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# Participatory evaluation of chicken health and production constraints in Ethiopia

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ABSTRACT

Chicken production has a major role in the economy of developing countries and backyard production is particularly important to women. Several programmes, in Ethiopia and elsewhere, have attempted to improve chicken production as a means to reduce poverty. A key constraint to chicken production identified by farmers is disease. This study used participatory rural appraisal methods to work with chicken-keepers in order to prioritise chicken diseases, place these within the context of other production constraints, and to explore perceptions of disease risk factors and biosecurity measures.

The study, focused on Debre Zeit, Ethiopia, included 71 poultry keepers (41 backyard and 30 semi-intensive chicken producers). Although women played an important role in backyard production systems, semi-intensive farms were more likely to be controlled by men. Participants identified 9 constraints to production: 7 of 8 groups of backyard producers and 15/31 semi-intensive producers ranked diseases as the most important constraint to chicken production. In contrast to previous reports, farmers in both groups had considerable knowledge of diseases and of factors affecting disease risk. Both groups, but particularly semi-intensive producers, highlighted access to feed as a constraint. Many of the challenges faced by both groups were associated with difficulty accessing agricultural and veterinary inputs and expertise.

Whilst many of the constraints identified by farmers could be viewed as simply technical issues to be overcome, we believe it is important to recognise the social factors underpinning what are, in reality, relatively modest technical challenges. The low involvement of women in semi-intensive production needs to be recognised by poultry development schemes. Provision needs to be made to allow access to inputs for a wide range of business models, particularly for those, such as women, who have limited access to the capital to allow them to make the jump from backyard to semi-intensive producer, and require support to slowly build up a flock into a profitable venture.



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## 1. Introduction

Poultry production has a major role in the economy of developing countries, including an important role in poverty alleviation by means of income generation and household food security (FAO, 1997; Gondwe, 2004; Abdelqader et al., 2007; Abubakar et al., 2007). More than half of Ethiopian households both in rural and urban areas keep chickens, although there is considerable variation in the distribution of chicken keeping, with most households in highland areas keeping chickens, and far fewer doing so in lowland pastoral areas (Ayele et al., 2009; Wilson, 2010). Production is characterised by free range backyard or village systems (Sonaiya, 1990a,b; Guèye, 2003) and chicken production is considered an integral part of many families' livelihoods (Tadelle et al., 2003). Studies across Africa, and in Ethiopia in particular, show women often directly control the income generated from the sale of chickens and chicken products, and that this is sometimes their only source of independent income. Hence, chicken production is important in developing countries where options for income generation for women are limited (Bradley, 1992; Guèye, 1998; Bravo-Baumann, 2000; Pederson et al., 2001; Dessie and Ogle, 2001; Seeberg, 2002; FAO, 2004; Riise et al., 2005; Aklilu et al., 2007; Halima et al., 2007; Wilson, 2010).

The majority (94–99 per cent) of the chicken population in Ethiopia, estimated to be 49 million in 2011 (CSA, 2010/11), are indigenous local breeds (CSA, 2005; Alemu et al., 2008). Chicken production has occurred largely on small farmer holdings, with an average flock size of 4.1 (CACC, 2003; CSA, 2005), limited capital investment and few inputs (Sonaiya, 1990a; Guèye and Bessei, 1996; Guèye, 1998; FAO, 2004; Alemu et al., 2008). Wilson (2010) provides an overview of chicken production in Ethiopia.

In 1996, the Ethiopian Ministry of Agriculture developed a poultry extension package for rural farmers which involved training a member of the household in various aspects of poultry management, and providing a nucleus flock of Rhode Island Red chickens (Dessie and Jobre, 2004). The programme was not a great success, as the exotic birds showed a poor tolerance to the local conditions, and farmers have complained that this distribution of exotic cocks, pullets and fertile eggs has negatively impacted on the local poultry's brooding ability and adaptation to low-input feeding systems (Dinka et al., 2010). However, a report by Pagani and Wossene (2008) described the poultry multiplication and distribution centres as an unqualified success, and there is evidence that they have helped chicken production in urban and peri-urban areas to become a profitable venture over the last 15–20 years, with more families keeping small to medium-size flocks (approximately 50–1000 birds) under semi-intensive management (FAO, 2008). Entrepreneurs are also investing in the industry with larger flocks of exotic breeds kept under intensive management (FAO, 2008; Wolde et al., 2011). Although these commercial farms have been set up in order to meet the increased demand for poultry products from an emerging middle-class urban sector, most Ethiopians still exhibit a strong preference for indigenous poultry products as meat and eggs from exotic breeds are perceived to have poorer taste (Dana et al., 2010). Therefore the traditional poultry sector still fulfils a viable role producing birds for the domestic market.

A number of challenges and obstacles (which we here call 'constraints') limiting the success and profitability of both backyard and semi-intensive production have been identified, including infectious diseases, low input of veterinary services, poor housing, poor biosecurity, predators and, the quality and cost of feed (Demeke, 1996; Wossene, 2006; Woldemariam and Wossene, 2007; Alemu et al., 2008; Ayele et al., 2009; Wolde et al., 2011; Mazengia, 2012). However, these studies often focus on one or a few constraints and have not assessed the knowledge and beliefs of the chicken producers themselves.

Livestock keepers are a rich source of information about breeds and production systems and also important diseases which affect their animals (Catley and Mariner, 2001; Adesehinwa et al., 2003). Utilising this information, called 'existing veterinary knowledge' (Mariner and Paskin, 2000), through a participatory approach that allows open and flexible discussion, may lead to better delivery of veterinary services which are in tune with the priorities of the community.

The aim of this study was to investigate, using participatory research methods, the constraints facing both backyard and semi-intensive chicken farmers in and around Debre Zeit, Ethiopia; with a particular focus on the disease problems, farmers' perceptions regarding disease risk factors and the biosecurity measures in place on these farms. Our goal is to identify key issues to be addressed in order to facilitate the role of chicken production in Ethiopian livelihoods. This region was deliberately selected for study because it is the focus of chicken production and services in Ethiopia. Hence, constraints identified here are likely to be felt more acutely elsewhere in Ethiopia (and, indeed, in much of Africa), where they may be compounded by additional infrastructural limitations affecting communication and transportation. Thus, our results highlight constraints that will need to be overcome even following improvement in these infrastructural limitations.

## 2. Materials and methods

### 2.1. Ethical approval

This study (including the process of obtaining informed consent) was approved by the University of Liverpool Veterinary Research Ethics Committee (reference VREC33). Participants were provided with verbal information to inform them of the purpose of the study, that participation was entirely voluntary, that they were free to leave the study at any time and that all data would be kept securely. Verbal informed consent was obtained prior to collection of data. Verbal information and verbal informed consent was deemed appropriate due to the expectation of relatively low literacy levels among participants. Consent was documented for each participant by a tick box on the information sheet that was read to each potential participant and which was ticked in the presence of the participant.