

Production and marketing practices of rabbit raisers in Bulacan, Philippines

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ABSTRACT

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The rabbit is a promising livestock animal as it has nutritious meat, can adapt to a variety of climates and has prolificacy. However, it is not as well-studied in the Philippines as other livestock or poultry species, particularly regarding the status of farmers in the country. This study is a baseline study on rabbit raisers in the Philippines, which can help promote a better understanding of this industry. This study, conducted in the Province of Bulacan, employed a descriptive research design using a validated survey questionnaire and convenience sampling technique. Among 91 farmers surveyed, most were 41-50 years old, male, married, and college graduates. The majority had small-scale farms, with the New Zealand rabbit as the most common breed. Feeding was done mainly by giving forage and commercial pellets. Housing was located outdoors, usually in double tier cages made of wire mesh, equipped with feeders, automatic waterers, and plastic nest boxes. Raisers used natural farming systems and avoided the use of commercial medications. The majority had less than one year of farm experience. The most common products were meat, manure, and fur. The challenges encountered were inadequate capital, the high cost of feed, and negative perceptions about rabbit meat. The rabbit raisers were most interested in training on diseases, marketing, breeding, and processing. Rabbit raisers need technical support for the production and marketing of rabbits from the Philippine Government and other institutions to develop more successful rabbit raising enterprises.

Keywords: rabbit production, rabbit meat, marketing study, livestock survey

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INTRODUCTION

Food security and sustainability are some of the major concerns in the country due to rapid population growth. According to the Philippine Statistics Authority (2015), by the year 2045, the *Philippine population* is projected to *increase* to 142 million based on the 2010 Census *population* projections. The country will need to increase livestock production to meet the future demand for meat. Rabbit rearing is one of the options we can explore to meet this growing demand.

The benefits of raising rabbits include its fast growth, high reproduction, early maturity, efficient feed conversion, ease of management and utilization of land, and limited competition for human food. Rabbit produces good quality meat because it is low in cholesterol and rich in protein, amino acids and certain minerals (Dalle Zotte 2014, Huneau-Salaun et al 2015). Rabbit production could be a valuable micro-livestock component for meeting the extra demand for protein and as a useful tool for income generation and poverty reduction for rural farmers (Khatun et al 2016).

The potentials of rabbit production are not realized in many countries such as South Korea, America and the Philippines that still have very few engaged farmers and consequently have low production volume, resulting in limited improvement in earnings, nutrition for the family and contribution to rural development (Sylvester et al 2014, Ogbonna, 2015). Much less research has been conducted on the commercial production of rabbits than on other livestock species (McNitt et al 2013). To increase rabbit farmers' productivity, some of the factors identified that need to be addressed are supplies distribution problems and insufficient training and extension services to improve farmers' knowledge on proper production and management practices (Serem et al 2013, Sylvester et al 2014, Tembachako and Mrema 2016). Furthermore, rabbit farmers need assistance in market identification and government support in terms of market creation through setting up of rabbit meat and fur industries (Tembachako and Mrema 2016).

Compared to other types of meat, rabbit meat has low fat and cholesterol compared to beef, which has the highest cholesterol content, while pork is rich in fat. Rabbit meat is also rich in protein, calcium, and phosphorus (Nistor et al 2013). Likewise, rabbit production can be an attractive alternative income-generating project because of its low cost compared to other livestock. According to Bodnar et al (2017), due to its prolific characteristic, profitability for a startup is guaranteed.

Based on Adedeji's (2015) study, rabbit production in Nigeria had a gross margin value of ₦13,700.00, for 28 rabbits, which when converted into Philippine pesos is PHP1,663.21 per month and considered profitable. Also, in the study by Baruwa (2014), the return on investment (ROI) for rabbit production with 100 matured rabbits in one year was 1.7 or 170%, where 48.8% of the revenue was used to cover the operating expenses. The 51% of gross revenue was the equity for the farmer. According to Mr Willie Menor, a rabbit raiser in Cavite, Philippines, the demand for a rabbit is high, and if the female breeder or doe can have five healthy pregnancies in a year, she may earn the farmer almost PHP4000 in one year, or PHP98,958.00 for 25 does as recorded by Tan (2020).

For the past decades, many countries have been raising rabbits as livestock. The rabbit's white and lean meat is regarded as a versatile meat since it can be cooked in various ways. The Association of Rabbit Meat Producers (ARaMP), based in Baliuag, Bulacan, Philippines, has been campaigning since 2016 to promote

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rabbits as a source of meat and income to the Filipino people (Veneracion 2017). When the African Swine Fever (ASF) hit the country, with the resultant drastic decrease in the population of pigs and pork availability, the Philippine Department of Agriculture announced in February 2020 that rabbit meat could be an acceptable alternative meat (Gomez 2020).

In the article titled "Bulacan bids to become Philippine's rabbit-raising capital," Felongco (2020) described the 1st National Rabbit Congress that was held at the Bulacan Agricultural State College (BASC). Hundreds of delegates from national agencies, rabbit raisers, and stakeholders from all over the country attended the program themed "Rabbit Meat for Health and Livelihood". The program, organized by ARaMP and BASC, aimed to increase awareness of rabbit production as a source of income and to introduce rabbit meat as an alternative source of protein and good nutrition.

Although rabbit meat is not new in other countries, the Philippines is still introducing it as an alternative source of meat. There is still insufficient data and no available information about rabbit raisers, including their profile, production status, and marketing activity. This research is a baseline study for the rabbit industry in Bulacan to provide information, assess the activity of rabbit raisers, and identify needed support to promote the commercialization of rabbit meat in the province. With the hope to contribute to the promotion, commercialization, and socioeconomic assessment of rabbit production, this study surveyed rabbit raisers' production and marketing practices in Bulacan, Philippines, which is one of the country's provinces known for rabbit production. The study's main objective is to assess the production and marketing practices of rabbit raisers in Bulacan, Philippines.

Specifically, this study aimed to:

1. Describe the demographic profile and socioeconomic characteristics of the rabbit raisers;
2. Determine the production and marketing practices of the rabbit raisers;
3. Identify the problems and challenges encountered by the rabbit raisers; and
4. Determine the training needs of the rabbit raisers.

METHODOLOGY

Research Design

This study employed a descriptive research design using a survey questionnaire. This was divided into demographic profile, socioeconomic characteristics, production practices (breeding, feeding, housing, and animal health management), marketing practices (product, pricing, place/distribution, and promotion), problems and challenges encountered by the rabbit raisers, and their training needs. The questionnaire was validated through key informants' interviews, including an expert in the field and some rabbit farm owners with more than one year of experience. A pilot test survey given to five rabbit raisers gave positive feedback on each of the questions on the survey form.

Respondents of the Study

The study's respondents were ninety-one (91) rabbit raisers in Bulacan Province, Philippines, gathered through a combination of snowball sampling and convenience sampling procedures because there was no available list of rabbit raisers from the agriculture offices of the local government units.

Table 1. Distribution of Respondents by Legislative Districts in Bulacan

District	No. of Respondents	Percent
District I	40	43.96
District II	10	11.00
District III	33	36.26
District IV	6	6.59
Lone District (SJDM)	2	2.19
Total	91	100.00

The distribution of respondents by legislative districts in Bulacan as shown in Table 1, shows that 43.96% (40) of the respondents were from District I (Bulakan, Calumpit, Hagonoy Malolos City, Paombong, and Pulilan) followed by District III (Doña Remedios Trinidad, San Ildefonso, San Miguel, and San Rafael) which was 36.26% (33), District II (Baliuag, Bustos and, Plaridel) which was 11% (10), District IV (Marilao, Mecuayan City and, Obando) was 6.59% (6) and 2.19% (2) were from San Jose Del Monte City.

Data Collection Techniques

Data was gathered from November 2020 to January 2021, and researchers used different techniques to distribute the questionnaire. Personal distribution and interviews were done for nearby farmers. The questionnaire was converted into a Google survey form, uploaded to different Facebook groups of rabbit raisers in Bulacan, and sent through Messenger to the Facebook account of individual rabbit raisers. Interviews were conducted by calling through mobile networks or Facebook Messenger.

Data Analysis

Descriptive statistics such as percentages and ranking were used to analyze the gathered data. All data was coded, tallied, analyzed, and presented in tabular form.

RESULTS AND DISCUSSION

Sociodemographic Profile and Engagement in Rabbit Farming

The data shown in Table 2 are the sociodemographic characteristics of rabbit raisers in Bulacan. In terms of age, most of the raisers belonged to the age bracket of 41-50 years old (29.67%), followed by 31-40 years old (28.57%), which shows that rabbit farming is popular among adults. There is also a significant number among

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young adults since the percentage distribution among the 21-30 years age group is 19.78%. The industry also includes very young (20 yrs old and below) farmers at 6.59%, and old adults (61 yrs and above) at 6.69%. These data on the age distribution of rabbit farmers imply that venturing into rabbit production is possible for anyone regardless of age. According to Tembachako and Mrema (2016), the greatest percentage of farmers belonging to the group of 41-50 years in their study were those who had young families who needed good nutrition and who paid their school fees from the sale of rabbits.

Table 2. Sociodemographic profile of rabbit raisers

Socioeconomic Characteristics	Frequency	Percentage (%)
Age		
41-50 yrs. Old	27	29.67
31-40 yrs. old	26	28.57
21-30 yrs. Old	18	19.78
51-60 yrs. Old	8	8.79
20 yrs. old and below	6	6.59
61 yrs. old and above	6	6.59
Sex		
Male	84	92.31
Female	7	7.69
Marital Status		
Married	58	63.74
Single	33	36.26
Highest Educational Attainment		
College Graduate	45	49.45
College Undergraduate	29	31.87
High School Graduate	7	7.69
Post-graduate	5	5.49
Vocational	4	4.4
High School Undergraduate	1	1.1

The majority of the raisers were male (92.31%) and married (63.74%). These findings concur with the Tembachako and Mrema (2016) study, wherein most rabbit farm owners were fathers.

Interestingly, based on educational attainment, most rabbit raisers were either college graduates (49.45%) or college undergraduates (31.87%). This implies that the raisers have adequate general knowledge and have the potential to easily understand rabbit production technologies that may be introduced to them. Iheukwumere et al (2018) stated that a high level of education significantly impacts the effectiveness in performing management functions. The ability to obtain relevant information unguided positively affects farm productivity.

In Table 3, the respondents' engagement in rabbit farming is described in terms of years involved, type of involvement, the purpose for the enterprise, and sources of income.

Table 3. Engagement in Rabbit Farming of Respondents

Engagement Characteristics	Frequency	Percentage (%)
Number of Years Engaged in Rabbit Production		
1 year	42	46.15
less than 1 year	29	31.87
2 years	8	8.79
3 years	6	6.59
4 years	5	5.5
more than 5 years	1	1.1
Involvement in rabbit farming		
I run the operation by myself	56	61.54
My family assists me	27	29.67
I employed farm attendants	8	8.79
Purpose of raising rabbit *		
Meat	79	86.81
Breeder	57	62.64
Fancy/Pet	29	31.87
Laboratory	7	7.69
Rabbit farming as the main source of income		
No	65	71.43
Yes	26	28.57
Other sources of income*		
From employment	27	31.76
From non-agricultural business	19	22.35
Other crops/vegetable	14	16.47
Other animals	12	14.13
Refused to answer	5	19.78

*Questions with multiple responses

Most raisers were engaged in rabbit farming for only a year (46.15%) or less than one year (31.87%). This implies that most of the rabbit raisers were new to rabbit production.

In terms of their involvement in farm operations, the majority of rabbit raisers ran the farm alone (61.54%), while others were assisted by family (29.67%) or had hired farm attendants (8.79%). These data reflect the small-holding or backyard type of rabbit farms that are present in the province.

The majority of rabbit raisers (71.43%) had other sources of income because some of them were employed (31.76%), while others had other businesses (22.35%) or were growing other crops (16.47%), and animals (14.13%). This implies that rabbit farming can be a good source of additional income for the family. Samkol and Lukefahr (2008) also claimed that rabbits are easily incorporated into integrated farming systems.

In terms of purposes for raising rabbits, the majority raised them for meat (86.81%) and breeders (62.64%). Based on personal interviews with rabbit raisers, the usual practice in startup rabbit enterprises is using a few breeder stocks, whose offspring are either sold for meat or as replacement breeders for the farm.

Production Practices of Rabbit Raisers

Production practices surveyed in this research were management practices for breeding, feeding, housing, and animal health.

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Table 4 shows the breeding practices of rabbit raisers. The most common breeds were New Zealand White (83.62%), California White (39.56%), New Zealand Black (28.57), and Chinchilla (25.27%). New Zealand and California breeds are traditional rabbits of choice for commercial meat production; they are medium-sized breeds ideal for meat production because of good carcass yield and meat-to-bone ratio (Fanatico and Green 2012; McNitt et al 2013). According to the interviewees, NZW and California were the breeds preferred by rabbit raisers because their medium size is ideal for meat production, and their white fur and skin is attractive, especially for the '*lechon* (spit roast) rabbit' dish, inducing the importation of these breeds from other countries like Thailand.

Table 4. Breeds and breeding management of rabbit raisers.

Practices	Frequency	Percentage (%)
Breed *		
New Zealand White	76	83.52
California White	36	39.56
New Zealand Black	26	28.57
Chinchilla	23	25.27
Palomino	17	18.68
Others	17	18.68
Cinnamon	6	6.59
Total Stocks		
less than 100	78	85.71
101 to 200	9	9.89
more than 500	3	3.30
401 to 500	1	1.10
Sources of breeding stock *		
Commercial breeder farms	54	59.34
Other backyard raisers	40	43.96
Own stock	19	20.88
Breeding Practices *		
Cross Breeding	62	68.13
Line Breeding	21	23.08
Pure Breed	15	16.48
Others	4	4.40
Considerations in selecting replacement stocks*		
Records of parents	54	59.34
Records of the animal	32	35.16
Physical appearance	32	35.16

*Questions with multiple responses

In terms of production size, the results indicate that the majority had a total stock of less than 100 (85.71%), categorized as small-scale. Raharjo (2008) classified rabbit farms into small scale if they have less than 50 does or breeding females, or large scale if they have more than 50 does. In the Philippines, however, interviews revealed that there is still no basis for the classification of farms, and some have suggested 100 does as the threshold number for large scale or commercial farms. Serem et al (2013) stated that the dominance of small-scale rabbit producers is possibly caused by insufficient resources, lack of technology and market that may prevent raisers from increasing production.

As to the source of their breeding stocks, the majority came from known commercial rabbit breeders (59.34%) who usually sell purebred rabbits, while others sourced from other raisers (43.96%) or produce their own breeders (20.88%).

The majority (68.13%) used crossbreeding practices, and most of the raisers (59.34%) considered the record of a parent in selecting replacement stocks to avoid inbreeding. In their study, Ugosor et al (2016) identified 17 breeding skills required by farmers in rabbit production since they considered breeding skills as important factors for income generation. The specific breeding practices in the study were related to the management of the does during pregnancy and parturition, management of the kits in the first week of life, and management of the buck and doe during mating.

Table 5. Feeding management of rabbit raisers.

Practices	Frequency	Percentage (%)
Feed sources*		
Forage	57	62.64
Rabbit pellets	50	54.95
Commercial poultry feed	36	39.56
Mixture	10	10.99
Self-prepared feed	6	6.59
Feeding frequency*		
Twice	76	83.52
More than twice	10	10.99
Once	4	4.40
Others	1	1.10
Types of feeders*		
Grass mangers	38	41.76
Crocks	33	36.26
Bamboo troughs	6	6.59
Hoppers	6	6.59
Waterer*		
Automatic waterer system	65	71.43
Ceramic crocks	13	14.29
Crocks	6	6.59
Enamel cups	4	4.40

*Questions with multiple responses

Table 5 shows the feeds and feeding management of rabbit raisers. In terms of feeding, the present study revealed that rabbits were mainly fed with forage (62.64%), followed by rabbit pellets (54.95%), while others used commercial feeds for poultry (39.56%).

The majority of farmers fed their rabbits twice a day (83.52%). From personal interviews, raisers fed rabbits with unlimited forage such as madre de agua (*Trichantera gigantea*), napier (*Pennisetum purpureum schumach*), forage peanut (*Arachis glabrata*), and other legumes, but feed with rabbit pellets only twice a day. Similarly, Chah et al (2017) reported that farmers fed forages to rabbits since these were locally available and had high fiber content, which rabbits need. Some farmers combined them with commercial feed.

In terms of feeders and waterers, the majority used a grass manger type (41.76%) for feeders and an automatic system (71.43%) for waterers.

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Table 6. Housing management practices of rabbit raisers

Housing Practices	Frequency	Percentage (%)
Location of cages*		
Caged outdoor	49	53.85
Caged indoor	44	48.35
Arrangement of cages*		
Double tiers	46	50.55
Single tier	39	42.86
Triple tiers	10	10.99
Factors considered when placing cages*		
Temperature	55	60.44
Material availability	43	47.25
Rainfall	24	26.37
Wind	22	24.18
Materials used in the cage, housing*		
Wire mesh	64	70.33
Galvanized iron sheet	32	35.16
Wood	8	8.79
Nest boxes*		
Plastic nest box	78	85.71
Counter set nest box	4	4.40
Standard nest box	4	4.40

*Questions with multiple responses

Table 6 shows the results for housing management practices. The majority of rabbit raisers placed their cages outdoors (53.85%), while others were indoors (48.35%). Indoor cages were inside a bigger housing or structure, similar to poultry farms where bird cages are inside a large housing. Outdoor cages were erected in available spaces in the yard, usually underneath the shade of trees, and had removable roofing such as those made of canvas. Cages were arranged in a double tier (50.55%), and farmers considered the temperature (60.44%) and material availability (47.25%) for the housing design.

Most of the raisers used welded mesh wire (70.33%) as the material for the cages. Based on interviews, the choice for housing implements was mainly due to availability, price of the materials, and recommendations from other raisers. In related studies, farmers used locally available materials due to their availability and affordability, ability to reduce disease and ease of cleaning and considered the temperature in placing rabbit cages (Serem et al 2013, Chah et al 2017).

As shown in Table 7, in terms of health management, most rabbit raisers applied natural concoctions (59.34%), such as fermented plant or fruit juices with probiotics and medicinal herbs. In comparison, a few of them (7.69%) did not use any medication or supplements. The majority (78.02%) personally treated their rabbits without consulting a veterinarian and reported only 0-5% mortality (both pre and post-weaning) among their rabbits (78.02%). The Gono et al (2013) study also showed that farmers used traditional remedies to control rabbit diseases. Chakrabarti et al (2014) indicated that small scale rabbitry does not need elaborate treatment or medication.

Table 7. Health management practices of rabbit raisers

Practices	Frequency	Percentage (%)
Medication type*		
Organic concoctions	54	59.34
Vitamin supplements	24	26.37
Antibiotics	11	12.09
None	7	7.69
Health management personnel		
Personal	71	78.02
Personal and veterinarian	17	18.68
Veterinarian	3	3.30
Percentage of mortality		
0-5	71	78.02
6-10	13	14.29
11-15	5	5.49
16% or higher	2	2.20

*Questions with multiple responses

Marketing Practices of Rabbits Raisers

The marketing practices obtained in this study included marketing information of the product (Table 8), price (Table 9) and the place and promotion (Table 10). Since some of the rabbit raisers were beginners and had not started marketing their rabbits, they could not answer some questions. When asked why they could answer some similar questions, they based their answers on their current understanding of rabbit marketing practices, not on personal experience.

As shown in Table 8, rabbit raisers who had already experienced selling their products sold less than 50 rabbits (32.97%), with an approximate weight of more than 2 kilograms (18.68%) aged between 1 month (18.68%) and 2 months (18.68%). Similar to the study of Tarik et al (2020), a live rabbit is sold with an average weight of 2.45kg and 1.3-1.9kg carcass weight. Also, from the previous study of Moreki et al (2019), rabbit is marketed at 8-12 weeks of age.

The products produced from rabbits were meat (58.24%), manure (23.08%), fur (4.40%), and tail (4.40%). The most common form of rabbit sold was as a live animal (79.12%), sold as retail, per piece or pair/trio, (71.43%), and priced per head (61.54%). From interviews, the price of rabbits sold per head depended on the purity of the breed and the animal's appearance.

In Table 9, the pricing of rabbits revealed that these were sold at less than PHP200 (39.56%) per kilogram live weight, while dressed rabbit carcasses were sold at PHP401-PHP500 (34.07%). Based on interviews, the absence of a slaughterhouse for rabbits in the country limits the distribution of rabbit carcasses to other areas. Fortunately, there are new developments towards the development of national slaughtering standards. The National Meat Inspection Service (NMIS) conducted its final public consultation meetings on September 14, 2021, on the "Guidelines on Humane Slaughter and Meat Inspection of Rabbit for Food" (NMIS, 2021). Likewise, the Bureau of Agriculture and Fisheries Standards (BAFS) consulted the initial draft of "Philippine National Standard (PNS) on Rabbit Slaughtering Practices" on August 10, 2021 (Arcalas 2021).

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Table 8. Age, weight, type of rabbit products and form sold by rabbit raisers

Variable	Frequency	Percentage (%)
Age of rabbits		
More than 1 month	17	18.68
2 months	17	18.68
More than 3 months	10	10.99
Weight		
More than 2kg	17	18.68
1.6 to 2kg	16	17.58
1 to 1.5kg	10	10.99
Less than 1kg	3	3.30
Number of rabbits sold		
less than 50	30	32.97
more than 301	6	6.59
51 to 100	4	4.40
101 to 150	5	5.49
251 to 300	1	1.10
Form of rabbit sold *		
Live	72	79.12
Whole carcass	11	12.09
Processed	6	6.59
Cut-up	1	1.10
Type of product sold*		
Meat (fresh, processed)	53	58.24
Manure	21	23.08
Fur (Wool)	4	4.40
Tail	4	4.40
Others	3	3.30

*Questions with multiple responses

Table 9. Price received, manner of selling and source of price information

Pricing	Frequency	Percentage (%)
Price per kg live weight (in peso)		
Less than PHP200	36	39.56
PHP201 to PHP300	4	4.40
PHP301 to PHP400	4	4.40
More than PHP500	2	2.20
Price per kg carcass (in peso)		
Less than PHP200	3	3.30
PHP401 to PHP500	31	34.07
PHP301 to PHP400	6	6.59
Less than PHP200	3	3.30
Manner of selling		
Retail	65	71.43
Wholesale	21	23.08
Have not yet tried selling	18	19.78
How do you price your rabbit? *		
Per head	67	73.63
Per kilo	23	25.27
Not yet tried selling	18	19.78
Source of price information *		
Social media	56	61.54
Direct Communication	31	34.07
Mobile Communication	22	24.18

*Questions with multiple responses

As shown in Table 10, rabbit farmers sold their products at their residence (64.84%) for safety reasons during the pandemic and to lessen transportation costs and mostly sold to final customers (72.53%). This was similar to the findings of Ndyomugenyi and Otiengino (2013) where farmers sold rabbits locally in villages because of the poor link to potential markets outside the village. Osei (2012) also reported that more producers sold rabbits at their farm gate, while few sold their rabbits at a marketplace or shop while some sold to processors. Regarding promotion practices, 71.43% of surveyed rabbit raisers promote their products using social media pages using their business name.

Table 10. Distribution and promotional activities done by rabbit raisers

Place	Frequency	Percentage (%)
At what place/distribution do you commonly sell your rabbits? *		
Own place	59	64.84
Pick up	31	34.07
Deliveries	18	19.78
Local markets	4	4.40
Butcheries	1	1.10
Others	1	1.10
To whom do you commonly sell rabbits? *		
Final consumers	66	72.53
Other raisers	20	21.98
Middlemen	27	29.67
Hotel and restaurant	1	1.10
Others	1	1.10
How do you promote your rabbit? *		
Social Media	65	71.43
Word of mouth	38	41.76
Advertising	7	7.69
Exhibit	2	2.20

*Questions with multiple responses

Priyanti and Raharjo (2013) stated that producing high-quality meat, a wide variety of meat products, at a reasonable price, and the right marketing strategy would increase consumers and encourage them to consume more rabbit meat.

Problems and Challenges Encountered by Rabbit Raisers

Table 11 reveals the most common problems encountered by rabbit raisers in terms of production, marketing, and extension services.

For production, the usual problems encountered were inadequate or lack of capital (36.26%), high cost of feed (32.97%), low supply of breeder stocks (19.78%) and mortality (19.78%). In their study, Ume et al (2017) found that the performance of rabbit production was profitable but hindered by lack of capital, feeding, disease, and marketing problems. The majority of rabbit raisers in this study used their own money or savings to start their farm. There was no available financial assistance for rabbit farming which hindered them from expanding their rabbit farm. Feed cost was high for those who relied heavily or solely on commercial rabbit pellets. This cost could be reduced by familiarizing farmers with the different kinds of forages suitable to use as the main source of rabbit feed.

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Table 11. Problems and challenges encountered by rabbit raisers

Problems and challenges	Frequency	Percentage (%)
Production		
Inadequate capital	33	36.26
High cost of feed	30	32.97
Low supply of breeder stocks	18	19.78
Mortality	18	19.78
Feed sources in rainy season	13	14.29
Pests, predators, diseases	10	10.99
Theft	5	5.49
Marketing		
Low public perception	27	29.67
Inadequate market outlets	19	20.88
Low income/returns	13	14.29
Inadequate transport facilities	4	4.40
Extension Services		
Unaware of training opportunities	28	30.77
No time for training	25	27.47
Distance to training facilities	12	13.19
Lack of veterinary services	11	12.09
Inadeq. government assistance	11	12.09

*Questions with multiple responses

The most commonly cited problems for marketing were low perception or awareness of the public on rabbit meat (29.67%) and inadequate market outlets (20.88%). Although rabbit meat has a demand in some restaurants or hotels, there is still a low acceptance, particularly for household consumption. According to interviewed raisers, some Filipinos believe rabbits are relatives of rodents, fearing that they have unclean meat. At the same time, others think of rabbits as pets only and regard them as too cute to be eaten. Hence, establishing marketing strategies for rabbit meat awareness may boost production and profitability in the country.

In terms of extension services, many were unaware of training opportunities (30.77%), concurring with Paladan (2019) that a limited amount of information about training opportunities hinders extension services. Other respondents stated they had no time for training (27.47%) or lived too far away from training facilities (13.19%). They also identified lack of veterinary services available (12.09%) and inadequate government assistance for rabbit farmers (12.09%).

Training Needs and Preferences of Rabbit Raisers

Training needs and preferences are shown in Tables 12 and 13.

When asked about their training needs, as shown in Table 12, 59.34% of the raisers were interested in disease and health management because most of them managed their rabbits' health by themselves. Half of the rabbit raisers were also interested in marketing skills (50.55%) and breeding/mating practices (49.45%). According to Serem et al (2013), rabbit raisers should be trained on proper production practices such as disease management, feeding breeding and record keeping. In addition, Noor and Dola (2011) stated that training not only helps farmers increase their capabilities but also boosts their morale and motivation that contribute to their positive performance level.

Table 12. Training needs of rabbit raisers

Training needs	Frequency	Percentage (%)
Production		
Disease and health management	33	59.34
Breeding practices	30	49.45
Processing and product devt.	18	43.96
Feeding practices	18	31.87
Housing management	13	30.77
Marketing and Financing		
Promotion & marketing practices	27	50.55
Records management	19	39.56
Finance and loan facilities	13	29.67

*Questions with multiple responses

Table 13. Training preferences of rabbit raisers

Preference	Frequency	Percentage (%)
Duration		
1 day	43	47.25
2-3 days	27	29.67
1 week	3	3.30
Day*		
Saturday	52	57.14
Sunday	22	24.18
Monday	16	17.58
Friday	7	7.69
Method of training *		
Exposure visits or Field trip	46	50.55
Seminar-workshop	33	36.26
Group discussion	20	31.87

*Questions with multiple responses

Regarding preferences on training details, most rabbit raisers preferred to attend capability building activities that would last for only one day (47.25%) or within 2-3 days only (29.67%). They preferred training on weekends, with the highest scores for Saturday (57.14%) and Sunday (24.18%). On the modes of training, most of them preferred field trips or exposure visits (50.55%) over seminar-workshop (36.26%) or group discussions (31.87%).

CONCLUSION

This study aimed to determine the current status, production and marketing practices, and training needs and preferences of rabbit raisers in the Province of Bulacan, Philippines. The research surveyed a total of 91 farmers using the snowball sampling technique. Questionnaires, validated through interviews and pilot testing, were distributed personally or via online forms, with some informal interviews. Findings showed that most rabbit raisers were 41-50 years old married males with college diplomas and commonly raised New Zealand and California White breeds in small scale production. In addition, most of the rabbit raisers were beginners with less than a year of experience in rabbit production and had other sources of income from employment. Rabbits were commonly fed with forages and

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commercial pellets and placed in double tier cages made from wire mesh, that were located outdoors, with feeders, automatic waterers and plastic nest boxes. . In terms of health management, most raisers did not have any guidance from veterinary professionals and used organic concoctions as supplements with limited commercial medications. Products derived from rabbits were meat, manure, fur, and processed tail or paws. Rabbit meat was sold for PHP200 live weight per kg, and PHP401-PHP500 per kg dressed meat. Inadequate capital, high cost of feed, and negative perception about rabbit meat challenges the rabbit raisers in engaging in rabbit production. The farmers wanted to attend training on disease and health management marketing, breeding, and the processing of rabbit meat.

RECOMMENDATIONS

Based on the study's findings, the following recommendations are suggested. First, rabbit raisers should endeavor to upgrade their knowledge and skills on rabbit production and marketing through the use of available information from the internet and by linkage with other rabbit raisers in their locality. They also should identify their target market and conduct more aggressive promotion of their products. Secondly, appropriate government agencies could include in their plans the ways and means to enhance the productivity and viability of the rabbit meat industry, including the provision of credit or financial assistance to scale up production, the conduct of researches to address lack of information on some production aspects, provision of extension services to improve the knowledge and skills of farmers on appropriate technologies, and the setting up of standards and infrastructure necessary for rabbit product commercialization, including rabbit slaughterhouse and processing plants. Lastly, in providing extension services for rabbit raisers, the top priority should be disease and health management as well as marketing and breeding/mating aspects. Agricultural extension services should be delivered in short periods and preferably include exposure trips.

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