**Original Research Article**

**Effects of the Adoption of Improved Poultry Management Practices on the Income and Livelihood of Poultry Farmers**

**ABSTRACT**

The development of the poultry industry in Cameroon has been described as the fastest means of bridging the protein deficiency gap prevailing in the country. In order to sustain the interest of farmers in poultry production, improved poultry management practices for greater production efficiency to bridge the demand and supply gap are worth probing. This study investigates poultry production systems, farmers’ adoption of improved poultry management practices and the impact of the adoption of the improved management practices on the livelihood of women and youths in Kumba Municipality, Meme Division. Women and youths involved in poultry farming were identified through the snowball sampling technique. A sample of 56 farmers were administered questionnaires that were analyzed. Results on production systems exhibit that 42.9% of respondents utilized permanent housing structures, 42.9% used semi-permanent housing, while 14.3% relied on temporary housing structures. Poultry production is primarily carried out in the intensive system (52%), with 36% of farmers engaged in semi-intensive system and only 12% of the farmers produce with the extensive poultry farming system. Health management (98.21%) was the most adopted improved poultry management practice, followed by improved cleaning methods (94.64%), special feeding techniques and record keeping (53.57%). There was an observable increment in income greater than 50% as a result of the adoption of the different improved management practices. This increase in farm income had an impact on the livelihood of women and youths as majority were able to satisfy household needs (94.64%), make savings (91.07%), achieve financial independence (83.92%), expand the poultry business (80.36%) and acquire assets(73.2 1%). Conclusively, the adoption of improved poultry management practices improved the livelihood of farmers in the Kumba Municipality of Meme Division by reducing poverty, boosting food security, and enhancing overall well-being. Policies that support farmers and facilitate access to land resources, restrict importation to prevent domestic production from competition with imported birds, ensure disease control through mandatory vaccination programs are recommended to inflame productivity and promote sustainability of the poultry sector.

**Keywords:** Adoption, Income, Livelihood, Management practices, Poultry production

1. **INTRODUCTION**

Poultry farming is an importance source of food and income to many households. Poultry products are among the most affordable foods, besides being healthy protein sources with no religious restrictions (Daghir *et al.,* 2021). Amongst livestock animals, poultry production is quicker and cheaper to produce than other meat sources (cattle, goat and sheep) (Keutchatang *et al.,* 2021). In comparison to other domestic animals, they provide economic services as well as a substantial contribution to the human diet as a key source of meat, eggs, raw materials for industries (feathers, waste byproducts), and a source of revenue and employment for humans (Chauhan *et al*.,2024) . Poultry production plays a significant role in the livelihood and well-being of the populace by providing cash income, satisfying religious and socio-cultural needs, utilizing families’ spare time as well as satisfying families’ nutritional needs (Banda and Tanganyika, 2021). For several decades, poultry production has been the fastest-growing sector of animal production, playing a crucial role in the global balance of animal protein and the economies of many countries (Adaszynska-Skwirzynska *et al*., 2025). According to Neeteson *et al.,* (2023), poultry production is expected to increase by 2030, with the majority of growth occurring in developing countries.

In Cameroon, poultry production accounts for at least 34.26% of the total meat harvested from the terrestrial food-producing animals per year, with an estimated headcount of 52 million broilers and layer hens (FAO, 2020). As remarked by Ngouambé *et al.,* (2020), poultry farming, particularly broiler production, is a crucial livelihood activity for many women and youth in Cameroon, providing a source of income, food security and employment. Since poultry it is a small livestock that can be easily handled and fed compared to cattle and ruminants, women and youths dominate the production sector. Due to its small size, it is easily used for household food security and gifts. The development of the poultry industry in Cameroon has been described as the fastest means of bridging the protein deficiency gap prevailing in the country. Poultry (precisely broilers) production, is increasingly gaining interest of farmers in Meme Division, Cameroon. Some years back, there was an observable influx of birds from the West and Littoral Regions to meet the unappeasable demand of the population of Meme Division. In recent times, poultry production is gaining steam in the area as women and youths who constitute a significant portion of the agricultural workforce, are nurturing interest in this important sustainable food and income activity.

In order to sustain the interest of farmers in poultry production, effective research and extension are necessary for meaningful impact on poultry production. The heavy losses that poultry farmers face originate from the lack of knowledge about environmental factors, breeding techniques and given the importance of poultry farming, better profitability in this sector must be targeted by identifying the weaknesses in the poultry farming system, which can provide solutions for the real development of modern poultry farming in Cameroon (Djitie *et al*.,2022). Improved poultry management practices have been shown to have a positive impact on various aspects of poultry production, such as reduced mortality and improved overall flock performance (Ogunniyi *et al.,* 2020), and enhanced profitability and technical efficiency of poultry enterprises. Effective management practices contribute to improved performance and better health status of the birds (Amin *et al.,* 2025). The implementation of improved poultry management practices have a significant impact on the livelihoods of poultry producers, particularly women and youth, by increasing their income, food security, and overall well-being (Ogunniyi *et al*., 2020). Adoption is a psychological decision-making process that an individual goes through in accepting an innovation or new practice (Olutumise *et al.,* 2023). The good knowledge and adoption of improved management practices are pre requisites for desired outcomes (Jagalur and Manjula, 2023). Though there is information on poultry farming in Cameroon, there is paucity of knowledge on the production systems and the improved poultry management practices, which should be of great consideration for greater production efficiency to bridge the demand and supply gap. Moreover, much is yet to be known on the impact of the adoption of the improved poultry management practices on the livelihood of women and youths in Meme Division. This research seeks to investigate poultry production systems, farmers’ adoption of improved poultry management practices and the impact of the adoption of the improved management practices on the livelihood of women and youths in Kumba municipality in Meme Division, South West Region of Cameroon.

1. **METHODOLOGY**

The study was carried out in Kumba Municipality, Meme Division, Southwest Region of Cameroon situated at latitude 4°38'N and 4°52'N and longitudes 9°26'E and 9°35'E, of the Greenwich Meridian. The topography of the area is predominantly hilly, with an average elevation of around 200 meters above sea level. The area experiences a tropical rainforest climate, characterized by high temperatures and humidity throughout the year. The natural vegetation in the study area is characterized by a mix of tropical rainforest and secondary regrowth, providing a diverse ecosystem that supports various agricultural activities. The principal occupation of the inhabitants is business and agriculture. Kumba Municipality was selected as the study site due to the growing interest of women and youths in poultry production. The purposive sampling technique was used and women and youths engaged in poultry farming were purposively chosen to constitute the study population. Poultry farmers were identified through referral of day-old chick suppliers. This was because of unavailability of data on farmers engaged in broiler poultry farming in the study area. Through this snowball sampling technique, a population of 70 poultry farmers was attained. To determine an appropriate sample size from the target population, the Krejcie and Morgan (1970) sample size determination table was used. The calculated sample size was 59. However, the effective sample size was 56 because all the questionnaires were not returned, representing a response rate of approximately 95%. Primary quantitative data was collected through questionnaire administration. The questionnaire was designed to gather information on poultry production systems, improved poultry management practices and impact of adoption of improved poultry practices on the livelihood of the farmers. Data collected were analyzed using the Statistical Package for the Social Sciences (SPSS) and descriptive statistics were used to summarize the analyzed data.

1. **RESULTS AND DISCUSSIONS**

**3.1 Poultry Production Systems**

Regarding poultry production systems, Figure 1 revealed that, 42.9% of respondents utilized permanent structures, 42.9% used semi-permanent housing, while 14.3% relied on temporary structures. Proper housing is essential for the growth and productivity of the birds. Poultry farming is not an adventure but an important livelihood activity taken up by farmers to ensure the protein needs of the household and generate income to ameliorate living standards. This justifies why a greater proportion of the farmers had permanent structures as fixed assets, to ensure the sustainability of production activities, ensure comfort of the birds and substantiate their engage for greater efficiency.

Still on production systems, Figure 2 indicates that poultry production is primarily carried out in the intensive system (52%), while semi-intensive system makes up 36% and the extensive poultry farming system make up only a small portion of production system (12%). Similar results were observed in Wilson *et al*., 2022 where the intensive and semi-intensive were the prevailing production systems. The intensive production system reduces land requirement, enhances pest management and production efficiency. These findings are in line with Hofmann *et al.,* (2020) who opined that production systems affect productivity indicators, including growth rate and feed efficiency, while prompting significant issues regarding animal welfare and environmental sustainability.

Figure1: Type of structure used in production

Figure 2: Type of production system

**3.2 Improved Poultry Management Practices Adopted by Farmers**

In relation to the improved management practices Table 1, displays that health management (98.21%) was the most adopted improved management practice and involves the usage of vaccines to prevent the prevalence of infectious poultry diseases. Similar results were found in Nishanka *et al*., (2024) who underscored that vaccination plays a pivotal role in minimizing the incidence of viral and certain bacterial infections in poultry populations. To improve disease control and the production performance of poultry birds, the rightful planning, attentive usage and the administration of the rightful dosage of the particular vaccine has to be given the necessary attention (Abdallah *et al.,* 2023). Aondo *et al.,* (2020) stated that biosecurity is an indispensable tool to mitigate the spread of poultry infectious diseases but only a few poultry farmers understand and practice it. Poor health management is the primary cause of bird mortality and low returns in poultry production. A healthy poultry farm is a productive farm. Animal health guaranteed through appropriate housing and feeding, regular vaccination and prompt treatment of sick birds is the key to success in poultry farming.

Improved cleaning methods was advocated by 94.64% of the farmers. Effective cleaning of broiler houses through removal of litter and organic debris (like feathers, feces, feed residues,) appropriate washing of equipment like feeders and drinkers accompanied with disinfection, carcass disposal and placing of a disinfectant foot baths at all entrances reduces contamination and infection which is the prime cause of bird mortality. Finding is in line with that of Hyelda *et al.,* (2020) where regular change of litter, washing of drinkers, feeders, and cleaning the surroundings of the poultry house was reported as the major biosecurity measures. As mentioned by Subasinghe *et al*., (2023), effective biosecurity is essential for preventing the introduction and spread of infectious diseases such as salmonellosis within and between poultry farms thus safeguarding the health of the flock and minimizing the economic impact on stakeholders. Other biosecurity measures like washing hands and changing clothes ensures a good health status of the farm, which boosts productivity.

Special feeding techniques and record keeping was opted for by 53.57% of the poultry farmers. This result is corroborated by Mijena and Getiso, (2024), who emphasized that feeding is fundamental in poultry farming and that modern chicken farming is greatly influenced by the feed farmers provide for their chickens. The utilization of plants, insects and other agricultural byproducts as alternative feed ingredients for poultry are innovations recommended to farmers. These innovations can significantly reduce feed costs, making chicken production economically viable, especially for smallholder farmers with limited resources (Vlaicu *et al*., 2024). Given that feed cost accounts for at least 60% of the total production costs in poultry production, improvements in the feed formulation process will help maximize performance and profitability in poultry production (Wongnaa *et al.* 2023). Record keeping is a difficult task for farmers who often do not do farming as a business. Absence of farm records impedes knowledge on the farm progress. Effective record keeping on bird stock, feed consumption, cleaning and disinfection schedules, health routines, mortality is necessary to determine farm performance, decision-making and success of the poultry farm. Related findings were observed in Ibok *et al*., (2024) who equally acknowledged that record-keeping behaviour of poultry farmers is influenced by a myriad of factors, ranging from personal attributes such as education level and farming experience, to external factors like time constraints and farm status and understanding these factors is crucial in promoting better record-keeping practices among poultry farmers.

Table 1: Improved poultry management practices adopted by farmers

|  |  |  |
| --- | --- | --- |
| Improved poultry management techniques | Frequency | Percent |
| Improved cleaning method Yes  No | 53  03 | 94.64  5.35 |
| Total | 56 | 100 |
| Improved feeding techniques Yes  No | 30  26 | 53.57  46.42 |
| Total | 56 | 100 |
| Health management Yes  No | 55  01 | 98.21  1.78 |
| Total | 56 | 100 |
| Record keeping Yes  No | 30  26 | 53.57  46.42 |
| Total | 56 | 100 |

**3.3 The Impact of the Adoption of Improved Poultry Management Practices on the Livelihood of the Farmers**

The adoption of improved poultry management practices greatly influence the income levels of farmers as presented on Table 2. Health management catalyzed an increase in farmers’ income greater than 50% as asserted by majority (75%) of the respondents. Improved cleaning methods also triggered an increment in income greater than 50% per opinion of 71.43% of farmers. In the same line, 39.29% opined that record keeping activated income level by an increment greater than 50% while 32.14% of the respondents affirmed special feeding techniques was responsible for the more than 50% increment in farm income.  [Findings are in conformity with Okwuokeneye](https://www.researchgate.net/profile/Gf-Okwuokeneye-2?_tp=eyJjb250ZXh0Ijp7InBhZ2UiOiJwdWJsaWNhdGlvbiIsInByZXZpb3VzUGFnZSI6bnVsbH19) *et al.,* (2024), who asserted that poultry farming is an important means of earning income to farmers. This remarkable increase in farm income as invoked by the respondents portrays that adoption of improved poultry management practices boost production and farmers depending on poultry for employment, financial stability and livelihood are recommended to adopt such practices for greater efficiency and profitability.

Findings on the positive consequences of increase farm income are summarized on Table 3. Increase farm income facilitated the ability to meet household expenses as specified by majority (94.64%) of respondents. Income generated from the farm is used for provision of food, health, education and shelter thereby elevating the household standard of living. In the African context, household food security is the responsibility of the woman and the income generated from the poultry farm permits the woman to accomplish this household task without much stress. Also, youths who had dropped out of school due to lack of finance can provide for school needs from the income generated from the poultry farm.

To most of the farmers, increase income has permitted them to save (91.07%). Increase income elevates the saving capacity of the farmer, as they are able to set aside more resources after meeting basic needs. This also gives opportunity to investment and contributes to a higher quality of life for the farmer and household. Another widely mentioned consequence of increase income is financial independence (83.92%). Increased farm income significantly contributes to financial independence by bolstering economic stability, self-confidence, self-esteem and respect. Many women and youth have lost right to decision making due to financial dependency. Financial independency empowers women and youths to better manage expenses, plan for the future and withstand unforeseen challenges without being a liability or resorting to debt. Women and youths are more confident as they provide for themselves. Expansion of the poultry business was noted by 80.36% of respondents as the outcome of increase in farm income. Farmers’ success stories are key drivers in farmer- to - farmer extension and their role in awareness creation and motivation cannot be overemphasized. Youths often shun from agriculture because they donot consider it a lucrative venture. When successful youths share stories on the start –up of their farm enterprise and the level of progress measured by expansion of the farm business, they motivate other youths to get committed. Increase income from poultry also contributed to acquisition of assets like land as alluded by 73.21% of farmers. Land is an important production asset which unfortunately most women and youths do not have access to. Construction of a permanent poultry structure is difficult when in a tenancy status. Sometimes women and youths invest in temporal structures which are later destroyed therefore leading to losses and increase in cost of production. Assets acquisition is necessary for social security and a resilient measure for future shocks. Investing on land through purchase or expansion acts as indicator of farmers’ progress that intentionally or unintentionally act as motivation to other farmers. Murekatete and Hakizimana,(2023) acknowledged that the production of poultry products is positively associated with the ability to pay for health and education services, contribute towards food and nutrition security, and increase earnings and savings. Similar results were found in Hisyam *et al.,* 2023 where income raised from poultry farming emanated to improve access to health facilities, meeting children educational needs, improved housing condition and employment.

Table 2: Effects of improved poultry management practices on income generation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | Impact on income | |  | Total |
| Improved poultry  management practices |  | <20% | 20-50% | >50% |  |
| **Health management**  Yes | Count | 4 | 9 | 42 | 55 |
|  | % of Total | 7.14% | 16.07% | 75% | 98.21% |
| No | Count | - | - | 1 | 1 |
|  | % of Total | 0.00% | 0.00% | 1.79% | 1.79% |
| Total | Count | 4 | 9 | 43 | 56 |
|  | % of Total | 7.14% | 16.07% | 76.79% | 100.00% |
| **Cleaning methods** |  |  |  |  |  |
| Yes | Count | 4 | 9 | 40 | 53 |
|  | % of Total | 7.14% | 16.07% | 71.43% | 94.64% |
| No | Count | 1 | 1 | 1 | 3 |
|  | % of Total | 1.79% | 1.79% | 1.79% | 5.36% |
| Total | Count | 5 | 10 | 41 | 56 |
|  | % of Total | 8.93% | 17.86% | 73.21% | 100.00% |
| **Feeding Techniques** |  |  |  |  |  |
| Yes | Count | 3 | 9 | 18 | 30 |
|  | % of Total | 5.36% | 16.07% | 32.14% | 53.57% |
| No | Count | 2 | 8 | 16 | 26 |
|  | % of Total | 3.57% | 14.29% | 28.57% | 46.43% |
| Total | Count | 5 | 17 | 34 | 56 |
|  | % of Total | 8.93% | 30.36% | 60.71% | 100.00% |
| **Record keeping** |  |  |  |  |  |
| Yes | Count | 2 | 6 | 22 | 30 |
|  | % of Total | 3.57% | 10.71% | 39.29% | 53.57% |
| No | Count | 1 | 5 | 20 | 26 |
|  | % of Total | 1.79% | 8.93% | 35.71% | 46.43% |
| Total | Count | 3 | 11 | 42 | 56 |
|  | % of Total | 5.36% | 19.64% | 75% | 100.00% |

Table 3: Impact of increase income on livelihood of farmers

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Impact indicators | Degree of impact | | | |
| Increased | | Unchanged | |
| Frequency | Percentage | Frequency | Percentage |
| Satisfaction of household needs | 54 | 94.64 | 2 | 3.57 |
| Acquisition of assets | 41 | 73.21 | 15 | 26.79 |
| Expansion of poultry business | 45 | 80.36 | 11 | 19.64 |
| Financial independence | 47 | 83.92 | 9 | 16.07 |
| Savings | 51 | 91.07 | 5 | 8.93 |

1. **CONCLUSION**

Findings of the research are that the intensive system with permanent structures are the main poultry production systems in the study area. Improved poultry management practices adopted by poultry farmers are health management, improved cleaning methods, improved feeding techniques and record keeping. The adoption of these practices positively influenced an increase in income of more than 50% as indicated by majority of women and youths. This augment in income triggered an increase in savings, satisfaction of household needs, financial independence, expansion of poultry business and acquisition of assets. This significantly improves farmers’ livelihoods by reducing poverty, boosting food security, and enhancing overall well-being. Policies that support farmers and facilitate access to land resources, restrict importation to prevent domestic production from competition with imported birds, ensure disease control through mandatory vaccination programs inflame productivity and promote sustainability of the poultry sector. Since poultry is an importance source of protein and has demonstrated to be a lucrative venture in Meme Division, more women and youths are recommended to embark on the domain to guarantee their livelihood. Adoption of improved poultry management practices is also recommended for greater productivity and profitability of the business.

**COMPETING INTERESTS DISCLAIMER:**

Authors have declared that they have no known competing financial interests OR non-financial interests OR personal relationships that could have appeared to influence the work reported in this paper.

**DISCLAIMER** (Artificial intelligence)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, manuscript) has been used.

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