

The Profitability and Contribution of Indigenous Chicken Production Towards Improving Household Well-being in Lusikisiki

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ABSTRACT This paper investigates the profitability and contribution of Indigenous Chicken (IC) production towards improving households' well-being. The main data was composed from 120 growers using purposive technique. The data was examined using descriptive statistics, gross margin and logistic regression. Descriptive outcomes revealed that chicken farming is mostly practiced by females (70%) with an average age of 60 years and who have spent at least 10 years in school. The Ovambo breed (58%) is mostly kept by households, through the free-range system. IC production was profitable with USD 98.0096, which contributed to households' well-being. Logistic regression reveals that household size, production system, years in school, extension services, and capital and farm experience were found to influence the profitability of indigenous chicken production. It is recommended that the Department of Agriculture and NGOs should promote chicken production through project innovations such as local chicken projects and extension services, so to improve households' well-being.

INTRODUCTION

Chicken production is the most common practice that tends to alleviate poverty and generate income especially in rural areas (Mottet and Tempio 2017). For example in Africa, most rural areas practice poultry production mainly for consumption and cash sale purposes. Wong et al. (2017) stated that poultry production used to constitute a large proportion of rural households' livelihoods. In South Africa, poultry production comprises the largest portion of the agricultural sector (Mhlongo 2017). Wondmeneh et al. (2016) specified that poultry production contributes largely to household income and household welfare, and it holds greater or equal to sixteen percent of South Africa's GDP.

Indigenous chickens (IC) are the common breeds that are usually kept in rural areas because they can be produced extensively and do not require many resources (Okoro et al. 2017). Chingonikaya and Salehe (2018) specified that indigenous chicken production has been increasingly acknowledged by local farmers and households as one of the entrance points to statement the global complications of under-nourishment, nourishment uncertainty, stumpy

revenue and deficiency in pastoral zones in most emerging republics. According to Bidi et al. (2016), poultry production is believed to be a feasible and possible alternative income source for rural households. Chicken is often the most available source of animal-protein for less privileged rural homesteads (Mhlongo 2017). Indigenous chickens are frequently found in utmost pastoral regions in evolving nations and appeared to be imperative for well-being generation of the caretakers. Moreover, poultry enterprise in rural areas plays an important role in socio-economic development and nutritional requirements (Khoza et al. 2017). Chicken production is vital for food security, leading towards self-employment and self-reliance, especially for low-income households (Okoro et al. 2017). Indigenous chicken keeping is viewed by farmers as a lucrative endeavour and ultimately a device for livelihood development for rural dwellers. Generally, chicken production is practised by women in rural households (Idow et al. 2018), as they have a significant influence on chicken productivity. Since women are mostly occupied with household chores, they are capable of providing maximum management as well as responsibility (Garutsa and Nekhwevha 2018). Mutua (2018) stated that chicken essence is the wildest rising constituent of worldwide core production, intake, and occupation, with evolving and evolution frugalities subsidising a prominent pro-

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tagonist in the development of emerging countries, especially South Africa.

Regardless of cumulative ultimatum for IC produces by native patrons, chicken production output and profitability is not well documented due to various factors. Moreover, chicken production in rural areas is relatively low because, in most cases, rural households rear chicken through an extensive production system. According to Idow et al. (2018), an extensive production system influences the production negatively because it is characterised by poor management and that could result in a decline in the production. Additional factors to IC decline is credited to great sickness incidences, insufficient nourishment, squat hereditary aptitude and deprived advertising conduits, decrease their influence to pastoral growth as well as economic returns for improvement of well-being of farmers. Mutua (2018) further added that poor or no biosecurity measures are predominantly a challenge leading to decline of revenues and contribution of indigenous chicken productions. Aila et al. (2012) argued that IC production structures are branded by restricted birds that rummage everywhere on the farmstead and frequently intermingle with barren fowl types in the development.

IC farming is very popular among South Africa's smallholder farmers, but this business is still confronted with major challenges. Some of

these challenges include financial constraints for the farmers to succeed in their production, external constraints (such as taxes and high interest rates), lack of technical information and training on the required quality standards in the market for poultry products and infrastructural constraints, which affect the IC farming. Therefore, efforts need to be strengthened to overcome these constraints through research, policy formulations, assistance from the public sector and other stakeholders.

Objectives

1. To examine profitability and involvement of indigenous chicken production in Lusikisiki.
2. To determine the factors affecting indigenous chicken production in rural areas in Lusikisiki.

METHODOLOGY

Description of the Study Area

The study was conducted in Lusikisiki, Ingquza Hill Local Municipality. Lusikisiki is a small town, which is located at OR Tambo District Municipality in Ingquza Hill Local Municipality in the Eastern Cape of South Africa (Fig. 1). The population of this area is estimated to be 4,028



Fig. 1. Map showing Lusikisiki

people with 1,427 households. This area receives high levels of rainfall that ranges between 874 mm to 1060 mm per year. Rainfall is usually considered to be unseasonal although Lusikisiki receives much of its rainfall in the summer season.

This area is selected because rural households in Lusikisiki are keeping small livestock, more specifically chicken for home consumption. Most of their livelihood is derived from agricultural activities. Agricultural activities mostly practised include livestock farming and vegetable farming. A large proportion of households in Lusikisiki are involved in livestock farming particularly, chicken production. However, most households are involved in farming activities to support their sources of income and household consumption. A majority of households keeping chicken lack some of the production inputs, and as a result, they are mostly dependent on traditional methods and indigenous knowledge. Such limitations can influence the profitability of indigenous chicken in rural areas.

Sampling Procedure and Sample Size

The targeted populations of this study were smallholder IC farmers improving their household's well-being and bridging their gap of knowledge and skill regarding IC farming in South Africa. The study made use of both qualitative and quantitative approaches to gather and analyse the data set. A descriptive research strategy survey was conducted, and records were composed using semi-structured question-

naires. The study made use of purposive and simple random sampling to select IC farmers in this research paper. Sample size for this study was 120 IC farmers in Lusikisiki.

Data Collection

Primary data was composed for this study through face-to-face interviews. Succeeding that, a semi-structured questionnaire was considered by the researchers, which was conventional on the assessment from the literature. The semi-structured questionnaire was first pre-tested and was administered to the interviewees with the help of exceedingly skilled enumerators who speak the local languages (IsiXhosa) smoothly. The final version of the survey was later masterminded to the farmers' head and in the absence of the head the oldest member of the farm was selected. The information on the semi-structured questionnaire includes farmers' demographic features, asset endowments, indigenous chicken farming information, indigenous chicken output, IC contribution to the households' well-being, profitability of IC and problems encountered by IC farmers, and lastly, factors influencing profitability of IC. This information was used to validate the data collected using questionnaires from the household poultry farmers in the target area.

Data

The data is accessible in Table 1 and clarified beneath.

Table 1: Hypothesised influential factors of profitability

<i>Dependent variable</i>	<i>Description</i>	<i>Anticipated sign</i>
Age	Discrete (years)	+
Increase of indigenous chicken kept	Categorical: Yes=1, No=2	+
Gender	Categorical: Male=1, Female=0	+
Marital status	Marital status dummy: married=1, 0 otherwise	+
Highest educational level	Discrete (years of school attendance)	+
Capital	Discrete (number)	-
Household size	Discrete (number)	+
Family size	Discrete (number)	-
Occupation	Categorical: Farmer=1, Self-employed=2, civil servant=3	-
Ownership of indigenous chicken	Categorical: women=1, men=2, both=3	-
Extension services	Categorical: Yes=1, No=2	+
Types of rearing IC	Categorical: Free range=1, indoor=2, semi-door=3	+
Farming experience	Discrete (years)	+
Source of income	Discrete ®	+
Membership in the farm organisation	1 member of the organisation, 0 otherwise	+
Constraints facing keepers of IC	Categorical: Disease=1, Theft=2, predators=3, unreliable markets=4, lack capital and inputs=5	-

Data Analysis

The collected data was entered into Microsoft Excel for cleaning and analysis purposes. Then, the data was transferred to SPSS version 24 and STATA 15 for analysis.

Analytical Framework

The study made use of three analytical frameworks for this study. The first was descriptive statistics in the form of means, frequencies and ratios to describe the farming systems and features of farmers. The second part was gross margin to measure effectiveness of indigenous chicken production in the study. The last part, logistic regression was used to evaluate aspects influencing viability of indigenous chicken production in rural areas of Lusikisiki.

Gross Margin

This study investigates the profitability and contribution of indigenous chicken production towards improving household well-being in Lusikisiki, Eastern Cape Province, South Africa. Seen as the link between costs and revenue within the farmer's enterprise, the critical need is to derive a means for aggregating the farmers' costs and their returns and establishing their difference. In the context of the on-going transformation in the country, the determinants of profitability are crucial ingredients for policy. Hence, the present study must adopt a procedure that is at once descriptive and also depicting cause-effect relationships. Gross Margin Analysis and Logistic Regression Model satisfy this requirement to measure profitability and factors influencing the indigenous chicken production. Gross Margin Analysis is widely used to evaluate an enterprise's economic viability and mostly used in agriculture for planning and comparison of farmers who possess similar characteristics within their enterprise (Mdoda and Obi 2019). The formal model is generalised as:

$$GM(\pi) = \sum (TR_i - TVC_i) \text{ (equation 1)}$$

Where,

GM is gross margin per indigenous chicken

TR is the total revenue from the production of indigenous chickens 'i' measured in terms of output produced and farm-price of the produce.

TVC is the total variable cost from the production of indigenous chickens 'i'. measured in terms of direct and indirect costs. This includes transport, water, hired labour, feed, and chemicals.

The Total Revenue, which is equivalent to crop income or gross income from each crop was calculated as:

$$TR_i = P_i \times Q_i \text{ (equation 2)}$$

Where,

P_i is the farm-gate price of indigenous chickens

Q_i is the total quantity produced for each indigenous chicken

Total variable costs were calculated using the following expression:

$$TVC = \sum_{i=1}^2 (K_{it} + S_{it} + L_{it}) \text{ (equation 3)}$$

Where,

K_{it} is the vaccination expenditure

S_{it} is the total expenditure on feed

L_{it} is the total labour expenditure on each enterprise

The paper further calculated Net Farm Income after gross margin calculations, as it includes land, capital, and management in its calculations. The NFI is the gross farm income minus production expenses. This method provides important information about the results of operating activities over some time. The NFI is often described in aggregate terms and is an influential and highly exposed statistic when used to describe the fitness of the farming sector (Tshame 2013). It is helpful to include Net Farm Income in profit estimation, as it uses the production costs of farmers.

Gross Margin = Total Revenue (TR) – Total Variable Costs (TVC) (equation 4)

From the above equation, Net Farm Income is derived as shown below:

$$NFI = GM - TFC \text{ (equation 5)}$$

Where,

NFI is the Net Farm Income or Profit

GM is the farm gross margin

TFC is the total fixed cost of the farm

Logistic Regression

This study investigates contributions and factors influencing indigenous chicken produc-

tion towards improving household well-being in Lusikisiki, Eastern Cape Province, South Africa. The involvement of indigenous chicken production towards improving family well-being in Lusikisiki was measured in terms of income generated. Therefore, the logistic regression model was used to analyse the contribution of indigenous chicken production to household income in Lusikisiki. The study used logistic regression to observe the factors that have an influence on household income from indigenous production. Machethe (2016) and O'Halloran (2005) discovered that the logit quantities could be understood as the consequence of a component of alteration in the sovereign mutable on the foretold logit with the other variables in the model detained endless. The model as a direct probability model, it gives the likelihood of individuals giving a negative or positive response that is, a yes or no answer (Hailpern and Visintainer 2003). An additional benefit of the logit model is its capacity to give legitimate estimates that are interpretable, regardless of study design. All arithmetical productivities were achieved at a ninety-five percent equal of implication ($P < 0.05$). The logistic regression process was a rummage sale to forecast the probabilities of factors influencing indigenous chicken production towards improving household well-being. The forecasters combined into the exemplary were age and gender of the head of household, household size, religion, chicken flock size, source of income, the purpose of slaughtering and the number of chickens slaughtered.

The logit model used was:

$$\ln \{P/1-P\} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n = \varepsilon \quad (\text{equation 6})$$

Where,

P = Probability of owning indigenous chicken by the household head

1-P = odds of not owning indigenous chicken by the household head

β_0 = Intercepts

β_1, β_8 = regression coefficient predictors

X_1, X_8 predictor variables

ε = random residual term

The odds ($\beta_1 \dots \beta_{10}$) were interpreted as the proportion of households owning indigenous chicken versus households not owning indigenous chicken. Similar ordinal logistic regressions

were used to estimate the probability of owning an indigenous chicken, as well as households attaining food adequacy throughout the year.

RESULTS AND DISCUSSION

In this section, descriptive statistics of the variables and the estimation results of the gross margin and logistic regression are presented. The results cover profitability, contribution and the factors that influence indigenous chicken production in the study area.

The Socio-economic Profiles of Households Rearing Chicken

The study results indicated that most of the farm households are headed by females in the proportion of seventy percent as compared to thirty percent of males. These results are in line with Wanjungu (2013) who found that females are the ones who take good care of indigenous chickens, as men are busy at work. The average age of the household head is 60 years, which suggests that farming in the study areas is controlled by elderly individuals probably because of mass retrenchments at the mines in the wake of mechanisation of mining operations that began in 2010 (Mdoda and Obi 2019; Mutua 2018; Kibirige 2013). Chicken producers are mostly literate, as the majority of the respondents have primary education, having spent approximately 8 years in school. These results agree with Mutua (2018) that indigenous chicken farmers had a basic education, which enabled them to access agricultural information and adopt innovative technologies to enhance farming. Household size averaged 5 persons.

Farming experience was 10 years on average. The study revealed that sixty-three percent of households have access to extension services and are members of farm organisations. The majority of the respondents were married at sixty-seven percent, while single and widowed were thirteen percent and twenty percent, respectively. These results are in line with Chinonikaya and Salehe (2018), Siyaya (2013) and Jerevazio's studies (2014) who found that most of the indigenous chickens are produced married households, which in turn helps them with

the supply of labour, as most of their indigenous chickens are free-range coordination. This study displays that mainstream farmers used a free-range production system because keeping indigenous chicken needs low input. The mainstream households are adopting farming as their full-time occupation. The household monthly income of households was R 5,000 to R 10,000 at sixty-eight percent, while at R 10,001 to R 11,000 were only thirteen percent of households who kept indigenous chickens. The IC farmers reveal that their farming is generating profit and does contribute to household well-being.

Types of Indigenous Chicken, Rearing System, Distribution of Decision Making and Socio-cultural Aspects in the Study Area

The below section looks at the types of indigenous chicken and rearing systems that are found in Lusikisiki and distribution of decision-making. The section is vital, as it draws up the set-up of indigenous chicken in the study area and also illustrates the contribution that indigenous chicken production is making towards improving households' well-being in the study area.

Table 2 elucidates the types of Indigenous Chicken kept by households and rearing systems. The study has found that Ovambo is the most common breed of indigenous chicken kept

Table 2: Types of indigenous chickens kept by households and rearing systems (n=120)

	<i>Frequency</i>	<i>Percentage (%)</i>
<i>Types</i>		
Naked Neck	20	17
Ovambo	70	58
Potchefstroom Koekoek	30	25
Total	120	100
<i>Rearing</i>		
Free-range	80	67
Semi-intensive	23	19
indoors	17	14
Total	120	100
<i>Shelter</i>		
Chicken house	85	71
Anywhere in the yard	25	21
Same house as Human	10	8
Total	120	100
<i>Care</i>		
Man	20	16
Female	70	58
Both	30	25
Total	120	100

by households at fifty-eight percent, followed by Potchefstroom Koekoek with twenty-five percent and lastly, the naked neck with seventeen percent. The motive for guardianship Ovambo type was owing to actuality decent mothers, alarm detection, income generation and confrontation to illnesses. The mutual rearing structures used in the study area for chicks, cocks, and chicken are also shown in Table 2. Out of 100 households, sixty-seven percent of households practiced free-range system, while nineteen percent used semi-intensive, and the remaining fourteen percent used the indoor system. This study agrees with Chingonika and Salele (2018) that the majority of respondents are using a free-range production system for rearing their indigenous chickens. This is because free-range systems require low inputs for keeping chickens and that is why most farmers and households prefer to use this system.

Table 2 further shows that households have built chicken houses to provide shelter for their chickens at seventy-one percent, while other households make use of anywhere in the yard (21%) or the same house as the humans (8%) as shelters for indigenous chickens. The study further found that females are the most common households' heads, who take care of indigenous chicken at fifty-eight percent while a man alone (16%) and both together (25%) also take care of indigenous chickens and protect them against thieves.

Table 3 shows the distribution of decision-making, which is important for Indigenous Chicken production. The study shows that females are contributing the most in decision-making at sixty-three percent and this is because they are the ones who spend majority of their time in rearing the chickens. It is further revealed that males alone and both of them together also play a significant role at twenty-five percent and twelve percent, respectively.

Table 3: Distribution of decision-maker on indigenous chicken by gender in the households

<i>Response</i>	<i>Frequency</i>	<i>Percentage</i>
Male	30	25
Female	75	63
Both	15	12

Table 4 shows the socio-cultural aspects of keeping indigenous chickens. The above results illustrate the contributions, which indigenous chicken production has in creating livelihoods for households in the study area, which in turn contributes towards improving households' well-being. The results show that indigenous chicken production contributes to home consumption with seventy-eight percent of chickens being used for home consumption. This assists household in meeting their dietary nutrition and food security, given that Lusikisiki is situated in the Eastern Cape Province, which has a high poverty rate. The second contribution is through honouring guests as well as gifts to relatives and friends as a token of appreciation by households. The indigenous chickens also contribute through income generations, as fifty-eight percent households sell their chickens around the village for rituals and home consumption. Fifty percent of the households keep chickens, especially the cocks for their alarm (time detection) and lastly, thirty-eight percent keep chickens for rituals and healing.

Table 4: Socio-cultural aspects of keeping indigenous chickens

<i>Response</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Rank</i>
For home consumption	94	78	1
Honour guests, a gift to relatives and friends	78	65	2
Income generation	70	58	3
For time detection (Cock's alarm)	60	50	4
Use for rituals/healing	45	38	5

Households' Major Challenges in Practicing Indigenous Chicken Production

As much as indigenous chicken production is contributing to improving households' well-being in the study, there are challenges faced by households in keeping those chickens. These challenges hamper their well-being mostly. These challenges are discussed in Table 5.

The first challenge faced by indigenous chicken producers in the study area is capital (54%). Most of these households have a capital challenge, which limits them in purchasing inputs that are needed in indigenous chicken production, such as vaccinations, inputs for infra-

Table 5: Households major challenges in practicing indigenous chicken production

<i>Response</i>	<i>Frequency</i>	<i>Percentage</i>
Capital	65	54
Diseases	22	18
Predators	18	15
Theft	15	13

structure development, and hatching structures. This is the major problem because everything in chicken production involves these resources and is the reason why chicken producers use a free-range system. Disease is another challenge faced by chicken producers at eighteen percent and is the second-highest challenge because most producers lack vaccines, which are crucial for production. Predators are another challenge that chicken producers face at fifteen percent and lastly, theft (13%).

The Profitability of Indigenous Chickens

The results of the gross margin and net farm income analyses are presented in Table 6.

Table 6: The profitability of indigenous chicken production

<i>Variables</i>	<i>Unit (USD)</i>
Total Revenue (USD)	296.924
Total Variable Cost (USD)	199.000
Gross Margin (USD)	98.0096
Gross Margin per USD 100	0.50
Less Total Fixed Cost (USD)	18.3049
Net Farm Income (USD)	79.6674

A total of USD 98.0096 was received by households that are indigenous chicken producers. The results show that the gross margin and gross profit margin stood at USD 98.0096. The positive gross margin indicates that households' chicken producers in Lusikisiki in the Eastern Cape Province are generating sufficient income, on average, to support their households and contribute towards their households' well-being. The profit ratio was established to be 0.50, suggesting that for every USD 1 (disbursed on chicken production), households' stand to make a profit of USD 0.50. Thus, chicken production in the Eastern Cape Province can cover their production

costs and earn revenue from the sales of their produce. Farm profitability can also be expressed in terms of Net Farm Income (NFI), which is obtained by deducting the Total Variable Cost (TVC) from the Total Revenue (TR), that is, $NFI = TR - TVC$. As previously explained, the TVC was calculated by adding up all the farm expenditure (feed, vaccine, and total labour) used. The Net Farm Income was USD 79.6674.

Factors Influencing Indigenous Chicken Income by Farmers

The principal one is the pseudo-R squared and the second one is the Likelihood Ratio Chi-square, which is a valuation of how well the model ordered defendants appropriately built on assessed likelihoods. The Likelihood Ratio Chi-square of 56.681 with a p-value of 0.0000 expresses that the model is statistically substantial. The R Squared (80%) and adjusted R square (75%) recommend a good-fit. Table 7 indicates the factors that influence indigenous chicken income by farmers. The factors that influence chicken income were household size, number of years spent in school, income through local chicken, initial capital, experience with keeping the local chicken, type of rearing systems, accessibility to extension services and constraints showed to be significantly ($p < .05$) influenced by local chicken-keeping among households.

Table 7: Factors influencing indigenous chicken income

<i>Variables</i>	<i>Coefficient</i>	<i>Standard error</i>	<i>Significance value</i>
Type of rearing system	-0.000490	0.602	0.001***
Initial Capital	0.0510	1.387	0.037**
Household size	0.00052	0.406	0.000***
Number of years spent in school	0.075	3.230	0.023**
Extension Service	0.0229	1.034	0.0221**
Farm Experience	0.0253	1.354	0.24**
Constraints facing keeping chickens	-0.000229	0.460	0.000***

Constant Coefficient = 1.201; LR Chi Square = 56.681; Observations = 120; R Squared = 0.803; Adjusted R-Square = 0.784; P-value = 0.000

Note: ** and *** represent significant level at 5% and 1%, respectively.

The type of rearing chickens was found negative and statistically significant at one percent. The negative coefficient implies an inverse proportional relationship with profitability. Also, it suggests that the type of rearing system tends to have an impact on the market participation of chicken producers, thus affect their profitability. From the results, a unit increase of one percent increase in a type of rearing system would induce a decrease in farm profitability by 0.490 units. This simple means an increase in type of rearing systems used for chicken lowers the profitability of IC.

Initial capital was also found to have a positive influence on profitability and statistically significant at give percent. Initial capital is very crucial, as it regulates the rearing system, attainments of veterinary facilities and inputs. This means that a one percent increase in initial capital will induce an increase in farm profitability by 0.446 units. This implies that the lack of capital, which chicken producers were complaining about, is affecting their day to day operation and profit generations, as they lack the capital to purchase improved inputs. The higher the farm initial capital or access to funding, the higher is the farm effectiveness of indigenous chicken farming. This result agrees with Chingonikaya and Salehe (2018) that having initial capital is contributing positively to farm operations and enhances farm revenues, which directly improves household well-being.

The household size has a positive coefficient with one percent significance, which implies a positive relationship that exists among family size and profitability status. This simply means that the more the family size increases, the more profitability will also increase. Davis et al. (2017) also agreed that the large household size increases profitability through an increase in yield production. The household members would be assisting in indigenous chicken production through labour availability.

The number of years spent in school plays an important role in agriculture, as it makes the flow of information easier and accessible. Number of years spent in school had a positive coefficient and is statistically significant at five percent level. However, the more people get educated, the more they will adopt the technology,

which will enhance their revenue returns from farming (Sihlobo and Nel 2016). The number of years spent in school had a significant and positive influence on profitability at a five percent level. This suggests that the more years spent in school, the more innovative farming households become and thus increase profit generation. The study revealed that a unit increase in the number of years spent in school would induce an increase in profitability by 0.075 units. Consequently, educated rural people tend to neglect agriculture as a livelihood strategy and start focusing on the off-farm activities but those investing in farming through IC farming are reaping high returns and they are contributing immensely to households' well-being. These results further agree with Chingonikaya and Salehe (2018) that education plays an imperative role in increasing farm returns and farm operations, which lead to improvement in households' well-being.

Extension service indicated a positive relationship to the profitability status at a five percent significance level with a positive coefficient. This implies that an additional unit of extension service by one percent especially in rural areas would increase households' participation in indigenous chicken production, thus increases profit. Extension service is necessary especially in rural areas because it offers them advice on agricultural production and what technology to adopt, which would increase their indigenous chicken production. Similar studies reveal that access to extension service encourages people to participate more in agricultural activities. According to Baiphethi and Jacobs (2009), an aspect of education received by a farmer affects market information interpretation and thereby influences the market participation level of the farmers.

Farming experience is always an advantage to the individuals that part-take in agricultural activities. The positive coefficient indicates a positive relationship between farming experience and household profit status. The positive relationship means that the more people have farming experience the more likely they are to participate in agricultural activities and generate income. These results are also in line with the study that was conducted by Mathebula et al. (2017), which states that farming experience is important in influencing households to participate in agricultural activities.

Constraints facing keeping chickens were found to affect profitability and were statistically significant at one percent. This means that there is an inverse proportional relationship between constraints facing keeping chickens and profitability. Also, it suggests that constraints facing keeping chickens tend to have an impact on the production of chickens, which ultimately affects profitability and contribution to households' well-being. From the results, a one percent increase in a constraint facing keeping chickens would induce a decrease in farm profitability by 0.229 units. Thus, directly reduces contribution of indigenous chicken towards households' well-being.

CONCLUSION

The purpose of this study was to assess profitability, contribution, and factors influencing indigenous chicken production towards improving households' well-being. The study showed that Ovando, naked neck and Potchefstroom Koekoek were the most frequently kept indigenous chickens in the study area. Farming in the study area is dominated by female households with an average age of 60 years and having 5 persons per household. The study revealed that indigenous chicken producers sourced their information from farmer associations, as most of them are members of farmer associations and have access to extension services. Based on the findings of the study, it can be concluded that indigenous chicken production was profitable with a gross margin of USD 98.0096 and was capable of improving the households' well-being and standard of living for the people. Production largely depends on profitability, which provides an incentive for the households and enables them to expand output and earn even higher economic returns on resources invested, including land and labour. It can be stated that farm profitability was influenced by households' size, type of rearing system, years spent in schools, initial capital, access to extension services, farm experience, and constraints facing keeping chickens.

RECOMMENDATIONS

The study recommends that more efforts should be made for the simplification of financial sources for indigenous chicken producers

to improve their production, yield, access markets, and vaccination kit. Extension officers are encouraged to train IC producers on poultry husbandry as to limit their constraints.

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