Philipp J Vet Anim Sci 2022 48(2):80-86

SOCIO-ECONOMIC IMPACTS OF PHILIPPINE MALLARD DUCK PRODUCTION IN NUEVA ECIJA, PHILIPPINES

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ABSTRACT

Two hundred respondents were interviewed using structured questionnaires to determine the socio-economic impacts of rearing ducks in their community. The average age of the respondents is 36 and most of them were females and married and the average distance of the respondents' houses to nearby duck farms is 32.9 meters. The majority of the respondents (97%) agreed that there are positive social impacts of duck farms in their community. Among those identified positive social impacts were good relationships with their neighbors, duck products as a source of nutrition and provision of livelihood or employment in their community. Consequently, most of the respondents (71.5%) disagreed that there is a negative social impact of the duck farms in the area. Meanwhile, the majority of the respondents (92.5%) acknowledged the positive economic impacts of the duck farms in their community such as the affordable duck products provided by the duck raisers. Hence, the majority of the respondents (71%) strongly disagreed that the duck farms have a negative economic impact on their neighborhood. Further assessment of the environmental, health, political as well as cultural impacts of Philippine mallard duck production should be done especially in top-producing provinces. These assessment impacts could be utilized in developing a standardized management system that could possibly avert the potential harm of duck production in the communities.

Keywords: duck farms, Nueva Ecija, Philippine mallard duck, socio-economic

INTRODUCTION

Duck production is considered an integral part of Asian countries' agricultural economies. In fact, 82.6% of the duck meat produced worldwide came from this continent alone (Adzitey and Adzitey, 2011). In addition to the economic significance of this production, some of the benefits of raising ducks include less space requirement, non-specified housing, resistance to common poultry diseases and requires only a little attention (Chang *et al*., 2003; Holderread, 2011). Because of these reasons, people especially in rural areas preferred raising ducks as a source of their income.

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As of January 2021, Central Luzon recorded the highest duck population in the country accounting for almost 36% of the Philippine total duck population. As a result, Nueva Ecija, as a part of this region, is considered the second largest duck-producing province in the country with 2.32 thousand metric tons of production. Furthermore, this province is also known as the highest duck egg-producing province (PSA, 2020, 2021). Undeniably, Nueva Ecija greatly contributes to the growth and improvement of the Philippine mallard duck industry in the Philippines.

This survey study characterized the socio-economic impact of the Philippine mallard duck farms on the community. Moreover, based on the identified challenges, the socio-economic impacts of the Philippine mallard duck production in the province were analyzed.

MATERIALS AND METHODS

This survey study was conducted in December 2021 in the municipalities of Jaen and Gapan City, Nueva Ecija which have the highest inventory of Philippine mallard ducks based on the data of the Provincial Veterinary Office. The duck inventory of the two municipalities is 38.56% of the total duck population of the whole province. The constructed questionnaire was utilized to interview 200 individuals (100 respondents per municipality) residing near duck farms using the convenience sampling method. Some of the target respondents were the Municipal and Barangay Officials, representatives of the associations and non-government organizations (NGOs) existing in the community and one member of the household who is above 18 years of age irrespective of gender.

Before conducting the actual survey study, a consent form was given to the municipality and to the respondents to inform them of the purpose of the interview. Coordination with the municipal officials, specifically with the Municipal Agriculturist, Barangay Captains and officials, was done to easily reach the target respondents.

Data collected were analyzed for descriptive statistics and frequency counts using IBM SPSS Statistics software version 27.0 (IBM Corp., 2021). The rank of importance used by Hoque *et al*. (2010) was utilized. The respondents ranked the impact of the Philippine mallard duck production using the survey form provided.

RESULTS AND DISCUSSION

Table 1 shows the socio-demographic profile of the respondents. The average age of the respondents is thirty-six (36) years old wherein the majority of them were married. Females dominated the number of respondents and most of them finished elementary and high school level. Moreover, the mean estimated distance of the households to nearby duck farms is 32.9 meters.

Table 2 presents the respondents' perceptions of the positive social impacts of the duck farms in their community. The majority of the respondents (97%) agreed that there are positive social impacts of duck farms in their community.

The positive social impact of the duck farms in the community was identified as a good relationship with their neighbors (91%), duck products as a source of nutrition particularly protein (82%), and provision of livelihood or employment in the community (35%).

Table 1. Socio-demographic profile of the respondents.

Criteria	Respondents n=200
Average age	36.0
Distance to nearby duck farms, m	32.9
Marital Status, %	
Single	43.5
Married	47.0
Widow	9.5
Gender, %	
Male	31.0
Female	69.0
Highest Educational Attainment, %	
Graduate Studies	1.5
College Graduate	10.5
College Undergraduate	-
High School Graduate	41.0
High School Undergraduate	-
Elementary Graduate	45.5
Elementary Undergraduate	-
Others	1.5

Table 2. Respondents' perceptions of the positive social impacts of duck farms in their community.

Response	Frequency	Percent
Strongly disagree (1)	-	-
Slightly disagree (2)	-	-
Neither agree nor disagree (3)	6	3
Slightly agree (4)	60	30
Strongly agree (5)	134	67
Total	200	100
Weighted mean	4.64	

Among those who identified good relationships with their neighbors as positive social impact, most of them (48%) ranked this as number 2. With regard to the source of nutrition as positive social impact, 50% of the respondents ranked this also as their top 2. Moreover, the respondents who stated the provision of livelihood or employment as a positive social impact recognized this as the most prominent one (Table 3).

Table 4 shows the respondents' perceptions of the negative social impacts of duck farms in their community using the Likert scale. Seventy-one percent (71%) of the

respondents disagreed that there is a negative social impact of the duck farms in their area. This result contrasted the impact of duck farms in Oyo State in Nigeria, wherein one of the encountered problems of the duck farmers is the negative reaction of the people residing near the duck farms. Some of their strategies to eradicate this problem are by selling their stubborn ducks, removal of feces and by giving ducklings to their neighbors (Baruwa *et al*., 2018).

The negative social impacts of the duck farms with their ranking are presented in Table 5. Unwanted farm odor (100%) is the most protruding negative social impact experienced by the number of households residing near the duck farms. In fact, respondents who identified this as their negative social impact ranked this as number 1. Some of them also struggled with noise (31%), excessive flies (17%) and plant damage (15%) due to the free-range ducks. Furthermore, the respondents recommended placing the ducks' houses away from residential areas. They also stated that duck raisers must always clean the pens and should regularly apply disinfectant to avoid some unpleasant effects of rearing ducks. These problems were discussed by the complainants with the duck farmers and they were satisfied with the action taken by the concerned owners.

Table 6 shows the percentage of respondents regarding their insights on the positive economic impacts of the duck farms existing in their community. Almost all of the

Table 3. Identified positive social impact of the duck farms with their ranking.

Positive Social Impacts	Rank			
	Respondents n=194	1	2	3
Good relationship with neighbors	176 (90.72%)	68 (38.64%)	85 (48.30%)	23 (13.07%)
Source of nutrition (particularly protein)	160 (82.47%)	72 (45.00%)	81 (50.63%)	7 (4.38%)
Provision of livelihood or employment in the community	69 (35.5%)	52 (75.36%)	8 (11.59%)	9 (13.04%)

Table 4. Respondents' perceptions of the negative social impacts of duck farms in their community.

Response	Frequency	Percent
Strongly disagree (1)	143	71.5
Slightly disagree (2)	-	-
Neither agree nor disagree (3)	-	-
Slightly agree (4)	57	28.5
Strongly agree (5)	-	-
Total	200	100.0
Weighted mean	1.86	

Table 5. Identified negative social impact of the duck farms with their ranking.

Negative Social Impacts	Rank			
	Respondents n=57	1	2	3
Unwanted farm odor	57 (100%)	57 (100%)	-	-
Noise	18 (31.57%)	5 (27.78%)	13 (72.22)%	-
Excessive flies	10 (17.54%)	3 (30%)	5 (50%)	2 (20%)
Plant damage due to free-range ducks	9 (15.79%)	4 (44.44%)	-	5 (55.56%)

Table 6. Respondents' perceptions of the positive economic impacts of duck farms in their community.

Response	Frequency	Percent
Strongly disagree (1)	-	-
Slightly disagree (2)	-	-
Neither agree nor disagree (3)	15	7.50
Slightly agree (4)	72	36.00
Strongly agree (5)	113	56.50
Total	200	100.00
Weighted mean	4.49	

respondents (92.5%) acknowledged the positive economic impacts of the duck farms in their community. This means that the duck business could possibly uplift the economic status of the people residing near the duck farms.

The identified positive economic impacts of the duck farms with their ranking are presented in Table 7. The most notable positive economic impact of the duck farms in the community is the affordable duck products (87%) provided by the duck raisers and the majority of the respondents ranked this as number 1. In fact, the observed price of their main duck product which is duck egg (Php 6.00) was lower compared to the national farm gate price (Php 7.00) (PSA, 2022). Moreover, as stated by the respondents, there are times that they received free fresh duck eggs from nearby farms. Duck businesses also provided employment (31.35%), as some of the household members of the respondents work in the duck farms. The respondents who identified this as a positive economic impact ranked this also as number 1. Moreover, duck farms also provided livelihood (24%), as the area is dominated by salted egg processors and balut vendors who acquired their raw products in the duck farms in their locality.

The perception of respondents in relation to the negative economic impacts of duck farms in their community is shown in Table 8. The majority of the respondents strongly disagreed

(71%) that the duck farms have a negative economic impact on their neighborhood. But a few respondents believed that some negative impacts affected the economic status of their community.

Table 9 presents the identified negative economic impacts of the duck farms in the community. Seasonal increases in price (77.5%) and surplus of duck products (22%) are among the negative economic impacts identified by the respondents in their community.

The respondents ranked the seasonal increase in the price of duck products as their top negative economic impact, while they ranked the surplus of duck products as number 2. These problems were discussed by some of the respondents with the concerned duck farmers. They recommended exerting some effort to care for the ducks so that they can minimize the possible emergence of diseases and infections. They also stated that produced duck products should be sold to other areas to avoid surplus.

Strict implementation of protocols and policies in duck farms should be imposed by the authorities regardless of their scale of operations to minimize the possible unwanted impacts of production in the community. However, positive impacts of the duck operation should be developed and harnessed in order to enable the community to fully benefit from this industry. With this, characterization of the different impacts of duck production such as environmental, health, political as well as cultural impacts should be explored.

Table 7. Identified positive economic impacts of the duck farms with their ranking.

Positive Economic Impacts	Rank			
	Respondents n=185	1	2	3
Provides affordable duck products in the community	161 (87%)	134 (83.33%)	12 (7.41%)	15 (9.26%)
Provides employment	58 (31.35%)	36 (62.07%)	14 (24.13%)	8 (13.8%)
Provides livelihood	45 (24%)	17 (37.78%)	28 (62.22%)	-

Table 8. Respondents' perceptions of the negative economic impacts of duck farms in their community.

Response	Frequency	Percent
Strongly disagree (1)	142	71.00
Slightly disagree (2)	-	-
Neither agree nor disagree (3)	-	-
Slightly agree (4)	5	2.50
Strongly agree (5)	53	26.50
Total	200	100.00
Weighted mean	2.13	

Table 9. Identified negative economic impacts of the duck farms with their ranking.

Negative Economic Impacts	Rank		
	Respondents n=58	1	2
Seasonal increase in price of duck products due to the emerging diseases	45 (77.58%)	45 (100%)	-
Surplus of duck products in the area	13 (22.41%)	-	13 (100%)

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