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### Enterprise Study of Quail EGG Production in Selected Towns in Eastern Laguna

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#### Abstract

This study was conducted to assess quail farming opportunities and provided information for quail egg production and enterprise. This study used descriptive research to collect information from quail farmers in selected towns in Eastern Laguna, specifically Pangil, Siniloan, Famy, Mabitac, and Sta. Maria, in the form of a questionnaire consisting of a combination of close-ended questions and a 5-point scale. It discussed the demographic profiles of the 15 quail farmers, financial sources, business profile, management practices and operations, marketing practices, profitability of quail egg production, the problem encountered and its extent, and solutions applied by the quail farmers. The result implies that ages of 39-46 years old, female, married, and completed college level were mostly involved in quail egg production. Wholesaling was the main method of selling for most quail farmers. The 8 out of 15 of quail farmers in selected towns in Eastern Laguna

reported sourcing their quails from Batangas. The study also found out that there was a significant relationship between demographic profile in terms of civil status, number of family members, training attended related to quail farming, primary source of income, and other animals being raised with annual net income and financial statement with P values of <0.05. This study strongly recommended conducting a comprehensive survey of quail egg production in selected towns in Eastern Laguna. Finding solutions that encourage local sourcing and boost the local agricultural economy can be made possible by gaining an understanding of the obstacles and difficulties these farmers face in gaining access to selected towns in the farms of Eastern Laguna. This study strongly recommended conducting a comprehensive survey of quail egg production in selected towns in Eastern Laguna.

**Keywords:** Enterprise, Farming, Production, Quail

#### Introduction

The quail (*Coturnix coturnix*) is a small domesticated bird belonging to the avian family. Quail, also known as *pugo*, was once used only as a game or game bird. According to the Philippine Statistics Authority (PSA), quail, known for their eggs ("*pugos*"), were the third most abundant species of poultry. About 2 million quail were raised in 2012. On the other hand, quail stocks/farms increased fivefold (427.2%) in the same period. The quail population has increased almost eightfold (2.3M in 2012). Semi-commercial farms, on the other hand, have between 2,501 and 10,000 birds and commercial farms house more than 10,001 birds.

Profitability and simplicity of quail egg production are recognized by growers. Despite increasing demand, quail production remains a profitable business. Due to the high demand, marketing quail eggs is easy. (Yin and Young, 2009) <sup>[39]</sup>. The study of Adeoti & Baruwa (2019) <sup>[1]</sup> quail business was profitable with Operating expenses ratio, rate of return to investment, benefit cost ratio and profitability index. Constraints to quails farming includes: Poor marketing, high cost of feeds, poor quality of day old chick/high mortality rate and others. Base on the study of Arathy (2022) <sup>[4]</sup>, quail farming, although not an established sector, is well positioned in the poultry industry, making him one of the least studied agricultural sectors within the poultry industry. The study supported by El Sabry *et al.*, (2022) <sup>[14]</sup>, stated that although quail egg and meat production are growing rapidly, still, quail farming practices and welfare aspects are not well established. Kinyua (2022) <sup>[17]</sup> stated that the development of quail farming can be affected by poor market accessibility of quail and its products. The existence of

unreliable quail market, lack of market information and lack of organized marketing associations is also a great hindrance to the development quail farming. As well as Kwesisi *et al.*, (2022) <sup>[18]</sup> determine the factors influencing market performance of guinea fowl and quail products which are product, market, capital, technology and disease interrelation factors positively influence the market performance of guinea fowl and quail products.

A study by Malaca (2017) <sup>[19]</sup> found that the most common problems in quail production are capital, buyers, disease and predators. Limited capital is one of the problems facing quail keepers. She also explained that 'barat buyers' are the second problem for farmers. It has been pointed out that quails are susceptible to several diseases, such as the common cold, and they also have natural enemies such as cats and rats. Akarikiya (2021) <sup>[3]</sup> stated that quail production was more prevalent in the ecological zones. Coccidiosis (45%) and Infectious Coryza (43.3%) were identified as the most prevalent quail diseases with a mortality rate of <10% detected among quail chicks. However, Shalome & Nojuvewwo (2021) <sup>[32]</sup> says quails are susceptible to some common poultry diseases; but good management and welfare practices ensure safety and healthy birds. Quail is an easily cultivated livestock with advantages of high egg and meat production and a short maintenance period (Tandi *et al.*, 2021) <sup>[34]</sup>. The Study shows that quail farming is profitable and feasible to develop.

The theoretical framework of the study was related in the study of Drucker (2022), there have been as many major management techniques as there are today: Downsizing, out-sourcing, total quality management, economic value analysis, benchmarking, reengineering. It is also like in quail farming or quail production, which according to the study of Kalaiselvi (2019) <sup>[16]</sup>, that before starting quail farming; it is important to make a proper quail farming business plan. A proper business plan should include breeds, housing, feeding, care and marketing strategies. In the theory of business of Drucker (2011), it focuses on creating a customer which is similarly in quail egg production. This is done by determining the purpose of engaging in a business. Simply because we want to create a customer that can purchase our products and services. Quail farming has become a very popular business among the beginners. It is very profitable and very easy to start. Now, people throughout the world performing quail farming business commercially stated by Staff (2022).

## Materials and Methods

The study utilized the descriptive-survey method of research since it is concerned in the demographic profiles of the quail farmers, financial sources, business profile, management practices and operations, marketing practices, profitability of quail egg production, the problem encountered and its extent, and solutions applied by the quail farmers.

The researcher used set of questionnaire, a close-ended and 5-point scale as the research instrument. A face-to-face interview was conducted to the quail farmers in selected towns in Eastern Laguna, specifically in Pangil, Siniloan, Famy, Mabitac, and Sta. Maria. The list of the 15 quail farmer as a respondent was taken from the Municipal Agriculturist Office. Data gathered in this study were subjected to statistical analysis using frequency count, percentage and weighted mean. To test the relationship between demographic profile and profitability of quail egg

production, the researcher used the chi- square test.

## Results and Discussion

### Demographic Profile of the Respondents

There was a total of fifteen (15) quail farmers in Pangil, Siniloan, Famy, Mabitac, and Sta. Maria. Quail farmers were requested to answered the interview to have background information on them. Their profiles are shown from Table 1-9.

#### Age

Most respondents, comprising 33.33%, were aged between 39-46, according to demographic data collected from participating quail farmers. The age groups 23-30, 31- 38, and 47-54 each had three respondents (20% each). Only one respondent, or 6.67%, was in age group of 55-62. The quail eggs in selected towns in Eastern Laguna are produced by middle-aged farmers. Jinna and Stoneman's (2016) study found that middle-aged adults on family farms are typically the main operators, parents of youth, and children of older adults. They also tend to do the most work on the farm as their full-time occupation.

**Table 1:** Age

Age	Frequency	Percentage (%)
23-30	3	20
31-38	3	20
39-46	5	33.33
47-54	3	30
55-62	1	6.67
<b>Total</b>	<b>15</b>	<b>100</b>

#### Sex

Among the 15 respondents who participated in the study as quail farmer, the majority of 9 respondents or 60% were female, while only 6 respondents were male. These findings reveal that the selected towns in Eastern Laguna is predominantly composed of female farmers, with males representing a smaller proportion of the total farmers. Poultry Farm Workers (2016) <sup>[28]</sup> supported the data which a large portion of females were working in farm.

**Table 2:** Sex

Sex	Frequency	Percentage (%)
Female	9	60
Male	6	40
<b>Total</b>	<b>15</b>	<b>100</b>

#### Civil status

The data provided information to civil status of the 15 quail farmers in selected towns in Eastern Laguna. The majority of the quail farmers, comprising 12 respondents or 80%, were married. Meanwhile, 3 vendors or 20% were single, with a total of 15 respondents. According to Rayasawath, C. (2018) <sup>[30]</sup>, married farmers are mostly involved in farming because they want to stay close to their families by engaging in agricultural work. It implies that most of them has a higher interest in working in farms.

**Table 3:** Civil status

Civil status	Frequency	Percentage (%)
Married	12	80
Single	3	20
<b>Total</b>	<b>15</b>	<b>100</b>

**Number of family members**

According to the collected data, 12 of the 15 quail farmers surveyed, or 80%, said they had one to five family members. Additionally, three farmers, or 20%, stated that they had six to ten family members. The study was supported by Palis, F. (2020) [25] that the average household size was five and the average number of children was four. It implies that it is better to have lower number of family to sustain all the needs and wants of each member.

**Table 4:** Number of family members

Number of family members	Frequency	Percentage (%)
1-5	12	80
6-10	3	20
<b>Total</b>	<b>15</b>	<b>100</b>

**Address**

Pangil and Siniloan, each had four (26.67%) respondents residing. Three (20%) of the respondents were from Famy, Mabitac and Sta. Maria reported that each had two (13.33%) respondents residing there. It implies that there were more farmers currently involved in rural area. Agriculture is the primary industry in most rural areas. Most people live or work on farms or ranches. (National Geographic, 2022) [21].

**Table 5:** Address

Address	Frequency	Percentage (%)
Pangil	4	26.67
Siniloan	4	26.67
Famy	3	20
Mabitac	2	13.33
Sta. Maria	2	13.33
<b>Total</b>	<b>15</b>	<b>100</b>

**Educational attainment**

When the result from quail farmers in selected towns in Eastern Laguna were analyzed, it became clear that there was a wide range of educational attainment. Four (26.67%) of the 15 farmers who responded had completed their high school education, while 73.33% of them who responded had completed their college education. These data on the educational attainment of the quail farmers, uncovering a blend of educational levels from high school to college level. It suggests that farmers in selected towns in Eastern Laguna has varying degrees of formal education. According to Ninh, L.K. (2020), as such, education improves the allocative efficiency via the greater propensity to select inputs of higher productivity. As previously explained, education improves decision-making skills of farmers.

**Table 6:** Educational attainment

Educational attainment	Frequency	Percentage
High school	4	26.67
College	11	73.33
<b>Total</b>	<b>15</b>	<b>100</b>

**Training related to quail farming**

Twelve (80%) of the respondents had not attended, one (6.67%) of the respondents attended training with a topic about feeds, the other one respondent also attended training about Disease and the remaining one respondent attended training with a topic about Feeds and Incubator. However, all of the respondents who attended didn't remember the date and place where they attended. The findings supported

by Nasar, A. (2016) [20], where 67.3% farmers did not receive any training. It implies that a large portion of quail farmers didn't prefer to attend training related to quail farming.

**Table 7:** Training related to quail farming

Training related to quail farming	Frequency	Percentage (%)
Not attended	12	80
Feeds	1	6.67
Disease	1	6.67
Both feeds & incubator	1	6.67
<b>Total</b>	<b>15</b>	<b>100</b>

**Primary source of income**

Thirteen (86.67%) of the respondents' primary source of income were quail farming which the data supported by Nasar, A. (2016) [20], stated that although farmers had no earlier experience of quail farming, 58.0% farmers primary occupation was quail farming. While the two (13.33%) of the respondents' primary source of income were being employee. It implies that most of the respondent's primary source of income was related to farming or agriculture.

**Table 8:** Primary source of income

Primary source of income	Frequency	Percentage (%)
Quail farming	13	86.67
Employee	2	13.33
<b>Total</b>	<b>15</b>	<b>100</b>

**Other animals being raised**

The six (40%) of the quail farmers doesn't raise other animals, three (20%) of the respondents raising chicken, two (13.33%) were raising pig. While the rest of the respondents (4 individuals) were raising cow, duck, rabbit, and both pig and chicken. It implies that most of the respondents did not want to raise other animals and Veterans Off- Grid (2016) [36], supported the result which stated that we cannot discount the increasing animal welfare, environmental and health concerns that the intensification of livestock farming brings. When it comes to animal welfare, cost saving techniques often have an impact on the health and well-being of the animals.

**Table 9:** Other animals being raised

Other animals being raised	Frequency	Percentage (%)
None	6	40
Pig	2	13.33
Chicken	3	20
Cow	1	6.67
Duck	1	6.67
Rabbit	1	6.67
Both pig & chicken	1	6.67
<b>Total</b>	<b>15</b>	<b>100</b>

**Financial sources**

Table 10 displays the financial resources of the 15 quail farmers who participated in this study to assess the status of quail egg production in selected towns in Eastern Laguna.

**Source & cost of initial and current capital**

Capital is one of the most important things to start a business. As the table presented, most of the respondents (73.33%) used their own saving as their initial and current capital while the remaining 26.67% of the respondents got

their initial and current capital from bank loan. The table also showed that 93.33% of the respondents has a range of Php10,000.00 and above as an initial and current capital and only 6.67% of the respondents has a range of Php5,000.00 – Php10,000.00 as an initial while 14 quail farmer’s current capital was Php15,000.00 and above and only 6.67% quail farmer has a current capital of Php11,000.00 – Php15,000. It means most of the quail farmers’ source of capital was their own savings unlike the statement from Department of Agriculture (2020) <sup>[10]</sup>, which they provide affordable and accessible financial services to small farmers and fisherfolk to help them increase their production became even more vital. Guarantee and insurance, which are tools to mitigate risks in agriculture, are also needed support to increase productivity of farmers and fisherfolk to make food available and affordable.

**Table 10:** Source & cost of initial and current capital

Financial sources variables	Frequency	Percentage
<b>Source of initial capital</b>		
Savings	11	73.33
Bank loan	4	26.67
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Source of current capital</b>		
Savings	11	73.33
Bank loan	4	26.67
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Cost of initial capital</b>		
Php5,000.00 – Php10,000.00	1	6.67
Php10,000.00 and above	14	93.33
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Cost of current capital</b>		
Php11,000.00 – Php15,000.00	1	6.67
Php15,000.00 and above	14	93.33
<b>Total</b>	<b>15</b>	<b>100</b>

**Business Profile**

The business profiles of the 15 quail farmers who took part in this study evaluated the status of quail egg production in selected towns in Eastern Laguna are shown in the Table 11.1 and 11.2.

Location of the business, years started the business, type of business, years in the business, source of quail, way of receiving the quail, number of initial quail owned, number of current quail owned, partner in business, and workers were completely included for the table's business profile information. These variables have the potential to provide significant insights into the business profile of the quail farmers and to contribute to the creation of a picture that is more comprehensive of the quail egg production in the target area.

**Location of the business**

The data revealed that the majority of the respondents (26.67%) located their farm in Pangil and Siniloan. While 13.33% located in Mabitac and Sta. Maria and the rest 20% located in Famy. It implies that most of the respondents chose to locate their business in rural area because agriculture is the primary industry in most rural areas. Most people live or work on farms. (National Geographic, 2022) <sup>[21]</sup>.

**Year started the business**

Most of the quail farmer (33.33%) have started their

business in 2019. In the quail egg production, the longest year started is in 2006 (20%) and 2013 (6.67%) while the shortest year started in 2020 (26.67%) and 2018 (6.67%). However, one respondent decided to start their business in 2022 (6.67%) due to their will because they saw that quail egg has high demand in the market. It means that involving in poultry farming is their will because poultry farming provides a high yield, much capital is not required to become a poultry farmer lots of spaces are not required to begin poultry farming. (Poultry Care, 2020) <sup>[27]</sup>.

**Type of business**

The majority of the respondents (100%) dealt with their enterprise as sole proprietorship. It infers that most of the respondents had full control over the business which includes all production, financial, management, personnel, marketing, problem- solving responsibilities. This makes for relatively simple tax filing and very few steps in initial setup with the state and IRS. The owner is not required to submit articles of incorporation with the Secretary of State. (Backman, C. 2019) <sup>[5]</sup>.

**Years in the business**

The 73.33% of the respondents engaged into 1-5 years in the business. The 20% of the respondent engaged in this kind of business for 11 years and above and only 6.67% has 6-10 years period of time engaged in the business. It implies that the longer that farmers were engaged in farming was much better because they learned and they were used to different management. The result of the study by Palis, F. (2020) <sup>[25]</sup> supported the data which the average number of years they were engaged in farming was 25 years (range: 22–30 years).

**Source of quail**

The respondents mostly purchased their stock from Batangas (53.34%). Followed from Bulacan (20%), Pampanga (13.33%) and Mabitac (13.33%). It means that most of quail farmers in selected towns in Eastern Laguna chose to purchased their stock quails in Southern Luzon than Central Luzon.

**Way of receiving the quail**

Most of the respondents (60%) usually got their stock of quail by delivering to their farm while the rest of the respondents (40%) intended to pick up the quail from their supplier. Woods, C. (2023) <sup>[38]</sup>, stated that saving money is one of the main advantages of local delivery. Local deliveries frequently use less fuel and resources than long-distance deliveries, saving businesses money.

**Number of initial and current quail owned**

As presented in the data, the highest number of quail is 1,000 heads and the lowest number of quail is 200 heads. 86.67% of the respondents owned 300 and up heads and the other respondents (13.33%) owned 200-300 heads. Most of the respondents (86.67%) owned 400 and up heads currently. The lowest number of quail is 300 heads and the highest number is 10,000 heads. The other respondents (13.33%) currently owned 300-400 heads. It implies that any number of quail heads owned was profitable. Devore, S. (2019), stated that There are several ways that you can make money easily with quail. You can also sell the meat at a good price since the birds are considered a delicacy. Quail chicks fetch a higher price than chickens do. If you are

incubating eggs, you can expect to get as much as \$5-7 per quail chick.

**Partner in business**

The majority of the respondents (93.33%) managed their business with the help of their family. While one respondent (6.67%) managed their business with the help of their peers. It implies that majority of the respondents chose to have a help from their family instead from their peers and having a certain level of intimacy among the owners of a business can help bring about familiarity with the company and having family members around provides a built-in support system that should ensure teamwork and solidarity. Other benefits of a family business include long-term stability, trust, loyalty and shared values. Families also tend to be more willing to make sacrifices for the sake of the business. (Chron Contributor, 2020) [9].

**Workers**

The result showed if the respondents have a helper or no helper in their business. 12 out of 15 respondents mentioned that they have a helper and the remaining 3 out of 15 respondents mentioned that they don't have a helper. Every helper has their own duty to do, 26.67% of the respondents answered that their helper's duty is to feed quail and only 6.67% mentioned that their helper has to do cleaning. While the other respondents (46.67%) answered that their helper do both feeding quails and cleaning. The rest of the respondents (20%) has no helper. It implies that having a worker in work place was the benefits of using labour hire are immense. The biggest advantage of using labour hire is the reduction of the overall payroll costs. Other benefits to the organization include time saving, improved productivity, flexibility and provision of specialised skills. (Ortiz, F. 2019) [24].

**Table 11.1:** Business Profile

Business profile variables	Frequency	Percentage (%)
<b>Location of the business</b>		
Pangil	4	26.67
Siniloan	4	26.67
Famy	3	20
Mabitac	2	13.33
Sta. Maria	2	13.33
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Year started the business</b>		
2006	3	20
2013	1	6.67
2018	1	6.67
2019	5	33.33
2020	4	26.67
2022	1	6.67
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Type of business</b>		
Sole proprietorship	15	100
<b>Total</b>	<b>15</b>	<b>100</b>

**Table 11.2:** Business Profile

Business profile variables	Frequency	Percentage (%)
<b>Years in the business</b>		
1-5	11	73.33
6-10	1	6.67
11 and above	3	20
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Source of quail</b>		

Pampanga	2	13.33
Bulacan	3	20
Batangas	8	53.34
Mabitac	2	13.33
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Way of receiving the quail</b>		
Pick-up	6	40
Deliver	9	60
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Number of initial quail owned</b>		
200-300	2	13.33
Others	13	86.67
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Number of current quail owned</b>		
300-400	2	13.33
Others	13	86.67
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Partner in business</b>		
Family	14	93.33
Peers	1	6.67
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Workers</b>		
Helper	12	80
No helper	3	20
<b>Total</b>	<b>15</b>	<b>100</b>

**Management Practices and Operations**

The management practices and operations of the 15 quail ranchers who participated in this review to assess the condition of quail egg production in selected towns in Eastern Laguna are displayed in the tables.

The table's management practices and operations information included rearing management, light management, feeding management, health management, waste management, harvest operations, post-harvest operations, and culling operation. These variables have the potential to contribute to the creation of a picture that is more comprehensive of the quail egg production in the target area and to provide significant insights into the management practices and operations of the quail farmers.

**Rearing management**

Rearing management is the remainder of life after brooding until sexual maturity. The variables included were breed of quail and maturity of quail owned. The data was showed in table 12.

**Breeds of quails**

As per the result, 93.33% of the quail farmers raised Japanese Taiwan and only 6.67% quail farmers raised Japanese Seattle because Japanese Taiwan is the common breed that a lot of farmers raised and it is used for egg-laying purposes. It implies that Japanese Taiwan were hardy and generally disease free. They were small – approximately five quail can be raised in the same space required for one chicken. Comparatively lower feed costs were associated with quail than with chickens or other poultry birds. They were fast growers, gaining maturity quicker than any other poultry birds. They began laying eggs by their sixth or seventh week of age and can lay over 300 eggs in their first year of life. (Derksen, B., 2019) [11].

**Maturity of initial quail owned**

Mostly among 15 respondents, ten (66.67%) of them started to raised quail when it was a chick and the four (26.67%) of the respondents started to raise a laying or ready to lay

quails. Only one (6.67%) respondent started to raise a pullet. It means that most of the respondents prefer to raise a quail when it was new born. According to Singh, R. (2022), nowadays J. quail rearing has become an emerging venture in the field of poultry industry because of disease resistant, early age at maturity with the egg laying happens in 30-42 days of hatching of chicks. Quail is zoologically called as *Coturnix coturnix japonica* with chromosome number 78. They will sexually mature at the age of 6-7 weeks.

**Table 12:** Rearing Management

Rearing management variables	Frequency	Percentage (%)
<b>Breed of quail</b>		
Japanese Taiwan	14	93.33
Japanese Seattle	1	6.67
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Maturity of initial quail owned</b>		
Chick	10	66.67
Pullet	1	6.67
Laying	4	26.67
<b>Total</b>	<b>15</b>	<b>100</b>

**Light management**

It is the manner in which lights are installed in the poultry house that has a role on their efficiency. The variables included were hours of lighting, color of light, and heat lamp. The data was showed in Table 13

**Hours of lighting**

Exposing eggs and quails to light has been reported to relieve stress on embryos (Huth and Archer 2015) and help them hatch. As per the table showed, the 93.33% of quail farmers responded that they gave light to their quails in 24 hours and only 6.67% of quail farmers gave light to their quails in 12-14 hours to maintain maximum egg production and fertility.

**Color of light**

The 100% of the respondents used LED lights with different colors for their quails to help them hatch and develop their eggs. It implies that respondents chose LED lights because as per the study of Nunes, K. *et al.*, (2016) [23], the live performance, egg quality, and development of the reproductive and gastrointestinal tracts of Japanese quails (*Coturnix coturnix japonica*) exposed to light emitting diode (LED) lamps of different colors or fluorescent lamps.

**Heat lamp**

Heat lamp is the easiest way to keep quails warm. The 26.67% of quail farmers used heat lamp to their quails in 2-4 weeks while the 73.33% of quail farmers used heat lamp to their quails in 4 weeks and up. That means most of the quail farmers used heat lamp for their quails for a long period of time. According to the data of Spade & Feather (2023) [33], quail chicks must be kept warm 24 hours a day. In the first week, chicks need to be kept at 95°F. Every week the temperature can be reduced by 5°F. The easiest way to keep chicks warm is by using a heat lamp.

**Table 13:** Light Management

Light management variables	Frequency	Percentage (%)
<b>Hours of lighting</b>		
12 – 14 hours	1	6.67
24 hours	14	93.33

<b>Total</b>	<b>15</b>	<b>100</b>
<b>Color of light</b>		
LED light	15	100
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Heat lamp</b>		
2 – 4 weeks	4	26.67
1 – 2 weeks	11	73.33
<b>Total</b>	<b>15</b>	<b>100</b>

**Feeding management**

Feeding management is feeding a balanced diet, avoiding overfeeding, and providing abundant supplies of cool, clean, and pure. The variables included were type of feed, feeds of chick quails, feeds of pullet quails, feeds of laying quails, feeds of molting quails, and molting quails. The data was showed in table 14.1 and 14.2.

**Type of feeding**

Due to the possibility of an abrupt decrease in egg production, the quails were extremely sensitive to improper feeding. Based in the result, the respondents fed the quail in two different ways; restricted and ad libitum feeding. The 12 respondents (80%) practiced ad libitum feeding which means continuous feeding, while the 3 respondents (20%) practiced restricted feeding define as restricting the amount of feed while still ensuring nutritional adequacy. It implies that most of the respondents prefer to feed quails in an ad libitum way because in the study of Esmail, S.H. (2018), the incidence of skeletal disease was 3-fold lower in feed restricted birds compared to the full-fed birds.

**Feeds of chick, pullet, laying, & molting quails**

Commercial feeds were the common feeds being used that was the reason of 66.67% of the respondents used commercial feeds for their chicks and just 20% used a feed that made by their own. While the 13.33% of respondents did not began raising quails from chicks.

The 11 respondents (73.33%) used commercial feeds for their pullets, while 2 respondents (13.33%) used their own feeds. The remaining 2 respondents (13.33%) has no pullet quails because they started raising quails when they were laying quails.

Because commercial feeds increase feed intake, stimulate digestion, improve growth performance, reduce disease incidence, improve reproductive parameters, improve feed efficiency, increase profitability, and reduce emissions from poultry houses, 100% of quail farmers used commercial feeds for their laying quails.

The 100% of respondents used commercial feeds for their molting quails because it contained a high-protein complete feed that can help channel nutrients into feather regrowth and get back to laying eggs.

As per table, it also showed the breeds of molting quails, type of feeds being used for them, measure of feed intake, price of feed per kilogram, and how often molting quail feed. The 93.33% of the respondents said that the breed of quails commonly molting were Japanese Taiwan and only 6.67% of the respondents said it was Japanese Seattle. According to 100% of the respondents the type of feeds being used for molting quails were commercial feeds. Most of the respondents (80%) gave 20-30 grams of feed for molting quails while 20% of them gave 10-20 grams of feed for molting quails. The price of feeds that 100% of quail farmers purchased is cost of Php33.00 per kilogram. The

100% of the respondents gave feeds to molting quails 1-2x a day.

**Table 14.1: Feeding Management**

Feeding management variables	Frequency	Percentage (%)
<b>Type of feeds</b>		
Ad libitum	12	80
Restricted	3	20
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Feed of chick quails</b>		
Commercial feeds	10	66.67
Formulated feeds	3	20
None	2	13.33
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Feeds of pullet quails</b>		
Commercial feeds	11	73.33
Formulated feeds	2	13.33
None	2	13.33
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Feeds of laying quails</b>		
Commercial feeds	15	100
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Feeds of molting quails</b>		
Commercial feeds	15	100
<b>Total</b>	<b>15</b>	<b>100</b>

**Table 14.2: Feeding Management**

Feeding management variables	Frequency	Percentage
<b>Breed of molting quails</b>		
Japanese Taiwan	14	93.33
Japanese Seattle	1	6.67
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Feeds being fed to molting quails</b>		
Commercial feeds	15	100
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Measurement</b>		
10 – 20 grams	3	20
20 – 30 grams	12	80
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Price per kilogram</b>		
Php33.00	15	100
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Times of feeding per day</b>		
1 – 2 times	15	100
<b>Total</b>	<b>15</b>	<b>100</b>

**Health management**

Health management is monitoring the health status of an animal. The provision of wellness/health and disease management. The variables included were mortality per month, reason of mortality, and mortality of quails due to disease. The data was showed in Table 15.

**Mortality per month & reason of mortality**

Mortality is the percentage of deaths present on a farm. A farm's mortality rate is the percentage of deaths. A major cause for concern is an increase in mortality, particularly if it occurs suddenly. It has a significant impact on the farm's profitability as well as performance and laying. The result revealed the highest number of mortality of quails were 20 and above (20%) per month and the lowest number of mortality of quails were 1-10 (33.33%) per month. However, there were 10-20 (46.67%) mortality of quails per month.

There was different reason why quails suddenly die. The 40% of the respondents identify that quail being stuck is the

commonly reason of mortality. 33.33% said that predator is one of the reasons why quails suddenly die. Stress was also the reason of quail mortality according to 13.33% of the respondents and one respondent (6.67%) said that both stress and predator was one reason why their quail die. The remaining one respondent (6.67%) identify the reason why their quail suddenly die was because of both disease and predator. According to Homewood, A. (2021), quail chicks are small and fragile, and they can be easily damaged through rough handling. Even when handling them with care, they can suddenly jump out of your hands and drop to the floor.

**Mortality of quails due to disease**

The result also showed the mortality of quails due to disease in terms of quail's age, breeds of quail, and type of disease. The highest number of quail age that were commonly caught a disease is 5-6 weeks old (33.33%) and the lowest number of quail age that caught a disease is 3-4 weeks old (6.67%). Some of the respondents (20%) answered that their quail caught disease in age of 1-2 weeks old and the other respondents (20%) responded that their quail caught disease until 1 year old. The remaining respondents (20%) said their quails caught disease when it was born. The study also found out that Japanese Taiwan was the common breed of quail that caught a disease. Meanwhile, the common disease that the quail have is cold (60%), next is coryza (33.33%) and the least is coccidiosis with the average of 6.67%. It implies that more quails were prone in having a cold. Thus, farmers have to be mindful of providing the correct temperature in the brooder consistently. They also have to know the correct temperature setting of the brooder depending on their age. (Sam, 2021).

**Table 15: Health Management**

Health management variables	Frequency	Percentage
<b>Mortality per month</b>		
1 – 10	5	33.33
10 – 20	7	46.67
20 and above	3	20
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Reason of mortality</b>		
Disease & predator	1	6.67
Stress & predator	1	6.67
Stress	2	13.33
Stuck	5	33.33
Predator	6	40
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Mortality of quails due to disease</b>		
<b>Quail age</b>		
1 – 2 weeks	3	20
3 – 4 weeks	1	6.67
5 – 6 weeks	5	33.33
Until 1 year	3	20
New born	3	20
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Breed of quail</b>		
Japanese Taiwan	14	93.33
Japanese Seattle	1	6.67
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Disease</b>		
Coryza	5	33.33
Coccidiosis	1	6.67
Cold	9	60
<b>Total</b>	<b>15</b>	<b>100</b>

**Waste management**

Waste management is control, monitoring and regulation of the production, collection, transport, treatment and disposal of waste, degradation of surface and groundwater owing to poultry waste nutrients and pathogenic microorganisms. The variables included were cleanliness of farm and quail manure. The data was showed in Table 16.

**Cleanliness of farm & quail manure**

Table presented that most of the respondents always cleaned their farm and five of them practicing the method of converting quail manure to fertilizer while four of the respondents properly disposed the waste materials. One respondent always cleaned the farm, converting quail manure to fertilizer and properly disposing the waste material.

The waste of the quail should be always dry to stay away from flies and terrible scents that cause neighbors gripe. Ensure likewise that waste should not be wet since it contains methane and ammonium that causes cough and cold of the quails. The result showed that 100% of the respondents converted the quail manure to fertilizer that helps to increase the nutrients of the soil that can be planted with crops. Sam (2021), stated that quails need an environment that is clean and nurturing for their growth and development. While farmers cannot teach them proper hygiene as humans do, farmers can clean their place for them. Quails tend to poop anywhere, even on their food, water, and beddings. With that, farmers have to include a routine of cleaning these essential areas daily. If not, bacteria and worms can grow and be ingested, causing them to get sick and eventually die.

**Table 16: Waste Management**

Waste management variables	Frequency	Percentage (%)
<b>Cleanliness of farm</b>		
Cleaning	5	33.33
Quail manure as a fertilizer	5	33.33
Proper wasting	4	26.67
Cleaning, quail manure as a fertilizer, & proper wasting	1	6.67
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Quail manure</b>		
Quail manure as a fertilizer	15	100
<b>Total</b>	<b>15</b>	<b>100</b>

**Harvest operations**

Harvest operation is collecting of eggs from the breeding birds on a roll-away system, with each quail egg weighing 13.6-14g. The variables included were number of eggs harvested every day, time of harvesting, number of times of harvesting, and way of collecting quail eggs. The data was showed in Table 17.

**Number of eggs harvested everyday**

As table showed the percentage of harvested quail eggs that ranges from 100-200 pieces were 6.67% and the percentage of harvested quail eggs that ranges from 200 and above pieces were 93.33%. According to the study of Howell, C. (2022), quail can lay one egg daily between two and eight months. They're most fertile and productive at that time, with the potential to produce 300 eggs a year. However, the number of quail egg that harvested every day by the quail farmer was depending on how many stocks of quails they

were raising.

**Time of harvesting, number of times of harvesting & way of collecting quail eggs**

Morning was the usual time for harvesting quail eggs according to 86.67% of the respondents and 6.67% of the respondents said that they harvested quail egg in the afternoon. The other 6.67% of the respondents responded that they harvested quail eggs both in the morning and evening.

Among 15 respondents, the 14 of them collecting quail eggs just 1x a day while the only one respondent responded that they collecting quail eggs 2x a day.

Most of the people were technology literate and depended on how technology made life and worked easier but in collecting quail eggs, 100% of the respondents still used manually collecting eggs. The farmer implies that manual collecting was safer than mechanical.

**Table 17: Harvest Operation**

Harvest operations variables	Frequency	Percentage (%)
<b>Number of eggs harvested everyday</b>		
100 – 200 pieces	1	6.67
200 and above	14	93.33
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Time of harvesting</b>		
Morning	13	86.67
Afternoon	1	6.67
Morning & evening	1	6.67
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Number of times of harvesting</b>		
1x a day	14	93.33
2x a day	1	6.67
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Way of collecting quail eggs</b>		
Manual	15	100
<b>Total</b>	<b>15</b>	<b>100</b>

**Post-harvest operations**

Post-harvest operation is what must be done after harvesting the eggs. It includes sorting, cleaning/washing, packaging, storing, and transporting. The variables included were eggs after harvested, packaging, and storage. The data was showed in Table 18.

**Eggs after harvested, packaging, & storage**

There were different things to do after harvesting eggs and those were sorting, cleaning/washing, packaging, storing, and transporting. Majority of the respondents (100%) sorting the quail eggs after they harvested it. Sorting was separating the dirty and crack eggs from good quality eggs. Quail box was usually used as packaging of quail eggs according to 66.67% of the respondents. While the 33.33% of the respondents chose to used carton trays as the packaging of their quail eggs.

After harvesting quail eggs and putting it in their chosen packaging 15 out of 15 respondents stored their eggs in a concrete building which they found it safe there. Concrete building also managed the room temperature which is good for the quail eggs. Collect the eggs daily, and if you need to collect them over the course of a few days to gather enough for your hatch, store them at the mid-50-degree Fahrenheit range, with the points facing down. A fridge is too dry and cold for this. (Backyard Poultry Contributor, 2023)



**Table 18:** Post-harvest Operation

Post-harvest operations variables	Frequency	Percentage (%)
<b>Eggs after harvested</b>		
Sorting	15	100
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Packaging</b>		
Carton trays	5	33.33
Quail box	10	66.67
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Storage</b>		
Concrete building	15	100
<b>Total</b>	<b>15</b>	<b>100</b>

**Culling operations**

Culling operation is the process of removing undesirable animals from a herd. The variables included were operating culling practices, reason of culling, and age of quail being culled. The data was showed in Table 19.

**Operating culling practices, reason of culling, & age of quail being culled**

Culling refers to locating and removing low-producing or non-laying quails. The birds were suitable for home cooking or marketing unless they were diseased. Based in table, all quail farmers, especially the 15 respondents of the study culled their owned quails.

There was different reason why farmers culled their quails some of them are quail being actively prone to disease, not productive and some other related poultry failure. 60% of the respondents' reason was that quail was being matured and 26.67% of the respondents culled the quail because they were not laying. The rest 13.33% of the respondents' reason was either matured or not laying.

According to compassion in world farming, quail reared for meat were slaughtered by around 5 weeks old. Egg laying quail hens started laying at around 7 weeks old and slaughtered at around 8 months old. Most of the respondents (93.33%) culled their quails when they were 12 weeks old over and only 6.67% of the respondents culled their quails when they were 8-12 weeks old. According to Sam (2021), quail are culled either when they reach a certain age, are injured, or show signs of illness. Quail roosters are usually dispatched when they reach their full size between weeks 8 and 12. Quail hens can be processed once they reach 1.5 years of age and stop laying eggs.

**Table 19:** Culling Operation

Culling operations variables	Frequency	Percentage (%)
<b>Operating culling practices</b>		
Yes	15	100
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Reason of culling</b>		
Not laying	4	26.67
Matured	9	60
Not laying & matured	2	13.33
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Age of quail being culled</b>		
8 – 12 weeks	1	6.67
12 weeks and above	14	93.33
<b>Total</b>	<b>15</b>	<b>100</b>

**Marketing Practices**

Table 20.1 and 20.2 displays the marketing practices of the 15 quail farmers who participated in this review to evaluate the status of quail egg production in selected towns in

Eastern Laguna.

Way of selling, price of raw quail eggs, price provider, month of high sales, month of low sales, consumer, mode of selling, market place, and mode of payment were all included in the table's marketing practices information. These factors can possibly add to the making of an image that is more exhaustive of the quail egg production in the target area and to give critical bits of knowledge into the marketing practices of the quail farmers.

**Way of selling & price of raw quail eggs**

The kind of quail eggs that farmers sold were depicted in the table. The majority of respondents (100%) stated that they would rather sell raw eggs than cooked eggs.

The cost of raw egg relies upon the daily expenses. The basis for pricing by the quail farmers was the price per piece. The majority of quail farmers selling price ranges to Php1.45.00 to Php1.50.00 for raw quail eggs. It was sold daily. Farmer implies that due to high costs of quail feeds they intended to make the price of quail egg higher.

**Price provider**

The study found that the majority of quail farmers (93.33%) based their product prices on the prevailing market price, while the remaining 6.67% based their product prices on their own or the producer's own prices. Quail farmers followed the price of prevailing market price because according to Article 81 of Republic Act' 7394, otherwise known as The Consumer Act of the Philippines, provides that: "Art. 81. Price Tag Requirement. - It shall be unlawful to offer any consumer product for retail sale to the public without an appropriate price tag. label or marking publicly displayed to indicate the price of each article and said products shall not be sold at a price higher than that stated therein and "without discrimination to all buyers.

**Month of high & low sales**

In running a business, there were times when sales were at their highest. 13.33% of respondents said that January to March was their highest sales, 60% said that April to June was their highest sales, 6.67% said that July to September was their highest sales, and 13.33% said that October to December was their highest sales. In contrast, the remaining 6.67% of respondents indicated that their highest sales occurred to April to December.

High sales were not always the case; however, there were times when sales were low. A large portion of the respondents (60%), October to December was the month of their low deals. 26.67% of respondents reported low sales from April to June. While the 6.67% of the respondents, their low sales were in the period of January to March and the rest 6.67% of the respondents were in the month of July to September was their low sales. The farmer implies that the month of their high and low sales depend on the productivity of their quails.

**Consumer and mode of selling**

The 80% of respondents said that they sold their harvested quail eggs to both wholesalers and street vendors (80%), while the remaining 20% said that they sold their quail eggs to wholesalers, retailers, and street vendors.

The majority of quail farmers (86.67%) sold their eggs wholesale, while 6.67% sold them retail. In the meantime, the remaining 6.67% of quail farmers sold their eggs both

wholesale and retail. A retailer will need to make a profit on your eggs so make sure you sell them to the retailer with enough space for them to make it worth their while. When selling in bulk to a retailer you don't need to make as much per carton of eggs as it is a single large order: it's one transaction, it's one delivery, it's one customer to deal with. (Spade & Feather, 2023) [33].

**Market place & mode of payment**

Quail farmers sold their quail eggs to the public market Pangil, Siniloan, Mabitac, Famy, and Sta. Maria (93.33%). Also, the excess 6.67% of quail farmers sold their quail eggs straightforwardly to their farm.

To elude misunderstanding and conflict, the quail farmers mode of payment was cash (80%), but 13.33% accepted credit and 6.67% agreed to a mode of payment in installments. This implies that quail farmers used traditional marketing practices. Because just 5 years previously, only 33% of those in the agriculture sector used social media regularly. This highlights a huge lift in uptake, up 158% since 2015. (Brindley, L. 2021).

**Table 20.1:** Marketing Practices

Marketing practices variables	Frequency	Percentage (%)
<b>Way of selling</b>		
Raw	15	100
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Price of raw quail eggs</b>		
Php1.45.00 – Php1.50.00	15	100
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Price provider</b>		
Producer	1	6.67
Prevailing market price	14	93.33
<b>Total</b>	<b>15</b>	<b>100</b>

**Table 20.2:** Marketing Practices

Marketing practices variables	Frequency	Percentage (%)
<b>Month of high sales</b>		
January – March	2	13.33
April – June	9	60
July – September	1	6.67
October – December	2	13.33
April – December	1	6.67
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Month of low sales</b>		
January – March	1	6.67
April – June	4	26.67
July – September	1	6.67
October – December	9	60
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Consumer</b>		
Wholesaler & street vendor	12	80
Wholesaler, street vendor, & retailer	3	20
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Method of selling</b>		
Wholesale	13	86.66
Retail	1	6.67
Wholesale & Retail	1	6.67
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Market place</b>		
Public market	14	93.33
Farm	1	6.67
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Mode of payment</b>		
Cash	12	80
Credit	2	13.33

Installment	1	6.67
<b>Total</b>	<b>15</b>	<b>100</b>

**Profitability of Quail Egg Production**

The profitability of the 15 quail farmers who participated in this review to assess the state of quail egg production in selected towns in Eastern Laguna is shown in the Table 21. Daily expenses, daily profit, yearly expenses, annual net income, interest, way of knowing if business is profitable, financial statement, and annual ROI were undeniably remembered for the table's profitability of quail egg production data. These factors may contribute to the creation of a more comprehensive image of the quail egg production in the target area and provide crucial insights into the profitability of the quail farmers' quail egg production.

**Daily expenses & daily profit**

It was demonstrated that 40% of respondents spend Php580.00.00 to Php1,000.00 per day. The 33.33% of them has a daily expense of Php500.00 below per day, followed by 6.67% who spend Php1,000.00 to Php2,000.00, and the remaining 20% who has Php2,000.00 and above per day. The study found that 60% of respondents earned Php1,000.00 to Php3,000.00 per day. Meanwhile, 33.33% of respondents earned Php4,000.00 to Php6,000.00 per day, and one respondent earned Php6,000.00 and above per day. This means that the study's conclusion was that producing quail eggs is more likely to be profitable. Based on the calculation of Agri Farming (2023), the annual profit of quail farming is Rs 9,36,000.00 (Php1,316,003.00) if it divided to 365 the daily profit was Php3,605.000.00.

**Yearly expenses & annual net income**

It was found that 73.34% of respondents' expenses we're Php300,000.00 and above per year, followed by 13.33% of respondents who spend Php200,000.00 to Php300,000.00 per year and 13.33% of respondents who spend Php100,000.00 to Php200,000.00 per year for quail farming. According to Capital One (2022), net income refers to the money left over after business expenses have been paid. (<https://www.capitalone.com/learn-grow/money-management/what-is-net-income-and-how-do-you-calculate-it/>) The study found out that the net income per year of 100% of the quail farmers were ranges to Php70,000.00 and above. The data of Agri Farming (2023), calculated that the annual profit of quail farming is Rs 9,36,000.00, converting in Philippine peso was Php1,316,003.00.

**Interest**

In light of the after effect of the review the most noteworthy interest that the quail farmers gathered was Php2,000.00 and above, trailed by Php1,000.00 to Php2,000.00. There was likewise a quail farmer that gathered interest in a range of Php500.00 to Php1,000.00 and the least interest that the quail farmers gathered was Php500.00 below. It implies that the interest in quail business was profitable. Quail farming is absolutely a very profitable business. But before starting, you have to make a good business plan and have to work according to the plan. Quail farming requires less capital or investment than raising any other poultry birds. You can start this business with a very small investment. (Brosas, A. 2022).

**Way of knowing if business is profitable**

Record keeping and financial statements were used by business people to determine the profitability of their enterprise. In the study, 60% of respondents preferred to determined their business profitability through record keeping. While the 40% of the respondents, based on the costs and feeds they used for their quails. That implies that most of the quail farmer still used record keeping to know if the business was profitable. According to Vanderlin, J. (2023) [35], farmers need to keep records to pursue effective risk management strategies that will enhance the longer-term profitability of their business. Recordkeeping begins with collecting and organizing of the farm business' production (physical) and financial (income/expense) information.

**Financial statement**

According to Maverick, J.B. (2022), financial statements are essential since they provide information about a company's revenue, expenses, profitability, and debt. However, in the case of fifteen quail farmer as a respondent, 100% of them don't used any type of financial statements. It implies that quail farmers preferred to use record keeping than any type of financial statements.

**Annual Return on Investment (ROI)**

Out of the 15 respondents, 10 have an annual ROI of 30% and above, followed by 2 respondents with an annual ROI of 25% to 30%. The least annual ROI of 3 out of 15 respondents were 20% to 25%. It showed that more quail. It implies that most of the quail farmer have an annual ROI of 30% and above. The study supported by Zainal *et al.*, (2021), that Return On Investment (ROI) is a form of profitability ratio that is intended to measure the company's ability with an entire fund instilled in assets used for the operation of a company to produce. The profit to achieved. The result of the calculation of ROI obtained from the quail farming business of Quinsha Farm is 46.20%, where the number is more significant than the current bank interest rate in the year 2019 is ± 12%. So, the effort has an excellent opportunity to developed.

**Table 21:** Profitability of Quail Egg Production

Profitability of quail egg production variables	Frequency	Percentage (%)
<b>Daily expenses</b>		
Php580.00 – Php1,000.00	6	40
Php1,000.00 – Php2,000.00	1	6.67
Php2,000.00 and above	3	20
Php500.00 below	5	33.33
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Daily profit</b>		
Php1,000.00 – Php3,000.00	9	60
Php4,000.00 – Php6,000.00	5	33.33
Php6,000.00 and above	1	6.67
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Yearly expenses</b>		
Php100,000.00 – Php200,000.00	2	13.33
Php200,000.00 – Php300,000.00	2	13.33
Php300,000.00 and above	11	73.34
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Annual net income</b>		
Php70,000.00 and above	15	100%
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Interest</b>		

Php580.00 – Php1,000.00	2	13.33
Php1,000.00 – Php2,000.00	4	26.67
Php2,000.00 and above	2	13.33
Php500.00 below	7	46.67
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Way of knowing if business is profitable</b>		
Record keeping	9	60
Based on the costs and feeds	6	40
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Financial statement</b>		
None	15	100
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Annual ROI</b>		
20% - 25%	3	20
25% - 30%	2	13.33
30% and above	10	66.67
<b>Total</b>	<b>15</b>	<b>100</b>

**Problems Encountered in Quail Production**

Table 22.1 and 22.2 showed the common problems encountered by the respondents. The respondents encountered problems in terms of financial, disease, consumer, marketing, production, harvesting, and inventory. The study of Viñas, J.R. *et al.*, (2022) supported the result of the said study, The main challenges highlighted by the farmers included that they always come across dead quail's everyday due to the heat of the sun. The rise in petroleum prices is also making it difficult for producers to deliver quail eggs to stores. The farmers also lack high-tech materials to readily manage and preserve their quail farm's good operation. The study concluded that quail farming encountered problems from the distance of the poultry to the market, and the availability of the needed high-tech materials. In terms of financial, low profit and not enough capital was the problem encountered by the quail farmer sometimes and rarely difficult to find debtor. Some common diseases were often identified in quail like cold which was treated by vinegar and if its acute the respondent gave antibiotic, coryza (eye problem) the respondents gave Enrofloxacin as a medication.

The respondents encountered a Barat buyer, a consumer that paid delay and worst was a consumer who do not pay sometimes. The always problem of quail farmers in terms of marketing was the unstable price and high expenses in raw materials, which led to sort in finance. They were also encountered the high expenses in transportation and a lot of competitors. In production, calamity was the major problem encountered by the quail farmers always. Sometimes they encountered lack of financial and materials and rarely the lack of helper and poor production practices. In terms of harvesting, crack eggs were always the problem that the quail farmers encountered. While in the inventory, sometimes the problem encountered was they do not used financial statements or record keeping and rarely don't have enough knowledge about record keeping.

**Table 22.1:** Problems Encountered in Quail Production

Problems encountered	Weighted mean	Verbal interpretation
<b>Problem in financial</b>		
Not enough capital	3	Sometimes
Low profit	3.33	Sometimes
No capital	1.47	Never
Difficult to find debtor	2.27	Rarely
<b>Grand mean</b>	<b>2.52</b>	
<b>Problem in disease</b>		
Ulcerative enteritis	1	Never
Quail bronchitis	1.53	Never
Omphalitis	1	Never
New castle disease	1	Never
Coccidiosis	1.2	Never
Cold & coryza	4	Often
<b>Grand mean</b>	<b>1.62</b>	
<b>Problem in consumer</b>		
Barat	3.27	Sometimes
Delay of payment	2.87	Sometimes
Didn't pay	2.4	Sometimes
<b>Grand mean</b>	<b>2.85</b>	

**Table 22.2:** Problems Encountered in Quail Production

Problems encountered	Weighted mean	Verbal interpretation
<b>Problem in marketing</b>		
Lot of competitors	4.27	Always
Unstable price	5	Always
High expenses in raw materials	5	Always
High expenses in transportation	4.47	Always
<b>Grand mean</b>	<b>4.69</b>	
<b>Problem in production</b>		
Poor production practices	2.47	Rarely
Lack of financial	3	Sometimes
Lack of materials	3.2	Sometimes
Lack of helper	2.27	Rarely
Calamity	4.53	Always
<b>Grand mean</b>	<b>3.09</b>	
<b>Problem in harvesting</b>		
Crack eggs	4.87	Always
Rotten eggs	1.33	Never
Low quality eggs	1.4	Never
<b>Grand mean</b>	<b>2.53</b>	
<b>Problem in inventory</b>		
No financial statement or record keeping	3.4	Sometimes
No enough knowledge in record keeping	1.87	Rarely
Profit isn't calculated	1.27	Never
<b>Grand mean</b>	<b>2.18</b>	

**Solutions Applied to the Problems Encountered in Quail Production**

The study supported by We Finder (2022), the solutions applied to address some farm problems were providing better living conditions with adequate space Distributing animals in appropriate groups to promote social behaviour. Offering possibility of outdoor exercise. Providing sufficient opportunities for movement. Allowing daylight and structured environment. However, based on the data collected, Table 23 presented that in terms of financial problems, the solutions that the respondents applied were seeking help from relatives (53.33%), followed by borrowing money from lending company or micro finance (40%), and they were also saving money (6.67%). The solutions applied to diseases problem were giving vitamins supply (53.33%), they were also clean their farm (40%), and

maintaining the health of quail (6.67%) to ensure its stability.

The solutions applied in consumer, they gave due date (66.67%) and interest (6.67%) to the consumer who do not pay cash and as much as possible they do not lend their products (26.67%). In terms of marketing the solutions applied was budgeting (80%) the finance to ensure that the money was enough and they also used promo (20%) for their valued consumer to keep them. To avoid production problems, the solutions applied by the respondent was they loan in bank (86.67%) due to the lack in financial, materials, and helpers and as much as possible they were ready if there were a calamity (13.33). In terms of harvesting, harvesting immediately (93.33%), sorting, and giving supplements (6.67%) to the quails were the solutions that the respondents applied. Meanwhile, in the inventory, the most common solutions applied by the respondents were listing their expenses and profit (93.33%). Also, they started using and learning financial statements and record keeping (6.67%).

**Table 23:** Solutions Applied to the Problems Encountered in Quail Production

Solutions applied	Frequency	Percentage (%)
<b>Solution in financial</b>		
Help from relatives	8	53.33
Borrow money from lending company or micro finance	6	40
Save money	1	6.67
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Solution in disease</b>		
Vitamin supply	8	53.33
Always cleaning farm	6	40
Vitamin supply, always cleaning farm, & health maintain	1	6.67
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Solution in consumer</b>		
Due date	10	66.67
Don't lend	4	26.67
Due date & interest	1	6.67
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Solution in marketing</b>		
Promo	3	20
Budgeting	12	80
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Solution in production</b>		
Ready for calamity	2	13.33
Loan in bank	13	86.67
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Solution in harvesting</b>		
Sorting and supplements	1	6.67
Harvest immediate	14	93.33
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Solution in inventory</b>		
Will start using financial statements or record keeping	1	6.67
Listing the profit & expenses	14	93.33
<b>Total</b>	<b>15</b>	<b>100</b>

**Test Relationship Between the Demographic Profile & Profitability of Quail Egg Production**

The test relationship between demographic profile and Profitability of Quail Egg Production of the 15 quail farmers who participated in this study to assess the state of quail egg production in selected towns in Eastern Laguna.

Demographic profile in terms of age, sex, civil status, number of family members, address, educational attainment,

training attended related to quail farming, primary source of income, and other animals being raised were tested the relationship between the variables included in profitability of quail egg production were daily expense, daily profit, yearly expenses, annual net income, interest, way of knowing if business is profitable, financial statement, and annual ROI.

**Age & Profitability of Quail Egg Production**

Table 24 shows the test relationship between the demographic profile in terms of age and profitability of quail egg production. The result revealed that all variable from profitability of quail egg production have no significant relationship to demographic profile in terms of age. Since the P value obtained were all greater than 0.05 alpha level of significant, then failed to reject H0.

**Table 24:** Test relationship between the demographic profile in terms of age & profitability of quail egg production

Variables	Statistical tools	x <sup>2</sup> values	P values	Decision	Interpretation
Daily expenses	Chi square test	7.933	0.790	Failed to reject H <sub>0</sub>	Not significant
Daily profit	Chi square test	7.378	0.496	Failed to reject H <sub>0</sub>	Not significant
Yearly expenses	Chi square test	11.09	0.197	Failed to reject H <sub>0</sub>	Not significant
Annual net income	Chi square test	2.667	0.615	Failed to reject H <sub>0</sub>	Not significant
Interest	Chi square test	12.43	0.412	Failed to reject H <sub>0</sub>	Not significant
WOKIBIP	Chi square test	1.667	0.797	Failed to reject H <sub>0</sub>	Not significant
Financial statement	Chi square test	2.667	0.615	Failed to reject H <sub>0</sub>	Not significant
Annual ROI	Chi square test	10.87	0.209	Failed to reject H <sub>0</sub>	Not significant

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**Sex & Profitability of Quail Egg Production**

The test relationship between demographic profile in terms of sex and quail egg production profitability was showed in Table 25. According to the data, there was no significant relationship between sex and any of the quail egg production profitability variables. The P values that were obtained were all significantly higher than the 0.05 alpha level, so failed to reject H0.

**Table 25:** Test relationship between the demographic profile in terms of sex & profitability of quail egg production

Variables	Statistical tools	x <sup>2</sup> values	P values	Decision	Interpretation
Daily expenses	Chi square test	2.639	0.451	Failed to reject H <sub>0</sub>	Not significant
Daily profit	Chi square test	5.741	0.057	Failed to reject H <sub>0</sub>	Not significant
Yearly expenses	Chi square test	4.394	0.111	Failed to reject H <sub>0</sub>	Not significant
Annual net income	Chi square test	0.600	0.439	Failed to reject H <sub>0</sub>	Not significant
Interest	Chi square test	3.839	0.279	Failed to reject H <sub>0</sub>	Not significant
WOKIBIP	Chi square test	0.185	0.667	Failed to reject H <sub>0</sub>	Not significant
Financial	Chi square	0.600	0.439	Failed to	Not significant

statement	test			reject H <sub>0</sub>	
Annual ROI	Chi square test	3.472	0.176	Failed to reject H <sub>0</sub>	Not significant

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**Civil Status & Profitability of Quail Egg Production**

In view of the discoveries in Table 26, it was seen that there was a significant relationship between demographic profile in terms of civil status and annual net income and financial statement, with same p values of 0.020. According to these findings, quail farmers' annual net income and financial statement type were influenced by their civil status. These findings were further supported by Balcazar J.'s (2019) [6] study. Marriage and income, according to Balcazar's investigation: Differences in marital status on outcomes of individual wealth. Married individuals reported similar incomes to divorced individuals. Married individuals reported the highest incomes level out of all groups. Therefore, the biggest disparity was between income of married individuals and income of individuals who were never married. It implies that annual net income is affected by civil status.

On the other hand, it was discovered that type of financial statement has significant relationship to civil status. The review uncovered that those married respondents generally not utilize any type of financial statement.

**Table 26:** Test relationship between the demographic profile in terms of civil status & profitability of quail egg production

Variables	Statistical tools	x <sup>2</sup> values	P values	Decision	Interpretation
Daily expenses	Chi square test	4.792	0.188	Failed to reject H <sub>0</sub>	Not significant
Daily profit	Chi square test	2.500	0.287	Failed to reject H <sub>0</sub>	Not significant
Yearly expenses	Chi square test	1.648	0.439	Failed to reject H <sub>0</sub>	Not significant
Annual net income	Chi square test	5.400	0.020	Reject H <sub>0</sub>	Significant
Interest	Chi square test	1.830	0.608	Failed to reject H <sub>0</sub>	Not significant
WOKIBIP	Chi square test	0.069	0.792	Failed to reject H <sub>0</sub>	Not significant
Financial statement	Chi square test	5.400	0.020	Reject H <sub>0</sub>	Significant
Annual ROI	Chi square test	5.208	0.074	Failed to reject H <sub>0</sub>	Not significant

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**Number of Family Member & Profitability of Quail Egg Production**

Table 27 demonstrated a significant relationship between demographic profile in terms of number of family member and annual net income and financial statement, with same P values of 0.020. The outcome indicated that number of family member has an effect in annual net income and the type of financial statements they used. Mercer said, as the size of a household increases, the amount of money spent on goods and services increases, but at a decreasing rate. In other words, a family may spend more on goods and services with the addition of more children, but the percentage of additional costs for each child becomes less.

(Mercer, 2023). It denoted number of family member has an impact in annual net income.

In the interim, the type of financial statement was found to have significant relationship with number of family member. According to the findings of the study, respondents with 1-5 member of the family none uses any type of financial statement.

**Table 27:** Test relationship between the demographic profile in terms of number of family members & profitability of quail egg production

Variables	Statistical tools	x <sup>2</sup> values	P values	Decision	Interpretation
Daily expenses	Chi square test	5.833	0.120	Failed to reject <i>H</i> <sub>0</sub>	Not significant
Daily profit	Chi square test	5.278	0.071	Failed to reject <i>H</i> <sub>0</sub>	Not significant
Yearly expenses	Chi square test	1.648	0.439	Failed to reject <i>H</i> <sub>0</sub>	Not significant
Annual net income	Chi square test	5.400	0.020	Reject <i>H</i> <sub>0</sub>	Significant
Interest	Chi square test	2.946	0.400	Failed to reject <i>H</i> <sub>0</sub>	Not significant
WOKIBIP	Chi square test	2.500	0.114	Failed to reject <i>H</i> <sub>0</sub>	Not significant
Financial statement	Chi square test	5.400	0.020	Reject <i>H</i> <sub>0</sub>	Significant
Annual ROI	Chi square test	1.875	0.392	Failed to reject <i>H</i> <sub>0</sub>	Not significant

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**Address & Profitability of Quail Egg Production**

Table 28 presented the test relationship between the demographic profile in terms of address and profitability of quail egg production. The result showed that all variable from profitability of quail egg production have no significant relationship to demographic profile in terms of address. Since all the P value of variables obtained greater than 0.05 alpha level of significant, then failed to reject *H*<sub>0</sub>.

**Table 28:** Test relationship between the demographic profile in terms of address & profitability of quail egg production

Variables	Statistical tools	x <sup>2</sup> values	P values	Decision	Interpretation
Daily expenses	Chi square test	16.21	0.182	Failed to reject <i>H</i> <sub>0</sub>	Not significant
Daily profit	Chi square test	9.222	0.324	Failed to reject <i>H</i> <sub>0</sub>	Not significant
Yearly expenses	Chi square test	11.42	0.179	Failed to reject <i>H</i> <sub>0</sub>	Not significant
Annual net income	Chi square test	1.333	0.856	Failed to reject <i>H</i> <sub>0</sub>	Not significant
Interest	Chi square test	15.00	0.241	Failed to reject <i>H</i> <sub>0</sub>	Not significant
WOKIBIP	Chi square test	2.847	0.584	Failed to reject <i>H</i> <sub>0</sub>	Not significant
Financial statement	Chi square test	1.333	0.856	Failed to reject <i>H</i> <sub>0</sub>	Not significant
Annual ROI	Chi square test	12.67	0.124	Failed to reject <i>H</i> <sub>0</sub>	Not significant

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**Educational Attainment & Profitability of Quail Egg Production**

In the Table 29, the test relationship between the demographic profile in terms of educational attainment and profitability of quail egg production has been showed. The data showed that all variable from profitability of quail egg production have no significant relationship to demographic profile in terms of educational attainment. Since all variables has the P value obtained greater than 0.05 alpha level of significant, failed to reject *H*<sub>0</sub>.

**Table 29:** Test relationship between the demographic profile in terms of educational attainment & profitability of quail egg production

Variables	Statistical tools	x <sup>2</sup> values	P values	Decision	Interpretation
Daily expenses	Chi square test	1.193	0.755	Failed to reject <i>H</i> <sub>0</sub>	Not significant
Daily profit	Chi square test	2.955	0.228	Failed to reject <i>H</i> <sub>0</sub>	Not significant
Yearly expenses	Chi square test	1.938	0.371	Failed to reject <i>H</i> <sub>0</sub>	Not significant
Annual net income	Chi square test	3.267	0.071	Failed to reject <i>H</i> <sub>0</sub>	Not significant
Interest	Chi square test	3.677	0.299	Failed to reject <i>H</i> <sub>0</sub>	Not significant
WOKIBIP	Chi square test	2.784	0.095	Failed to reject <i>H</i> <sub>0</sub>	Not significant
Financial statement	Chi square test	3.267	0.071	Failed to reject <i>H</i> <sub>0</sub>	Not significant
Annual ROI	Chi square test	1.705	0.426	Failed to reject <i>H</i> <sub>0</sub>	Not significant

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**Training Attended Related to Quail Farming & Profitability of Quail Egg Production**

The result of findings was presented in Table 30, which revealed a highly significant relationship with a P value of .000 between demographic profile in terms of training attended related to quail farming annual net income and financial statement. As per Radcliffe B. (2022) <sup>[29]</sup> study, understanding how education and training interact with the economy can help explain why some workers, businesses, and economies flourish while others falter. The knowledge and skills of workers available in the labor supply are a key determinant for both business and economic growth. This indicated that quail farming- related training has a huge impact on annual net income.

While the type of financial statement was found to have highly significant relationship with training attended related to quail farming yet the information uncovered that those respondents who went to training related to quail farming that has different topic generally utilizes no type of financial statement.

**Table 30:** Test relationship between the demographic profile in terms of training attended related to quail farming & profitability of quail egg production

Variables	Statistical tools	x2 values	P values	Decision	Interpretation
Daily expenses	Chi square test	7.625	0.572	Failed to reject $H_0$	Not significant
Daily profit	Chi square test	5.056	0.537	Failed to reject $H_0$	Not significant
Yearly expenses	Chi square test	1.364	0.968	Failed to reject $H_0$	Not significant
Annual net income	Chi square test	24.20	.000	Reject $H_0$	Highly significant
Interest	Chi square test	5.313	0.806	Failed to reject $H_0$	Not significant
WOKIBIP	Chi square test	5.625	0.131	Failed to reject $H_0$	Not significant
Financial statement	Chi square test	24.20	.000	Reject $H_0$	Highly significant
Annual ROI	Chi square test	1.875	0.931	Failed to reject $H_0$	Not significant

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**Primary Source of Income & Profitability of Quail Egg Production**

The result of the statistical analysis demonstrated in Table 31 that there was a significant relationship between demographic profile in terms of primary source of income and yearly expenses, annual net income, and financial statement, with the P values of .000, 0.005, and 0.005, respectively. According to the collected data, quail farming was the majority of respondents' primary source of income. This indicated that the annual expenses have highly significant relationship with the primary source of income. The respondents' primary source of income also has an impact on their annual net income. However, a significant relationship was found between the quail farmers' primary source of income and the type of financial statement. Yet, the study found that respondents whose primary source of income is quail farming rarely use any type of financial statements.

**Table 31:** Test relationship between the demographic profile in terms of primary source of income & profitability of quail egg production

Variables	Statistical tools	x2 values	P values	Decision	Interpretation
Daily expenses	Chi square test	2.019	0.568	Failed to reject $H_0$	Not significant
Daily profit	Chi square test	0.385	0.825	Failed to reject $H_0$	Not significant
Yearly expenses	Chi square test	15.00	.000	Reject $H_0$	Highly significant
Annual net income	Chi square test	8.067	0.005	Reject $H_0$	Significant
Interest	Chi square test	2.637	0.451	Failed to reject $H_0$	Not significant
WOKIBIP	Chi square test	1.538	0.215	Failed to reject $H_0$	Not significant
Financial statement	Chi square test	8.067	0.005	Reject $H_0$	Significant
Annual ROI	Chi square test	1.154	0.562	Failed to reject $H_0$	Not significant

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**Other Animals Being Raised & Profitability of Quail Egg Production**

Table 32 presented the data collected and analyzed statistically showed that there was a significant relationship between demographic profile in terms of other animals being raised and daily profit, annual net income, and financial statement. P values for this result are 0.045, 0.027, and 0.027, respectively. The information recommended that the demographic profile in terms of other animals being raised eminently affect the profitability of quail egg production. In particular, the investigation discovered that other animals being raised, like pig, cow, chicken, hare, and duck, exhibit varying of profitability in daily profit. The volume of other animals sold and the pricing strategies employed by quail farmers could account for this variation. The analysis also showed that the annual net income is heavily influenced by the other animals being raised. There were a number of benefits to raising other animals, including the potential to increase net income. This finding was consistent with previous research that has showed that raising other animals has a positive effect on the overall profitability of quail egg production. Nevertheless, it was discovered that the type of financial statement has significant relationship with the other animals being raised. The study, on the other hand, found that respondents who raised other animals did not typically use any type of financial statement.

**Table 32:** Test relationship between the demographic profile in terms of other animals being raised & profitability of quail egg production

Variables	Statistical tools	x2 values	P values	Decision	Interpretation
Daily expenses	Chi square test	15.21	0.436	Failed to reject $H_0$	Not significant
Daily profit	Chi square test	18.67	0.045	Reject $H_0$	Significant
Yearly expenses	Chi square test	10.52	0.396	Failed to reject $H_0$	Not significant
Annual net income	Chi square test	12.60	0.027	Reject $H_0$	Significant
Interest	Chi square test	18.02	0.261	Failed to reject $H_0$	Not significant
WOKIBIP	Chi square test	4.881	0.431	Failed to reject $H_0$	Not significant
Financial statement	Chi square test	12.60	0.027	Reject $H_0$	Significant
Annual ROI	Chi square test	12.27	0.268	Failed to reject $H_0$	Not significant

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**Conclusion**

Therefore, the researcher came to the conclusion that the respondents' primary source of income was the production of quail eggs. Female farmers with an average age of 42.5 years old operated the majority of the quail egg production operations. Low profit and insufficient capital considered to be the most issue of the quail raisers. When there are a lot of quail (more than 1,000 heads), quail farming is a good way to make money. Raising quails does not require more space. It is not difficult to raise and the return benefit is fast in light of the fact that consistently quail lay eggs goes from 70% - 90%.

A large portion of the respondents utilized no type of financial statement yet some of them use record keeping which is great since it assess the production performance and financial status of quail farming.

There was a significant relationship between demographic profile in terms of civil status, number of family members, training attended related to quail farming, primary source of income, and other animals being raised and annual net income and financial statement with P values of <0.05.

To prevent quail stress, quail farm must take place in a quiet area that is as far away from urban places as possible. To be productive, quail need to be maintained.

### Recommendations

1. It was suggested that anyone who wants to get involved in the production of quail eggs should know how to raise quails for the purpose of producing eggs because this is one of the things that will help the business run more smoothly.
2. In addition, the quail farmer should not rely solely on one market; rather, he or she should have access to at least two other markets so that there are alternatives available if the customer does not comply.
3. It was suggested that quail farmers should learn financial statement to evaluate financial status of the business.
4. The quail farmers may seek to the Department of Agriculture for assistance, particularly with their financial requirements.
5. The researcher suggested that quail farmers must register with the Municipal Agriculturist Office so that other researchers of the same topic of quail can easily locate them.
6. Furthermore, it suggested that individuals who's involved in quail farming should attend seminars or training related to quail farming to enhance their knowledge about quail raising.

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