

# Prudent poultry farming as a source of livelihood and food security in a changing climate: The case of Zhombe communal lands, Zimbabwe

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**Abstract:** Zimbabwe has been hard hit by successive droughts in the last 13 years leading to the plummeting of agricultural productivity in most of the areas and Zhombe communal land has not been spared. However, many households in Zhombe have ventured into prudent poultry farming as a source of livelihood and food security. Small-scale farmers have embarked into the raising of indigenous chicken breeds, guinea fowls and turkeys. Data for the survey was collected by the administration of a well-structured questionnaire, focus group discussions and observations. Purposive sampling was used to target households that are keeping these birds. The results indicate that these birds are being used to improve people's diet and as a source of income. Most farmers experience the problem of shortage of feeds, outbreak of diseases, shortage of vaccines and theft. The study points to the need to encourage farmers to grow small grain crops which are drought tolerant and can be used as chicken feed and farmers should also go for training workshops on poultry production so as to equip themselves with relevant skills. They should merge scientific methods and indigenous knowledge systems of poultry management so as to improve productivity.

**Index Terms:** Food security, prudent poultry farming, livelihood, and Indigenous knowledge systems

## I. INTRODUCTION

The majority of farmers in rural areas of Zimbabwe rely on rain-fed agriculture which has been greatly affected by climate change. The frequency of droughts has increased with 10 drought years being recorded between 1990 and 2007 (Tawodzera in Fayne *et al*, 2012). This has led to food insecurity in the country due to the lowering of agricultural output, deterioration of pastures and death of livestock. Climate change is aggravating hunger, precipitating nutrition problems and compounding health issues among the rural poor subsistence farmers.

In Zhombe communal lands, most households have embarked on indigenous poultry farming as an asset adaptation strategy to climate change. Asset adaptation refers to the means and ways in which people use the assets that they have to anticipate and deal with challenges resulting from the change in climate Moser and Satterthwaite, 2008). Most households are involved in mixed farming which encompasses crop cultivation, livestock rearing and poultry farming. The majority of farmers who practice poultry farming keep indigenous domestic chickens (*Gallus domesticus*); domestic guinea fowls (*Numidia meleagris*) and turkeys (*Meleagris gallopavo*) in order to strengthen their resilience to climate change impacts on food security. Mapiye *et al* (2008) state that in Zimbabwe and other sub-Saharan African countries, 70% of the total chicken population is reared under the extensive system of production. The type of feeding is free-range because of resource scarcity to practice semi-intensive and intensive poultry farming.

Villagers in Zhombe communal lands are now involved in prudent poultry farming because they are particular about the health and security of their poultry. This has improved their livelihoods and access to nutritious foods.

Miao (2005) stated that development of village chicken enterprises can be a sustainable way of improving food security and livelihoods of the resource poor farmers. Indigenous chickens have high reproduction rate per unit time if breeds are selected appropriately, they are efficient in transforming feed protein and energy into human food and they use very low capital as they feed on flora and fauna and farmers can use ethno-veterinary medicine, they are less labour-intensive and need less space, which allows chicken production to be practiced even by landless individuals (Muchadeyi *et al*, 2004).

Indigenous domestic chickens are the most common, followed by domestic guinea fowls and lastly turkeys. The main focus of this study was on prudent poultry farming as a source of livelihood and food security in a changing climate.

## II. METHODOLOGY

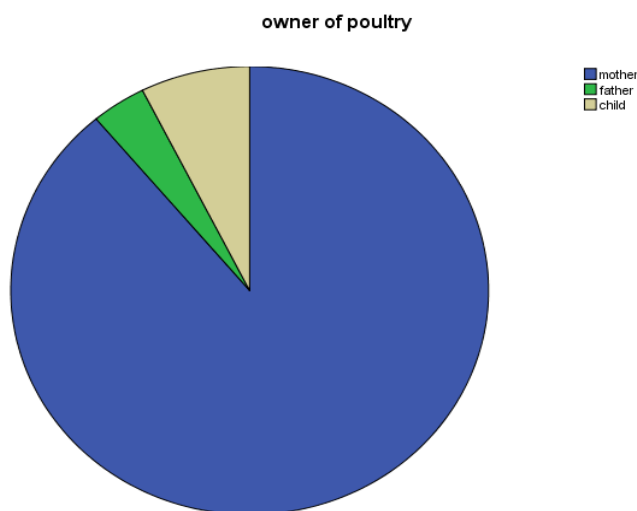
The researcher used simple random sampling to select two villages (Sinangeni and Gwenzi) in ward 11 where poultry farming is highly practiced. Purposive sampling was used to select 28 households (14 per village) who rear indigenous chickens, guinea fowls and turkeys. The data gathering instruments involved the administration of a well-structured questionnaire, focus group discussions and observations. Information collected included flock sizes and utilization, ownership, farmers' selection criteria and challenges and solutions.

## III. RESULTS

### Flock ownership

The study revealed that women formed the largest group (88.9%) of farmers involved in poultry farming, followed by children (7.4%) and then men (3.7%). This is shown in figure 1 below.

**Figure 1:** Flock ownership



### a. Flock sizes and selection

**Figure 2:** Flock size

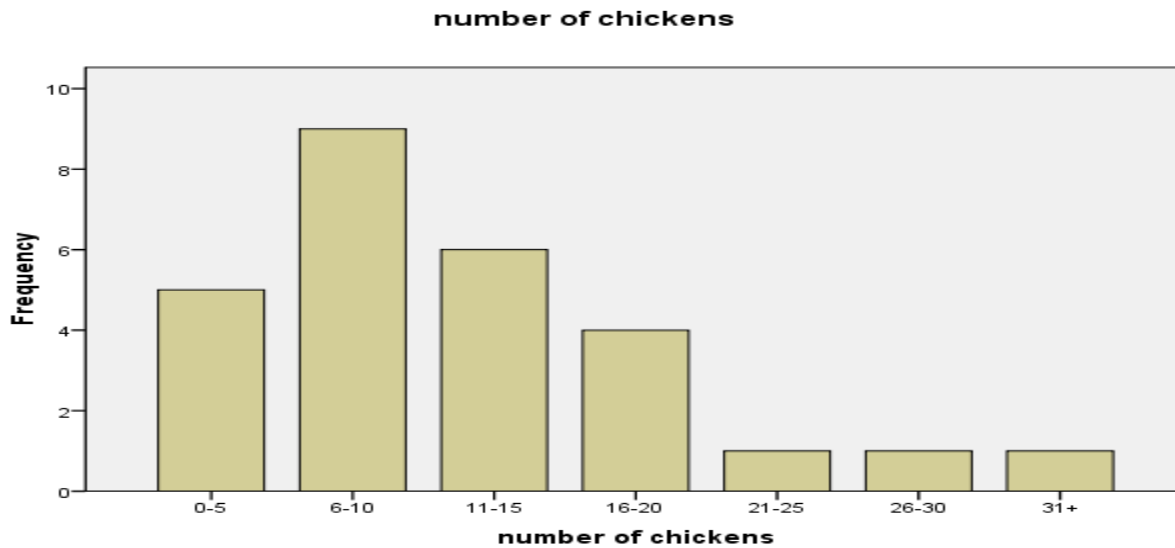


Figure 2: shows that the modal group is 6-10 chickens per household. Indigenous guinea fowls and turkeys tend to be lesser than chickens; their modal group is 0-5 per household. The majority of farmers prefer chickens to guinea fowls and turkeys.

### 3.3 Flock selection

Mixed breeds of chickens are very common in most of the households. 59.3% of the households keep mixed breeds, 14.8% keep chickens with bare necks, 11.1% keep red-brown chickens, 11.1% keep black chickens and 3.7% keep chickens with feathers on legs. Flock selection was based on breed quality in terms of productivity, resistance to diseases, size, plumage which made most of the chickens to be invisible to predators.

### 3.3 Flock utilisation and challenges

Poultry are a source of proteins (eggs and meat) for most households, they are a source of income and also manure. The challenges in poultry farming include outbreak of diseases, predators, theft, shortage of feed and housing problems at night.

## IV. DISCUSSION

Almost 100% of households in Zhombe communal lands practice poultry farming and it is done by women. This concurs with the results of the study which was carried out by Kusina and Kusina (1999) in Guruve district. Men tend to own the land and livestock. Fajemilehin (2010) asserts that village poultry production, if developed, can be employed as a tool to alleviate poverty, promote gender equality and ensure food security for economically disadvantaged peasant farmers. Poultry production empowers women who are normally a disadvantaged and vulnerable group to climate change.

Most households tend to prefer chickens to guinea fowls and turkeys. In most households, chickens range from 11-15 and guinea fowls and turkeys 1-5. Guinea fowls are difficult to house at night since they are very strong fliers creating difficulties in catching them. Turkeys tend to travel long distances and destroy crops during the farming season leading to quarrels between farmers. Guinea fowls are “watch animals” around homesteads because they have an excellent eye-sight, a harsh cry and shriek at the slightest provocation (Smith, 2000). Most farmers tend to use surrogate mothers, especially chickens and turkeys to hatch eggs for guinea fowls thereby reducing mortality rates for the keets.

Most of the farmers do not keep specific breeds of chickens. They are not genetically selected into specific breeds. Breeding and selection has been largely left to nature (Mapiye *et al*, 2008). Most of the breeds are mixed. Very few farmers kept black chickens and chickens with bare necks and the reasons for keeping these breeds was that they are big, lay a lot of eggs and are not visible to predators. This is a prudent selection of chickens because it is based on productivity.

Poultry farming has improved food security and nutrition status. It provides cheap, readily harvestable protein enriched white meat and eggs (Dolberg and Petersen, 2000). This reduces the prevalence of diseases associated with malnutrition. Some farmers stated that guinea hens can lay an average of 80-120 eggs per season. The other advantage of guinea fowls is that they are more heat tolerant and less susceptible to disease than chickens (Kusina *et al*, 2012). Turkeys provide a lot of meat due to their large sizes and also lay a lot of bigger eggs compared to those of chickens and guinea fowls.

The results show that poultry farming is highly used to generate revenue for most household. This is in contrast to Shumba and Whingwiri's (1988) assertion that the village chickens contribute less to rural economies. Households sell chickens and get money to pay school fees; medical expenses; buy clothes and some basic food stuffs and pay village taxes. They also provide manure. According to Das (2005) poultry manure is an extremely rich source of nitrogen and organic matter. It is used to improve soil fertility for high crop production.

Farmers care for their poultry by monitoring the outbreak of diseases such as new castle. There is wide use of ethno-veterinary medicine such as pepper, aloe and salt-and-sugar solution. The use of traditional medicine is due to its low cost, local availability, easiness of application and it does not require refrigeration (Muchadeyi *et al*, 2004). Farmers also provide supplementary feeding with locally produced feeds such as sunflower, maize, millet and sorghum. Supplementary feeds such as crushed sunflower and millet improve flock sizes, growth and fertility rates. Farmers also house their birds at night to reduce losses from predators such as owls, wild cats, snakes and domestic dogs. Some farmers reduce keets mortality by housing them for an average of one month and they also give them supplementary feeds.

#### V. CONCLUSION AND RECOMMENDATIONS

The major findings of this study are that poultry farming has reduced food insecurity by providing meat and eggs and they are a source of livelihood as they generate revenue for households. Farmers experience problems such as the outbreak of diseases, predators and shortage of feeds. Farmers have attempted to solve these problems by providing local supplementary feeds, housing at night and the use of ethno-veterinary medicine. Farmers should participate in breeding programmes to be equipped with knowledge on quality breeds which are more productive. Large chickens with high fertility rates are more profitable. Shelters should be constantly sprayed to eradicate parasites such as mites and lice. Finally, farmers should keep more of guinea fowls as they are more resistant to diseases and parasites and they produce a lot of eggs per given season.

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