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Full Length Research Paper

Production of indigenous chickens for household food security in rural KwaZulu-Natal, South Africa: A situation analysis

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Although South Africa is food secure at national level, most rural households in the country remain food insecure. KwaZulu-Natal (KZN) is one of the provinces that is predominately rural, with dependency rations, poverty and food insecurity highest in the rural areas. A situation analysis was conducted to investigate the feasibility of promoting production of indigenous chickens for household food security and income generation in the rural households of KZN province of South Africa. Data was generated through surveys, key informant interviews and focus group discussions. Results indicated that most respondents who kept indigenous chickens were women and most of them were advanced in years. Only 34% of the households had some poultry housing structures in existence and only 40% of these existing structures were in good condition. Diseases of indigenous chickens were attributed to local outbreaks, failure to vaccinate, poor hygiene and inbreeding. Most households experienced tremendous difficulties in raising indigenous chickens due to lack of extension services. There was also a notable lack of the required husbandry skills, training and opportunity to improve upon their household poultry production sustainably. It was recommended that the KZN Department of Agriculture design and implement a research and training programme aimed at building the capacity of women in managing indigenous chickens.

Key words: Indigenous chickens, household food security, rural KwaZulu-Natal.

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INTRODUCTION

South Africa is largely deemed to be food secure at national level, but the same cannot be said about households in rural areas. KwaZulu-Natal (KZN), the third smallest province, has the largest population in the country. The province is predominately rural, with dependency rations, poverty and food insecurity highest in the rural areas. South Africa has one of the highest HIV prevalence rates in the world, and KZN is its worst afflicted province. Unemployment and poverty in the province are also much higher than the national average (Thurlow et al., 2009). More than a third of KZN's population live below the US$2 a day poverty line and two-fifths of the workforce is unemployed (Hoogeveen and Özler, 2006).

Household food security is of great significance as a measurable extent of well-being. In spite of the fact that it may not cover all dimensions of poverty, the inability of households to obtain access to adequate food for a productive healthy life is surely a characteristic of deprivation. In 2006, the KZN Provincial Department of

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Table 1. Description of study areas.

District municpality	Local municipality	Area (km^2)	Population (2007)	Number of households	Projects surveyed
Ugu	Vulamehlo	973	74 017	16 366	Msisizane and Falini
	Umziwabantu	1 089.5	104 527	20 313	Hlanganani and Ocingweni
Umgungundlovu	Msunduzi	649	616 730	137 735	Vukuwenze and Zimiseleni
	Richmond	1 231.3	56 772	12 679	Thandukuhle and Masizathembe
Umkhanyakhude	Umhlambuyalingana	3 693	140 963	26 628	Phaphamani and Vukayibambe
	Big Five False Bay	1 161	34 991	6 657	Siyazama and Siyeza
Zululand	Phongola	3 239	149 543	22 112	Vukayibambe and Masakhane
	Dumbe	1 942.8	75 096	15 147	Thandukuzenzela and Vukuwenze

Source of figures: Statistics SA (2009).

Agriculture in collaboration with the Government of Flanders unveiled a five-year "Empowerment for Food Security Program" (EFSP) project. The objective of the EFSP project was to improve the livelihoods of poor households by creating sustainable access to nutritious food for all household members in KZN. The main target (beneficiary) groups were farmers, women and people living with HIV/AIDS, especially people facing and experiencing food insecurity. The program was aimed at training communities to produce their own food by engaging them in diverse projects. One of these projects was the promotion of the production of indigenous chickens to improve household food security.

Low-input indigenous chicken production is very popular amongst resource-limited rural communities of South Africa (Mtileni et al., 2009). Indigenous chickens play many socio-economic roles in traditional religious and other customs, as gift payments and serve as an important source of animal protein (McAinsh et al., 2004). They are also considered one of the main sources of income for the rural poor (Swatson et al., 2001; 2004; Muchadeyi et al., 2005, 2007; Mtileni et al., 2009). Sonaiya (2003) defined village chickens as involving any genetic stock, improved or unimproved, that was raised extensively or semi-intensively in relatively small numbers (usually less than 100 at a time). There is considerably minimal investment on inputs with most of the inputs generated in the homestead; labour is inexpensive as it can be drawn from the family. Indigenous chickens adapt well to different environments and can survive on limited feed resources that fluctuate in quality according to seasons (Kingori et al., 2007). According to Nhleko et al. (2003), village chickens are among the most adaptable domestic animals that can survive cold and heat, wet and drought, sheltered in cages, unsheltered outside or roosting in trees. Subsistence farmers keep them for household production (meat and eggs) and/or to supplement their income.

These farmers want to keep a chicken that can produce sufficient meat and eggs, become broody and hatch their own chickens to make the owner independent in egg and white meat production (Grobbelaar et al., 2010). Indigenous chicken production systems are economically efficient because although the output from the individual bird is low, the inputs are usually lower. The main aim of this study was to investigate the feasibility of promoting production of indigenous chickens for household food security and income generation in the rural areas of the KZN province of South Africa.

MATERIALS AND METHODS

Study area

The study was carried out in eight selected local municipalities within four districts of KZN (Table 1 and Figure 1). The province of KZN is characterized by diverse climatic conditions due to large variation in topographical features, such as the altitude that ranges from sea level at the shoreline to over 3000 m at the western border along the Drakensberg Mountains. Rainfall ranges from 500 mm to over 1500 mm per annum (DEAT, 2000). The coastal region is associated with humid and warmer temperatures. The four districts consist of diverse ecological zones, farming systems and socio-economic environments. The households visited were subsistence farmers whose family livelihoods were supported by considerably small pieces of semi-arid land.

Sampling and data collection

The size of the survey sample was predominantly determined by the number of EFSP project participants in the eight local municipalities within the four district municipalities. Simple random sampling was used to select two projects per local municipality from the list of existing projects compiled by the KZN Department of Agriculture. The total number of project members interviewed from the 16 projects was 117. All the project members belonging to each of the selected projects were interviewed. The size and type of projects were variable and project membership varied in numbers from about 6 to 35. Data on socio-economic characteristics of

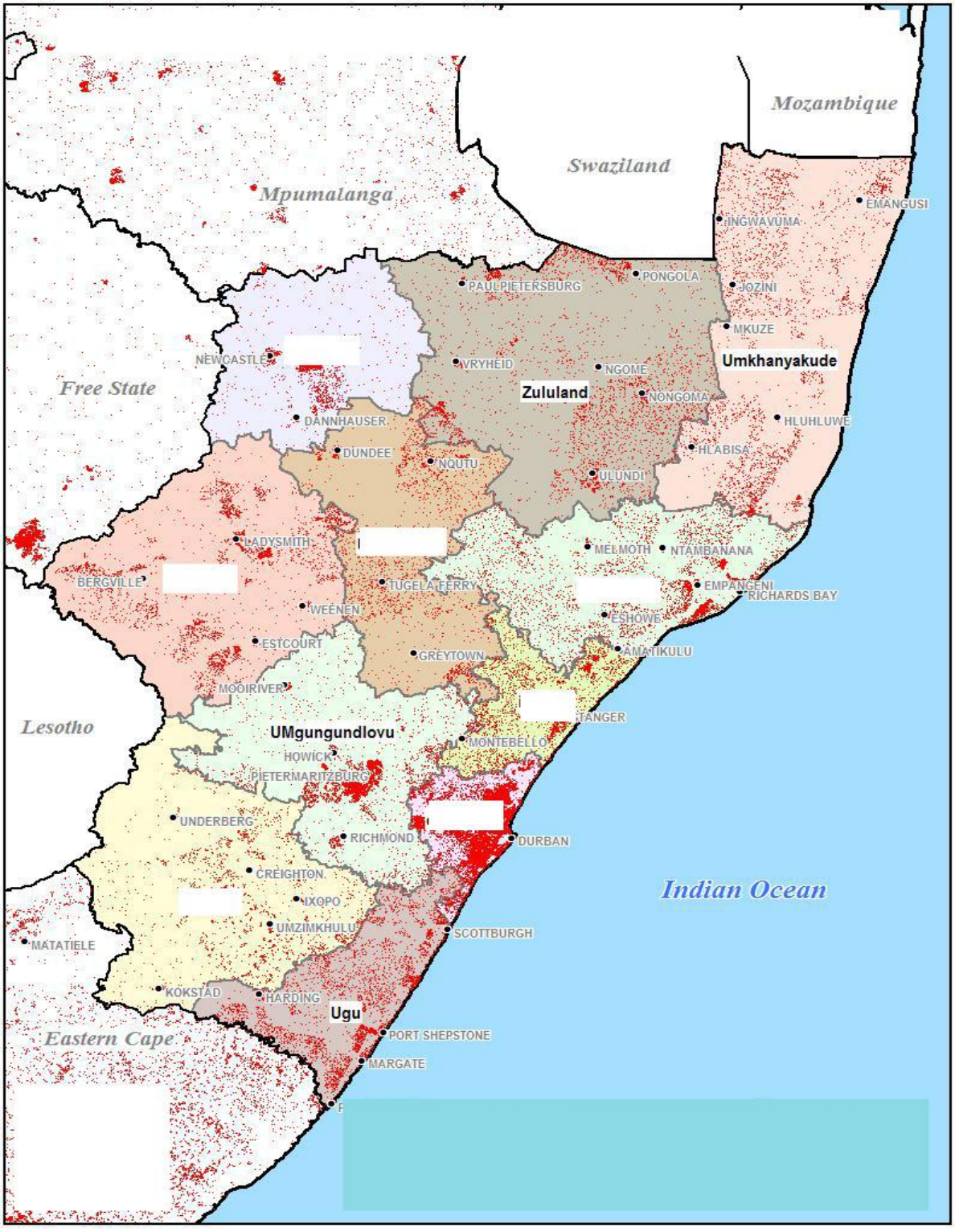

Figure 1. Map of KwaZulu-Natal showing the district municipalities from which study areas were selected.

project participants, livestock kept, indigenous chicken management systems, problems encountered with the raising of indigenous chickens and the market opportunities existing for the indigenous chickens were collected using semi-structured questionnaires and focus group discussions with members of each project. Additional data was generated through key informant interviews. Key informants were service providers contracted by the KZN Department of Agriculture to implement the EFSP projects in

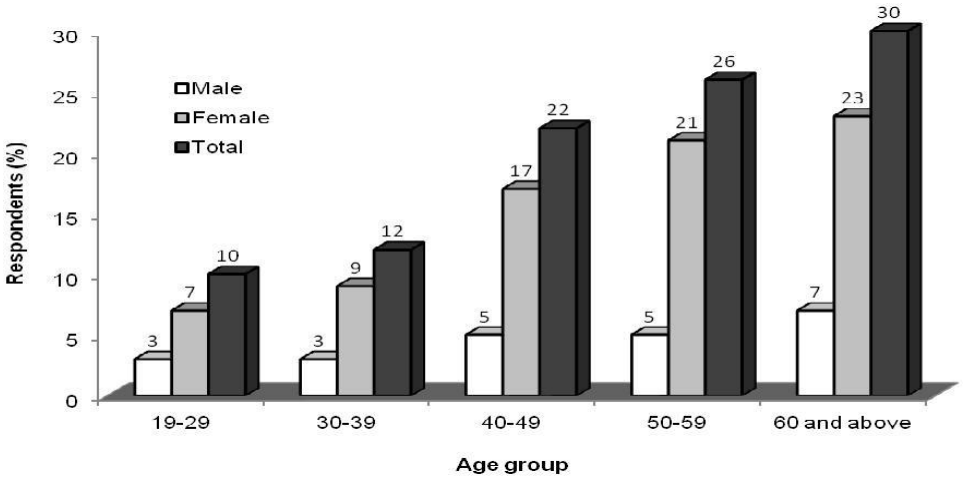

Figure 2. Percentage of respondents in the different age groups.

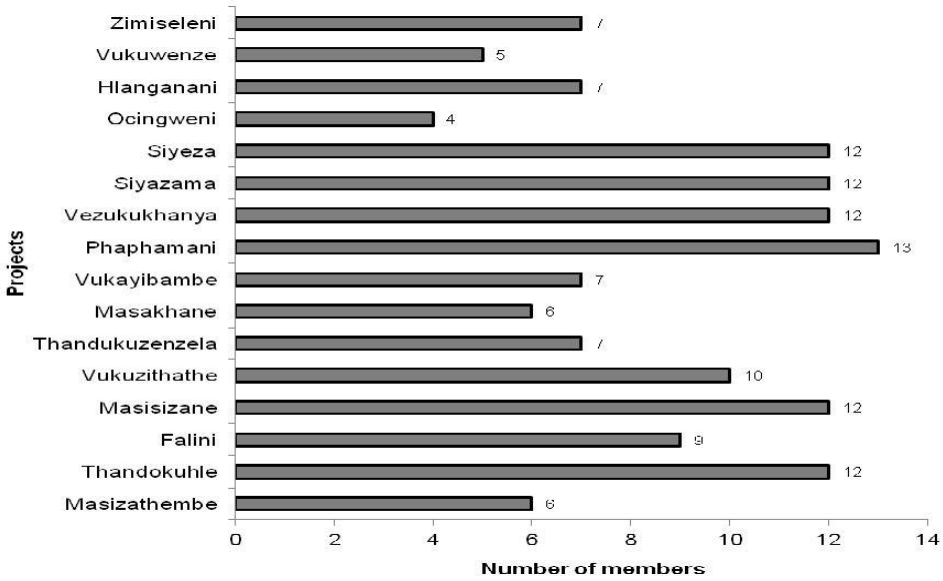

Figure 3. Number of participants in the different projects.

the different municipalities, agricultural extension agents and community facilitators. Workshops were held with the KZN Department of Agriculture extension officers in the respective areas to discuss the objectives and expected outputs from the survey.

RESULTS

Socioeconomic characteristics of the respondents

The majority (77%) of the respondents were females. The age of the respondents ranged from 19 to 85. The 19-29 years age group had the lowest number of respondents while the ≥60 years age group had the highest number of respondents (Figure 2). Ninety-seven percent of households produced crops to feed their families. All families (100%) purchased part of their food (up to 65%) to supplement family daily requirements. The numbers of participants in the different projects are shown in Figure 3.

Livestock production

About 77% of households interviewed reared indigenous chickens. Other livestock kept in smaller numbers by the respondents included cattle (7%), goats (4%) and pigs (1%). Members of only three of the sixteen projects kept pigs and the average number was between one and two per household. The average number of indigenous chickens, cattle and goats kept by projects members is presented in Figure 4. Indigenous chickens were mainly kept for subsistence and selling would only be done in

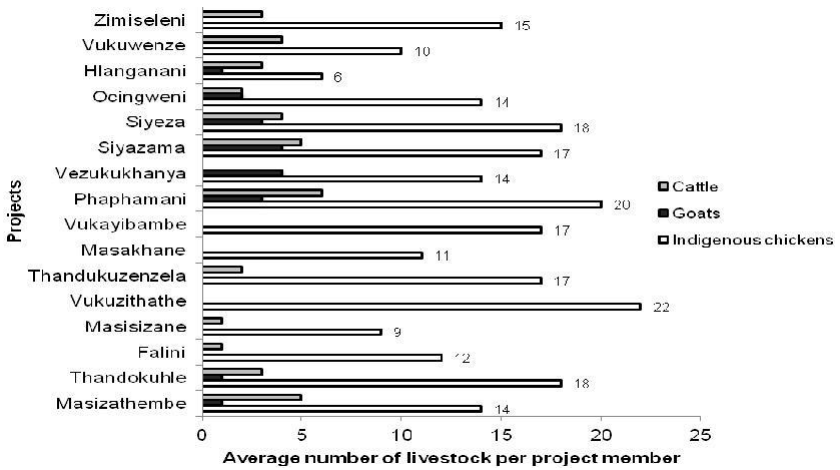

Figure 4. Type and average number of livestock reared.

Figure 5. Breeds of chickens kept by rural households in KwaZulu-Natal.

cases where there was excess or when farmers needed to generate income in form of cash. A minority part of the respondents (21%) indicated that they had received formal training in small livestock production.

Breeds of indigenous chickens kept and reasons for keeping them

Project participants kept one or more of three breeds; Ovambo, Potchefstroom Koekoek and naked neck chickens (Figure 5). The Ovambo breed was the most popular, with an average of 81% of all the respondents keeping this breed. The least popular was the necked neck, kept by an average of 3% of all respondents. In two local municipalities, Umziwabantu and Msunduzi, none of the respondents kept this breed (Figure 6). Table 2 shows that all projects visited cited meat as a motivational factor for rearing indigenous chickens. Eleven of the 16 project beneficiaries (69%) cited that, in addition to meat, they reared indigenous chickens to perform cultural ritual rites and the Ovambo breed was noted as important and suitable for this purpose due to its dark feather colour. Half of the project respondents

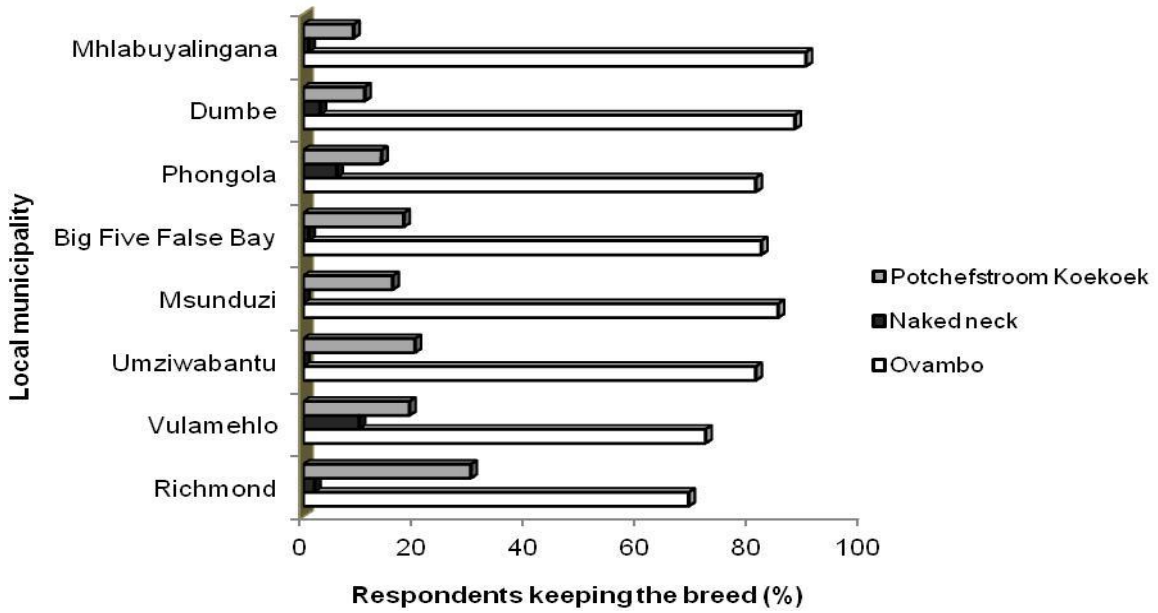

Figure 6. Respondents keeping the different breeds of indigenous chickens.

Table 2. Reasons for keeping indigenous chickens.

Project respondents	Egg production	Meat	Selling	Manure	Traditional ceremonies
Masizathembe	✓	✓	✓	✓	✓
Thandokuhle	x	✓	x	✓	✓
Falini	x	✓	✓	X	✓
Masisizane	✓	✓	✓	✓	✓
Vukuzithathe	✓	✓	✓	x	✓
Thandukuzenzela	x	✓	x	x	✓
Masakhane	x	✓	x	x	x
Vukayibambe	x	✓	✓	x	x
Phaphamani	✓	✓	✓	x	x
Vezukukhanya	✓	✓	x	x	x
Siyazama	✓	✓	✓	x	✓
Siyeza	✓	✓	✓	x	x
Ocingweni	x	✓	x	x	✓
Hlanganani	x	✓	x	x	✓
Vukuwenze	x	✓	x	x	✓
Zimiseleni	x	✓	x	x	✓
Total projects	7	16	8	3	11

expressed interest in commercialising indigenous chicken production.

Housing for indigenous chickens

Only 34% of the households visited had some poultry housing structures in existence and only 40% of these existing structures were in good condition. Common models used included the A-frame, traditional raised houses, brooding baskets, mud houses and tin houses. It was apparent that the majority of households (66%) could not provide decent housing for their chickens and trees played an important role in sheltering these birds.

Disease occurrence in indigenous chickens

Figure 7 shows the occurrences of certain poultry diseases as stated by households interviewed per study

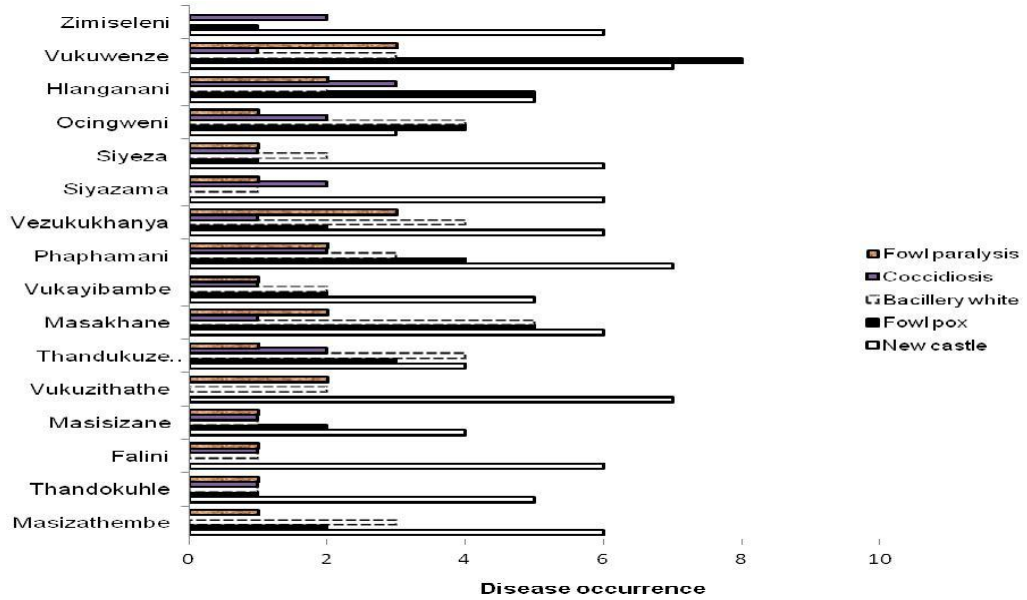

Figure 7. Types and occurrence of diseases in the different projects surveyed.

area. Many causes of these diseases were attributed to local outbreaks, failure to vaccinate, poor hygiene and inbreeding.

Market opportunities for commercial production

The products that could be marketed were meat and eggs. It was apparent that eggs could be produced and marketed profitably in only two local municipal areas namely Richmond and Umhlabuyalingana. About 80% of the respondents indicated that live chickens could not compete with the commercial breeds in the market place as most people regard them as of poor quality.

General

Interviews with key informants unearthed the following facts about indigenous chickens:

(i) Meat and eggs of indigenous chickens are tastier and preferred by some consumers compared to those sold by commercial producers (broilers),
(ii) Initial investment is less than that required to keep commercial breeds,
(iii) Indigenous chickens are more tolerant to harsh conditions, including diseases compared to commercial breeds,
(iv) Indigenous chickens can be fed on cheap, locally available feeds,
(v) Markets are locally available and there are no transport costs involved,
(vi) Chicken droppings are rich in nutrients and can therefore be used for compost making, garden manure or as feed for livestock.

DISCUSSION

The dominance of women in smallholder farming, and production of indigenous chickens in particular, as found in this study is a common characteristic, both in South Africa and in most developing countries (Guèye, 2000; Sonaiya, 2005; Doss, 2011; FAO, 2011; Halima et al., 2007). Despite this, extension provision in developing countries remains low for both women and men, and women tend to make less use than men of extension services (Meinzen-Dick et al., 2010). There is therefore a need to design training programmes in indigenous chickens that specifically target women who are the main players.

The situation analysis results showed that 56% of respondents were 50 years or older. According to Dlova et al. (2004), age is one of the factors that can affect the probability of a farmer being successful in farming. Results from their study concluded that older farmers were less capable of carrying out physical activities compared to the younger ones. Dlova et al. (2004) concluded that younger farmers are more ready to adopt modern technology. Thus, because younger people may be more adaptive and more willing than older people to try new methods, age is expected to be an influencing factor. Bembridge (1984) also concluded that as farmers get older, they often become more conservative and reluctant to accept risk, they work fewer hours and have fewer non-farm employment opportunities.

The Ovambo chickens were the most popular because

of some of their desirable characteristics, in addition to use in traditional ceremonies. The Ovambo chicken combines two characteristics of dark feathers and small size which help to camouflage the bird and protect it from raptors. In addition, the Ovambo is very aggressive and agile, and can fly and roosts in the top of trees to avoid predators (ARC, 2011). This makes it desirable to farmers as farmers do not have to worry much about investing in decent shelter for the birds. This was confirmed by the results that showed that only 34% of the households had some poultry housing structures in existence and only 40% of these existing structures were in good condition.

Despite the unpopularity of the naked-necked chickens, this breed is popular in other parts of the world. For instance, in France, the naked neck factor is used to advantage in commercial production for three reasons. Firstly, a considerable amount of dietary protein is used in the growing of feathers. The naked necked chickens have 30% less feathers than fully feathered birds and can therefore produce the same body weight with less food. Secondly, there are fewer feathers to remove in the slaughter line and therefore they pass through much faster and, lastly, they are more heat tolerant (ARC, 2011).

It is apparent from the findings that the main reason for keeping indigenous chickens was for meat. Fourie et al. (2004) reported that, because less fat is accumulated in carcasses of indigenous chickens compared to commercial hybrids, it is healthier to consume indigenous chicken skin as it contains six times less fat than that of broiler skin. They also found that the protein content of indigenous poultry meat was significantly higher in comparison to the meat of broilers and this was likely attributed to the difference in age at slaughtering. Given the nutritional and health advantages of indigenous chickens, promotion of the production of these birds can help to increase the life span of many HIV-infected people in rural KZN.

Findings of this situation analysis are consistent with findings by Musharaf (1990) who reported that in many countries in sub-Saharan Africa, indigenous chickens are characterised by low productivity due to poor nutrition, prevalence of disease and lack of sound management. As Dessie (1996) indicated, the nutrient intake of these chickens from the scavenging resource base is mostly sufficient for maintenance and low production, but for increased production, additional inputs are required. Indigenous chickens normally have lower growth rate and mature body weights, but with protein supplementation, they might attain similar growth rate and mature body weights as commercial chickens (Kingori et al., 2007).

Conclusions

Findings of the situation analysis have indicated that indigenous chickens play an integral role in the livelihoods of rural families in KZN. Nevertheless, most households are experiencing tremendous difficulties in raising indigenous chickens due to lack of extension services. Factors constraining production of indigenous chickens included disease, predation, poor housing, poor nutrition and the lack of genetic improvement programmes for the indigenous chicken stock. There was also a notable lack of the required husbandry skills, training and opportunity to improve upon their household poultry production sustainably. This calls for a need to focus on building the capacity of women through training and support services as they are playing a dominant role in production and management of indigenous chickens. This can be achieved through designing and implementing a research and training programme aimed at improving the management of indigenous chickens. The programme could include the collection, conservation and improvement of the currents indigenous chicken breeds.

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