

Analysing production and financial data from farmers can serve as a tool for identifying opportunities for enhancing extension delivery among the rural poultry sub-sector in Zambia

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ABSTRACT

There are limited data on production and financial performance of the rural poultry sector in developing countries like Zambia that could be used by extension services as a feedback loop to enhance service delivery in the sector. Thus, a study that used production and financial data obtained from poultry farmers of Eastern Zambia was conducted to describe the rural poultry sub-sector and conduct financial analysis. It compared the financial performance of indigenous chicken production to broiler and layer production. The aim of the study was to identify opportunities and knowledge gaps among poultry farmers that could be used to initiate and enhance a participatory extension approach and build capacity of farmers in the sector. Descriptive, spatial, gross margin and breakeven analysis was used to analyse data obtained from 459 rural poultry farmers and expert opinion from 5 local extension workers.

Poultry ranked highest in terms of popularity and numbers when compared with other animals kept by respondents (median = 20). Most poultry were kept under free-range and brood an average of 3.1 clutches. Except for annual set up costs, some variable costs and household poultry consumption, the study could obtain data on most production costs and income generated from poultry farmers. Nevertheless, gross margin analysis conducted using costing data from poultry farmers and expert opinion of extension workers revealed that indigenous chicken enterprises had the highest gross margin percentage of 72% compared to commercial broilers and layers which had gross margin percentages of 53% and 56% respectively. Breakeven analysis revealed that indigenous chickens required the lowest number of products to be sold (27) to realise profit compared to broilers (1011) and layers (873). The study justifies investment into the rural poultry sub-sector and discusses the use of gross margin templates as a means of incentivising rural farmers to participate in extension programmes.

1. Introduction

Poultry contributes significantly to Asian and African food requirements (Dolberg, 2008; Alders et al., 2009). In sub-Saharan countries of Africa where food production is a challenge, rural poultry farming provides an affordable way of farming. When poultry farming is practised on a large scale and birds (fed on commercial feed) bred for high and quality meat or egg production, it is referred to as commercial poultry. When birds are kept on a small scale (usually with less than 100 birds), and mainly meant for domestic consumption, or when birds are meant for sale but reared with minimal resources (even if they are improved breeds), it is often referred to as rural poultry (Sonaiya, 2007;

Akinola and Essien, 2011).

Within the rural poultry sector, there is indigenous poultry that comprises indigenous chickens, ducks and guinea fowl, which mostly scavenge for feed with limited housing provided. Indigenous poultry production is common in rural communities in Zambia (Songolo and Katongo, 2000; Copland and Alders, 2009; Bwalya and Kalinda, 2014). That popularity is largely due to the low initial investment required and the purported resistance of indigenous poultry to some poultry diseases (Copland and Alders, 2009). In addition, indigenous poultry enterprises are more popular among socially disadvantaged groups like widows and orphaned children whose numbers are high in the region due to the Acquired Immune Deficiency Syndrome (AIDS) pandemic (Mutenje

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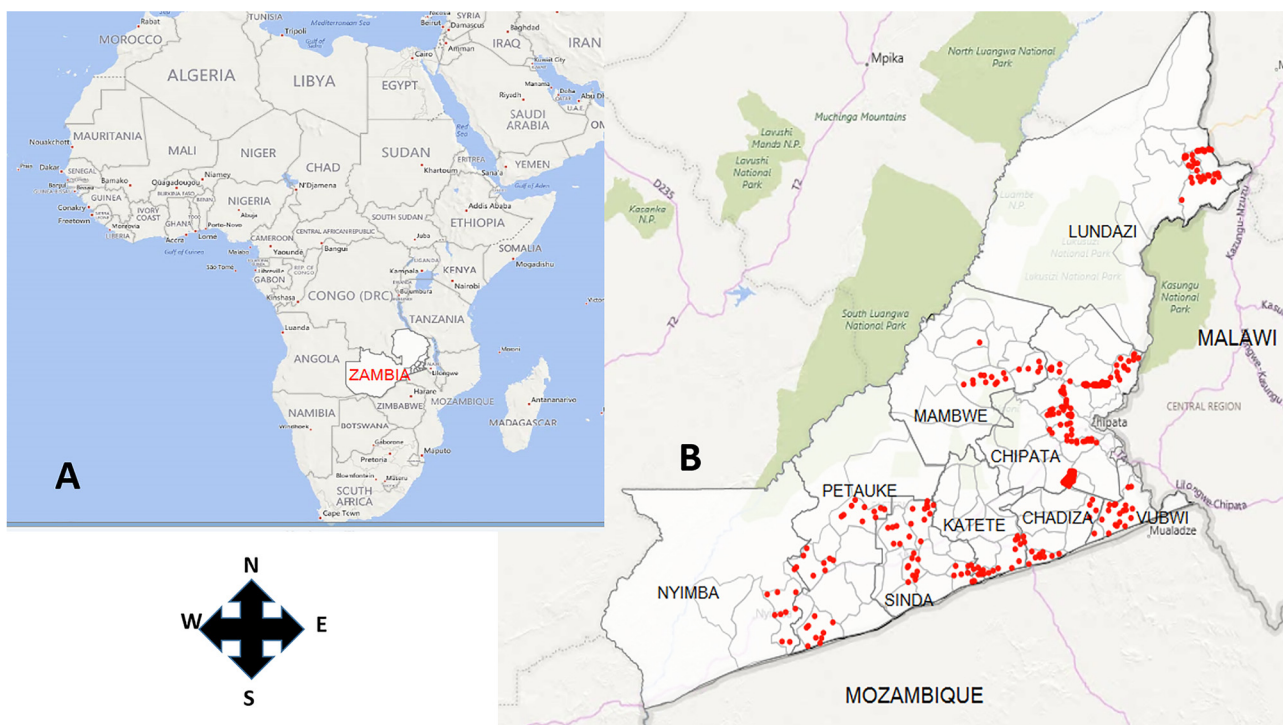


Fig. 1. Location of Zambia and its Eastern province within Africa (A). Nine districts of the Eastern province of Zambia (B) and veterinary camp zones where farmers (each farmer represented by a dot) were sampled within the province. Map obtained from Mubamba et al. (2018).

et al., 2008; Moreki and Dikeme, 2011; Simainga et al., 2011). On the other hand, indigenous poultry has a low feed to meat conversion ratio as well as low egg production which affects their profitability (Mtileni et al., 2012; Roberts, 2018). More expensive commercial broilers and layers have been introduced to rural poultry enterprises, and this change has increased demand for investment in the sector. Despite commercial breeds requiring more investment, they have some advantages over indigenous chicken breeds because they have a higher feed to meat conversion ratio and take less time to reach market weight. Additionally, commercial layers lay more eggs in their productive life than indigenous chickens.

Despite its potential to contribute significantly to sub-Saharan economic growth, indigenous poultry is faced with numerous challenges such as mortality (Songolo and Katongo, 2000; Msoffe et al., 2010) and low productivity. The challenge of mortality may be addressed by veterinary services, but the issue of low productivity still poses a challenge for rural poultry farmers (Grace Lungu, Senior Animal Production Officer, Personal Communication). To improve productivity among the rural poultry sector, extension services need to innovate new strategies that will increase farmers competences and stimulate them to adopt new production technologies.

Unfortunately, extension service's investment into enhancing production in the rural poultry sector of developing countries like Zambia is low. This is partly because governments may believe funding other enterprises such as beef and dairy production provides greater financial gain than poultry (Mwacalimba, 2012). This bias is worsened by a male-dominated African society that traditionally believes funds spent on large livestock (which traditionally belong to men) is a better investment (Mwacalimba and Green, 2014). Thus, little work has been done by extension services in countries like Zambia, to evaluate the extension needs for the sector, which could help enhance and facilitate dialogue between service providers and farmers. As a result, most of the extension conducted in the sector has been a top down approach which has led to low adoption rates of sustainable poultry production strategies by rural poultry farmers (Yona Sinkala, Director of Veterinary Services, Personal Communication). Taking advantage of the fact that

over 70% of rural households in this region keep poultry (GRZ, 2010), enhancing extension in the rural poultry sector would tap into the potential it has in increasing household income and food security among resource constrained households.

Farmers who embark on poultry production need to perform financial analysis to decide what kind of production system would suit them best. Financial analysis like gross margin and break-even analysis would inform farmers of the likely return on investment as well as how many products they need to produce for them to make profits in the production system they choose (Malcolm et al., 2005; McCown, 2005). If equipped with the ability to conduct financial analysis, farmers would then be able to choose whether to embark on indigenous, broiler or layer production depending on the availability of labour, material and financial resources. Unfortunately, most rural poultry farmers in countries like Zambia seem to lack this knowledge and thus just keep their poultry without realising whether they are making profit or not (Arthur Mumbolomena, Provincial Veterinary Officer, Personal communication). Furthermore, the problem of losses in poultry production may be masked by income obtained from other enterprises like crop production and gardening that could run concurrently within farming households thus creating a false impression of profits in a rural poultry business. This gap in knowledge among rural poultry farmers is among the main challenges that needs to be addressed by extension services using participatory extension approaches that stimulate interest and ensure full implementation by farmers.

As a sequel to the background above, a study which used production and financial data obtained from poultry farmers of Eastern Zambia, to describe the rural poultry sector and conduct financial analysis that compared the financial performance of indigenous chicken production to broiler and layer production was conducted. The aim of this study was to offer a practical tool for livestock extension officers to stimulate and enhance production among the rural poultry sector. It is recommended that rural farmers that have improved their production and need to upgrade to commercial farming, are referred to several existing publications that address productivity in commercial poultry farming.

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