension service is provided almost solely by the government (ILRI, 2005). A holistic and multi-disciplinary support of services like extension, training, veterinary and credit are critical in supporting village chicken improvement programs.

Mengesha et al. (2011) reported that 50% of chicken owners used agricultural extension services on poultry productivity in south Wollo, Jamma district. It is also reported that training for both farmers and extension staff focusing on disease control, improved housing, feeding, marketing and entrepreneurship could help to improve productivity of local chicken (Moges et al., 2010b)

3. CONCLUSION

Exotic chickens are introduced to Ethiopia due to their high production performance and distributed to different parts of urban, per-urban and rural areas. This introduction of exotic chicken is because of low performance of indigenous chicken. The egg production potential of local chicken is 30-60 eggs /year/ hen with an average of 38 g egg weight under village management conditions, while exotic breeds produce around 250 eggs /year/ hen with around 60 g egg weight in Ethiopia. Even though, all available evidence indicates that all the imported breeds of chickens performed well under the intensive management system but still the contribution of exotic chicken to the Ethiopian economy is significantly lower than that of other African countries. Despite management problems involved in rearing poultry, the exotic breed chickens are appreciated for their more egg and meat production. The number of exotic chicken in Ethiopia is growing slowly due to different reasons, like political situation of the country (give attentions on other sector), low adoption status of farmer, marketing problems, inadequate feeding and watering (supplementary feeds are not provided for them). Exotic chickens are easily attacked by predators, poor adaptive ability to harsh environment; require high quantity and quality feed and clean environment to produce well.

4 RECOMMENDATION

- In Rural areas there is need for awareness creation and improvement of management system and health measures before introduction of exotic chickens
- In the small scale modern poultry farms there is strong need for the setup of input supply system (day old chicks, feed packages, vaccines) through the encouragement of the private sectors
- Well defined bio-security, breeding & importation policies are required in the large scale commercial farms
- To improve the situation the Bureau of Agriculture should fill the gaps with respect of inputs like extension services and packages for better implementation of poultry development strategy.

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