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Enhancing native chicken farming in Tudela, Misamis Occidental, Mindanao, Philippines: A study of practices and challenges

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Abstract

This study investigated into the practices employed by native chicken raisers in Tudela, Misamis Occidental. By surveying 150 individuals, a clear profile emerged: the majority were middle-aged men. This demographic suggests a strong potential for successful backyard farming, given their experience and dedication. The Joloano/Basilan breed proved to be the most popular choice among the raisers, primarily raised for meat production. While scavenging for natural feeds was a common practice, purchased feeds were also used to supplement their diet. However, the study identified significant challenges hindering optimal production: inadequate housing facilities and limited access to veterinary services. The findings emphasize the urgent need for targeted support to enhance native chicken production in the region. By providing specialized training programs, local governments and NGOs can equip raisers with the knowledge and skills necessary for effective management. Additionally, facilitating access to veterinary care can help prevent diseases and ensure the health and well-being of the chickens. Investing in improved housing facilities would also provide a more favourable environment for the birds, leading to better growth rates and overall productivity. Through these interventions, the study proposes a way towards sustainable and resilient native chicken farming practices. By empowering raisers and addressing their specific needs, local communities can benefit from increased food security, improved livelihoods, and the preservation of traditional agricultural practices.

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Introduction

Poultry farming is an important livestock sector in the Philippines. It has diversified components, namely: broiler, layer and native chicken. Although the Philippines have abundant land and water resources, low investment costs, and low labor prices, growing chicken has drawbacks as well (Tan *et al.,* 2022). Producing more chicken to feed millions of people has become necessary due to the growing population. With the recent technology, volumes of meat were produced daily to meet the increasing demands (Mottet and Tempio, 2017). The term "poultry management" typically refers to husbandry procedures or production methods that serve to increase production efficiency. To maximize output, sound management methods are crucial. The goal of scientific poultry management is to maximize profits with the least amount of investment (Kler *et al.,* 2022).

Due to the higher demand for chicken meat, this is anticipated to increase along with the country's growing population and rising standard of living (Lambio *et al.,* 2014). In the current food supply, hybrid chickens are replacing native chicken. However, there is a chance for small-scale farmers to produce native chickens and get an additional income since they require relatively minimal production inputs. Native chicken plays a significant economic role in the Philippines, but not because it increases gross domestic product; rather, it does so by providing rural residents with a consistent and predictable source of protein food and by directly addressing their immediate needs (Lambio, 2000). In addition, consumers prefer their meat and eggs because of their specific quality characteristics, particularly their strong, distinct flavor, high level of leanness, and flesh texture that is suitable for cooking traditional Filipino recipes (Lambio *et al.,* 2010).

Native chickens are popular among farmers in Misamis Occidental, with 10.28 million heads and their production taking place primarily in backyard settings (PSA, 2022). This number has been an essential source of food and additional income for the farmers. This study is conceptualized to determine the production and management practices of native chicken in Tudela, Misamis Occidental, as well as to identify the challenges experienced by the raisers. Moreover, improving native chicken production under the backyard system can contribute to food security for needy villagers. By improving existing production and management technologies, the outcomes of this research will provide a practical basis for Tudelanons to enhance their native chicken production and management practices in the area. This information can also be used by the Local Government Unit to formulate strategies to support the native chicken industry.

Materials and methods

Locale of the study

Tudela is a coastal municipality in the province of Misamis Occidental. The municipality has a land area of 87.34 square kilometers or 32.72 square miles which constitutes 4.35% of Misamis Occidental's total area. Its population as determined by the 2020 census was 28,599. This represented 4.63% of total population of Misamis Occidental province, or 0.57% of the overall population of the Northern Mindanao region. The municipal center of Tudela is situated at approximately 8º 15' North, 123° 51' East, in the island of Mindanao. Elevation at these coordinates is estimated at 9.8 meters of 32.2 feet above mean sea level (10).

Respondents of the study

Purposive sampling was used in the determination of the respondents. The study targeted 150 native chicken raisers with a minimum of 5 hens and 1 rooster per raiser in the major producing barangays of Tudela, Misamis Occidental namely: Balon, Canibungan Proper, Cahayag, Colambutan Bajo, Napurog, Gumbil, Maikay, Maribojoc, San Nicolas, Namut. Accessibility of the area, safety of the researchers and peace and order situation were also considered.

Data collection

An interview was conducted and was undertaken among the respondents of the study using a

structured questionnaire. The questionnaires were divided into two sections. The first section focused on the demographic profile of the respondents. The second section focused on the native chicken raisers on production and management practices of native chicken.

Data analysis

The collected data generated in the study were tabulated in Microsoft Excel and analysed descriptively using frequencies, percentages and average. Various graphs and charts were generated to present the result in an explicit manner.

Results and discussion

Demographic profile of the respondents

Table 1 revealed that most of the respondents (51%) were male. Male dominated because they were more experienced (Lu, 2007). This implied that backyard chicken production needs more physical strength, corroborating the statement of Raju *et al*. (2015) that more physical strength can be obtain from men these findings also implied that societal norms and expectations still influence the roles and responsibilities of male and female raisers. In terms of age, most of the respondents (36%) were young and middle age ranging between 36 and 55. This implied that raisers had potential and efficiency for backyard chicken farming as they are capable, adaptable, motivated and economically aggressive. Age was an essential demographic factor on assessing the productivity of the raisers (Oke *et al.,* 2014).

Most of the respondents (41%) did not finish secondary education and only few (21%) have completed tertiary education. Poverty is the main reason why they did not finish their studies.

Table 1. Demographic profile of the respondents

Variable	Category	Frequency	Percentage (%)
Age	Young (<35)	54	36
	Middle (36-55)	54	36
	Old (>56 and above)	42	28
Total		150	100
Gender	Male	77	51
	Female	73	49
Total		150	100
Educational	College grade	9	6
Attainment	College level	32	21
	High school grade	59	39
	High school level	22	15
	Elementary grade	14	9
	Elementary level	11	7
	Vocational	9	2
Total		150	100
Occupation	Farming	129	86
	Government Employee	12	8
	Housewife	9	6
Total		150	100

The lack of formal training in native chicken production and management may hinder their ability to adopt improved practices. On the other hand, farmers with high education had an increase level of creativity, innovation, adoption, effective utilization for optimum productivity (Sjakir *et al.,* 2015). The study also revealed that majority of the respondents (86%) stated that their primary occupation is farming. While this demographic profile indicates potential for efficient farming practices, limited education and poverty are major constraints.

Production and management of the native chicken

Breeding practices

Raising chicken is a pleasure for some people and a sustainable way of life for others. Certain varieties of chicken are known as dual-purpose breeds because they can both produce enough meat and lay enough

eggs (Escobedo del Bosque, 2022). Ninety- one of the respondents (91%) raised Joloano/Basilan, 7% percent of raised were Darag, and 2% percent of raised were Paroakan. They selected native hens for breeding and replacement stock. In traditional native chicken production systems, natural mating is the primary method of reproduction (Tabada *et al.,* 2014). Roosters and hens are allowed to mate freely within the flock. The body size and conformation serve as the basis for selection (Okeno *et al.,* 2011). Fifteen percent (15%) of the breeding materials used by the respondents were homegrown, but majority (85%) was purchased. The primary goal of keeping these chickens for meat production (51%), egg (34%), and 22% were utilized for home consumption. It was observed that the major constraint for this observed practice on the reliance of natural mating can lead to inconsistent breeding results and slower genetic improvement of native chicken in the area (Table 2).

Table 2. Breeding practices

Variable	Category	Frequency	Percentage (%)
Native chicken raised	Joloano/ basilan	136	91
	Darag	11	7
	Paroakan	3	2
	Banaba	0	0
	Bolinao	0	0
Total		150	100
Breeding materials	Purchased	128	85
	Homegrown	22	15
Total		150	100
Purpose of raising	Egg	51	34
	Home consumption	22	15
	Meat	77	51
	Sale	0	0
	Barter	0	0
Total		150	100

Feeding practices

Feed is the most important input for poultry production, and the availability of low-priced, high-quality feeds is critical for the expansion of the poultry industry (Ravindran, 2013). The survey revealed that 100% of respondents' feeding system is scavenging with additional supplement and they purchased feeds as supplement for the scavenged foods to develop homing instinct. According to Rama Rao *et al.* (2014); Ravindran (2013), feeding of the bird can be included in the chicken diet of their flocks. Native chickens are often allowed to roam freely during the day to forage for food. They consume a diverse range of natural foods, including insects, worms, grasses, seeds, and kitchen scraps. Free-range foraging helps supplement their diet, provides essential nutrients, and reduces feed costs for farmers (Sulinthone, 2006). In terms of the frequency of feeding, eighty one percent (81%) of the respondents feed their chicken twice a day and nineteen percent (19%) feed above three times a day (Table 3). The feed supplement being used by the respondents were ninety percent (90%) corn bran and ten percent (10%) corn grain. Kitchen scraps and food waste are commonly fed to native chickens as a source of supplemental nutrition. Leftover rice, vegetables, fruit peelings, and other food scraps are collected and fed to the birds, reducing waste and providing valuable nutrients (Tabada *et al.,* 2014). The study showed that most of the feed supplement (97%) was purchased, while three percent (3%) of it were farm produced. In terms of way of supplementation, eighty-four percent (84%) were done by spreading on the ground. According to Tada *et al.* (2004) native chicken scavenge for feed for about 6-11 hours during daytime to function at their best and maintain good health and were required a consistent diet of energy, protein, vital amino acids, minerals, vitamins, and—above all—water. Recent developments in poultry nutrition have mainly concentrated on three areas: understanding nutrient metabolism and nutritional needs; determining the

nutrients that are present in feed components; and developing the least expensive diets possible that balance nutritional supply and demand (Henchion *et al.,* 2017). The feeding practices among the native chicken raisers in Tudela also been observed with constraints, among which is on the lack of nutritional balance and nutrient deficiencies especially because the chicken mostly scavenge for foods and supplements. Furthermore, the uncontrolled time for scavenging can also lead to over-consumption of certain nutrients and under-consumption of others.

Table 3. Feeding practices

Variable	Category	Frequency	Percentage (%)
Feeding system	Scavenging only	52	35
	Scavenging with additional supplementation	98	65
Total		150	100
Frequency of feeding	Twice a day	121	81
	Above three times	29	19
	Once a day	0	0
Total		150	100
Types of feed supplement	Corn bran	135	90
	Corn grain	15	10
	Rice bran	0	0
Total		150	100
Source of feed supplement	Purchased	146	97
	Farm produce	4	3
Total		150	100
Way of supplementation	Spread on the ground	126	84
	Housing facility	24	16
	Using feeders	0	0
Total		150	100
Source of water	Well	46	31
	River	53	35
	Water district	51	34
Total		150	100
Type of water drinker	Made of plastic	150	100
	Made of bamboo	0	0
Total		150	100
Cleaning time of water drinker	Everyday	142	95
	Two times a week	8	5
Total		150	100

In terms of the source of water, the findings indicated that thirty-four percent (34%) of the respondents get their water from Water district, thirty-five percent (35%) from rivers, and thirty one percent (31%) from well it is observed that raisers had enough water sources for the birds. All respondents (100%) used plastic waterer. Majority of the respondents (95%) washed their waterer daily while five percent (5%) of respondents clean their waterer twice a week, The raisers made sure that the birds' daily needs for water are met. Access to clean water is also critical for hydration and overall health (Tabada *et al.,* 2014). The consistency and adequacy of the water supply was identified to be one of the constraints. It should be remembered that as bird age, their need for water grows, hence water quality and access had to be ensured. The feed-conversion ratio will suffer, and birds will not develop to their full genetic potential if enough water is not provided to them at the appropriate times (Tallentire *et al.,* 2016).

Housing management

In terms of housing management, the results showed that when it comes to night shelter, ninety six percent (96%) were on the trees, this implied that chicken were comfortable sleeping on the trees because of good weather condition and free from predators while four percent (4%) were in the kitchen. When it comes to the material used, all the respondents (100%) revealed that they used bamboo. Housing for native chickens in the Philippines typically involves providing simple

shelters or coops that offer protection from predators, adverse weather conditions, and diseases while allowing for natural behaviors such as roosting and nesting (Henuk and Bakti, 2018). The well-being of the animals depended on the proper housing of the animal (Bayne *et al.,* 2013). It had been observed in the area that the night shelter may offer some protection to the chicken, they may not be as secure as purpose-built coops, the roosting in trees may also not provide optimal space or comfort for the chickens that can potentially affect their well-being and productivity (Table 4).

Table 4. Housing management

Variable	Category	Frequency	Percentage (%)
Night shelter	Trees	144	96
	Kitchen	6	4
Total		150	100
Material used	Bamboo	150	100
	Net	0	0
	Wood	0	0
	Nipa	0	0
Total		150	100

Table 5. Health and disease management practices

Variable	Category	Frequency	Percentage (%)
Vaccination program	Yes	0	0
	No	150	100
Total		150	100
Poultry health services	Farm owner	25	83
To the farm	Veterinarian or technician	125	17
	Private veterinarian drug shops	0	0
	Technical service from the feed company	0	0
Total		150	100
Medicine used	Amptyl	150	100
	Vitracin gold powder	0	0
Total		150	100
The primary source of vaccine	Organic herbal	139	93
And medicine for each disease	Private veterinarian	0	
	Agrivet drug shop	11	7
Total		150	100
Provide poultry health	Every week	54	36
Services	Every 6 months	0	0
	Every month	24	16
	1 time per year	0	0
	Every 3 months/ quarter	72	48
	Only as needed	0	0
	Every three months/ quarter	0	0
Total		150	100
A common reason for the	Common colds	150	100
Mortality of the poultry	Avian influenza	0	0
	New castle disease	0	0
	Pateurella	0	0
	Fowl fox	0	0
Total		150	100
Preventive measures you	Culling/kill them	99	66
Have taken when chicken	Selling		
Get sick	Treat with traditional medicine	0	0
	Consult veterinarian	0	0
	Did not take any measure	51	34
Total		150	100
Dispose of dead birds on this	Buried	150	100
farm	Burned	0	0
	Put in a rubbish pile	0	0
	Thrown into a river	0	0
	Composted and used for fertilizer	0	0
Total		150	100

Health and disease management

Health and disease management for native chicken is vital and it faces a big challenge to ensure the welfare and productivity of the birds (Saif, 2009). Based on the results one hundred percent (100%) of the respondents do not have a vaccination program in place. The absence of vaccination programs increases the risk of disease outbreaks, particularly for highly contagious diseases, potentially resulting to economic loss due to mortality, reduced productivity, and increased treatment cost. Eighty-three percent (83%) of the health services were provided by the owners, while the remaining seventeen percent (17%) were provided by the veterinarian or technician. Relying on owners for health services may result in delayed accurate diagnosis and treatment, allowing diseases to progress and worsen. The practised of commonly using Amptyl as treatment to the common observed illnesses of their chicken may also contribute to development of drug-resistant bacteria strains. Overuse or misuse of antibiotics can lead to the evolution of bacteria that are no longer susceptible to the drug's effects. This is a significant concern as the drug-resistant bacteria can pose threat to both animal and human health (Table 5).

Ninety-three percent (93%) of the raisers used organic herbal medicine as the primary source of medicine for disease while the seven percent (7%) used medicine bought from agrivet shop.

In terms of providing poultry health services, forty-eight percent (48%) of the raisers said that they only provide poultry services quarterly or every three (3) months, Thirty-six percent (36%) of the respondents said they provided chicken health services weekly, and sixteen percent (16%) said they do it once a month.

All (100%) of the respondents revealed that the cause of mortality of the poultry is common colds. The high incidence of colds may be attributed to stress due to sudden changes in temperature and frequent rain. This may be attributed to poor biosecurity practices, such as inadequate sanitation and disinfection. Native chickens commonly suffer from respiratory issues like coughing, sneezing, and snoring. Many chickens will have eye and nasal discharge too. They may also eat, drink, and produce eggs less (Haunshi and Rajkumar, 2020). When the chicken became ill, sixty-six percent (66%) of the respondents' cull or sell it as a preventive step, while, thirty-four percent (34%) took no preventive action at all.

As a method of disposal, all respondents (100%) buried the dead birds. While culling and selling sick chickens may be a short-term solution, it does not address the underlying causes of disease and can lead to economic losses. The failure to implement preventive measures, such as vaccination and biosecurity, can perpetuate the cycle of disease outbreaks.

Constraints and opportunities

The major (100%) challenges that the native chicken raisers encountered was disease. This can be attributed to the absence of vaccination programs and limited access to veterinary services contributes to the high incidence of disease outbreaks. Moreover, the respondents' reliance on culling and selling sick chickens without implementing preventive measures indicates a lack of understanding of disease prevention strategies. As a result, the respondents stated that there were times that their entire chickens were infected with disease; other times, it could reduce its number in half. In addition, the absence of government or private institution assistance, training programs, and exposure opportunities limits the ability of raisers to improve their practices and access necessary resources. The limited access to veterinary care and supplies further hinders the ability of raisers to prevent and treat diseases.

On the other hand, the opportunities for native chicken production include increased market demand for white meat. Buyers preferred native chicken meat for their flavor, high level of learner

and flesh texture most of this chicken were also popular because they are organically grown for the health conscious. Furthermore, to encourage and assist chicken farming as a sustainable source of income, the government has launched several programs through the provision of funding, training, infrastructure development, and market connections, these programs seek to empower farmers especially those who raise poultry (Kemboi *et al.,* 2013). The government hopes to increase agricultural output, create jobs, and improve the general income and standard of living for those who raised chickens by putting these programs into place.

These programs are generally available to everyone engaged in the production of poultry, including small-scale farmers, business owners, and cooperative groups.

Conclusion

This study investigated the production and management practices of native chicken in Tudela, Misamis Occidental, Philippines. The research aimed to understand the demographic profile of raisers, their production and management practices, and the challenges they face. The findings revealed that the majority of native chicken raisers in Tudela are middle-aged males, indicating their potential for successful backyard farming. While the primary goal of raising native chickens is for meat production, many raisers also produce eggs for home consumption. Joloano/Basilan is the most popular breed, followed by Darag and Paroakan.

In terms of production practices, most raisers rely on a combination of scavenging and supplemental feeding. While this system can be cost-effective, it may not provide a balanced diet for the chickens. The majority of raisers use trees as night shelters, which can pose risks related to disease transmission and predation.

The study also identified several challenges faced by native chicken raisers in Tudela. These include disease outbreaks, limited access to veterinary services, inadequate housing, and lack of training and support. The absence of vaccination programs and reliance on herbal medicines contribute to the high incidence of diseases.

Despite these challenges, there are opportunities for growth and development in the native chicken industry in Tudela. Increased market demand for native chicken meat, coupled with government support programs, can provide incentives for farmers to improve their practices and expand their operations.

To address the constraints and capitalize on the opportunities, it is essential for native chicken raisers in Tudela to adopt sustainable farming practices, improve their knowledge and skills, and seek support from government agencies and NGOs. This includes implementing vaccination programs, providing adequate housing, improving feeding practices, and accessing veterinary services.

By addressing these challenges and taking advantage of the opportunities, native chicken raisers in Tudela can enhance the productivity, profitability, and sustainability of their businesses, contributing to the local economy and food security.

Recommendation(s)

To ensure the long-term sustainability of native chicken raising in Tudela, Misamis Occidental, it is essential to implement a comprehensive set of strategies First, promoting education and training programs, maybe facilitated by the Local Government Unit of Tudela and other non-governmental organization, will equip farmers with the necessary knowledge and skills to improve their practices. Second, enhancing access to resources, such as financial assistance, input supplies, and market access, will empower farmers to invest in their businesses and overcome challenges. Third, improving infrastructure, including roads, processing facilities, and storage facilities, will facilitate the efficient production, marketing, and distribution of native chicken products. Fourth, strengthening veterinary

services through the establishment of veterinary clinics, disease surveillance, and vaccination programs will help prevent disease outbreaks and ensure the health and welfare of the chickens. Fifth, promoting sustainable farming practices, such as organic farming and biodiversity conservation, will contribute to environmental sustainability and meet the growing demand for organic products. Sixth, strengthening cooperatives and associations will empower farmers to negotiate better prices, share resources, and advocate for their interests. Finally, enhancing market development through brand building, marketing campaigns, and exploring export opportunities will increase consumer demand and expand the market base for native chicken products. By implementing these recommendations, Tudela can create a sustainable and thriving native chicken industry that benefits both farmers and consumers.

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