

PERFORMANCE OF THE CHICKEN CONTRACT FARMING AND ITS AFFECTING FACTORS IN VIETNAM: A CASE STUDY IN HOA THACH COMMUNE, QUOC OAI DISTRICT, HANOI

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ABSTRACT

This study aims to analyze the performance and its affecting factors in the chicken contract farming in a case study of Hoa Thach commune, Quoc Oai province, Hanoi, based on the questionnaire surveyed data of 40 representative chicken contract farmers in the study site in 2016. The results showed that surveyed household's head was medium (37 years old), low educational level (80% secondary school), but they had experience (87.5% had more than 3 years of raising), with quite large raising scale (popular 3001 to 5000 heads). Feed cost was too high (87.7% total cost), led farmers to lower performance, and situation of depending on the market. The farm income was rather low, accounted for only 10.4% total revenue. Results also showed that, any decrease in labor cost, improvement in by - products revenue or egg laying rate will lead to the enhancement of chicken raising performance for contract farmers. Therefore, the farmers had better reduced the feed cost, better manage their labor, exploit by - products and improve the egg laying rate to enhance the farm performance.

Keywords: Chicken raising, farmer, contract farming, performance

1. INTRODUCTION

Chicken raising is a traditional occupation and plays an important role in the economic development of Vietnam. It ranks the second important positions, just after pigs, in the whole livestock sector (Nguyen Van Khoa, 2014). In 2014, the numbers of poultry in Vietnam reached 327.7 million heads (GSO, 2015), in which, the numbers of chicken accounts for around 95% and provides proportion of meat for the market of 14 - 15% (Nguyen Van Khoa, 2014). It is considered as an important

economic sector and a great value contribution to the agricultural production, significance in the process of restructuring the rural agricultural economy in Vietnam in general, and in Hoa Thach commune, Quoc Oai District, Hanoi, in particular.

However, the chicken raising in Vietnam is still facing many risks such as the bird flu, many kinds of diseases, increasing input price, fluctuated, and reducing the output price (Bui Thi Nga and Philippe Lebailly, 2016). This significantly affected the outcome and efficiency of chicken raising farmers.

The Vietnamese government has launched a number of measures to limit risks to chicken farmers such as providing technical assistance, supporting seeds and markets, preventive vaccination. However, these solutions seemed have not overcome the obstacles (Nguyen Thai Bac, 2013). In order to reduce the risk and stabilize the chicken raising, farmers have shifted from self - livestock systems into the contract farming system. However, so far, there is not in - depth study about the performance of chicken contract farming in the North of Vietnam in general and in the study site in particular. Therefore, this study aims to evaluate the operating results of processing chicken, consider factors that affect the activity and propose some solutions to improve the results processed chicken locality.

2. METHODOLOGY

2.1. Data collection

Hoa Thach commune was selected as a case study because it is one of the first and rapid development from self – livestock system to contract farming system in the North of Vietnam as the farmers in this area well - recognized the negative impact of risk factors for the sustainable development of their farming. Therefore, many farmers in this area have joined and signed the contract farming with the Charoen Pokphand Group (CP) – a livestock feed processing company originated from Thailand.

In the study sites, most of the contract farmers (90%) raising chicken for egg, there were only 10% farmers raising the chicken for meat. Therefore, this study focused mainly on the contract farmers who rose chicken for egg.

The probability sampling method with probability proportional to size (PPS)

combined with the stratified sampling was chosen to take the samples for the research. A sampling frame was established and estimates were reckoned so as to approximate real population values. Total 40 chicken contract farmers, which accounted for 50.6% the total population size in the study site. The questionnaire was used to collect primary data from these farmers in 2016.

Besides, the in - depth interviews, expert method, and observation were used to collect primary information of chicken raising in the study site.

2.2. Data Analysis

The research used OLS regression to compute the effects of some factors in the performance of contract farmers in the study sites.

The performance affecting factor equation:

$$Y_{ii} = \chi_{ii}\beta_1 + u_{ii}u_{ii} \sim N(0,1)$$

Where: Y_{ii} is the latent dependent variable

χ_{ii} is the vectors that are assumed to affect the performance of contract farmers in the study sites

β_1 is vectors of unknown parameters

u_{ii} are residuals that are independent and normally distributed with zero mean and constant variance.

The dependent and independent variables used in the model are described in Table 1.

3. RESULTS

3.1. Characteristics of chicken contract farmers in the study site

In the chicken contract farming, the CP Group provides farmers some inputs: chicken breed, feed, veterinary and

consumes all of their main output (eggs)¹. They send technicians to support the farmers with necessary technique and process of chicken raising. Technicians of the company are also responsible for monitoring and dealing with related issues, especially in case of the disease to ensure the product quality. Farmers invest in hen - house, livestock equipment such as feeding, drinking, cooling, heating system, generators... and pay for other related cost such as electricity, water, gas running generators, labor...).

According to the farmers, joining the chicken contract farming will ensure them a high level of safety, low risk due to technical support, ensured chicken breed, feed and veterinary from the CP group. Especially, contract farmers were less affected by the market factors because the company provides inputs and consumes all of their main products. In addition, this type of raising also reduces the investment of the farmers as the CP group provides them some inputs. However, the farmers also reflected that, this type of raising results in lower profits compared to that of self - raising. Therefore, recently, in this commune, there are some farmers gave up the contract farming after 4 - 6 years of contract with CP for self - raising.

The farmers' characteristics are presented in table 2, in which, the average age of surveyed household's head was medium at 37 years old, the eldest was 57 and the youngest was 23 years old. The mode age range was from 30 to 40 years old. At this age, the farmers had experienced in life, could make good decisions, and still young enough to absorb, learn, and apply new scientific knowledge in animal husbandry. Average number of

family members were quite high at 5.5 people, and the common laborers were from 3 to 4 people. Besides hiring labor, farmers used family labor for chicken raising. Sometimes, they exchanged labor or support each other in raising chicken.

Regarding to educational level, 80% of the farmers had just finished the secondary school level. This can be explained by the fact that the majority of people with higher qualifications have done other work such as government officials, workers in companies or migrate to other major cities for work.

The farmers had experience in chicken raising as there were 37.5% of them rose chicken more than 5 years, 50% others rose chicken from 3 to 5 years, and only 12.5% just had less than 3 years of experience.

In terms of land area, the common households land area was around 5000 to 10000m². There were 20% of farms that had a big land size of more than 10,000m², 45% of them had medium land size of 5000 to 10,000 m², the rest had a small land size of less than 5000 m². In comparison to similar previous research, the land in this area was much larger (Bui Thi Nga and Philippe Lebailly, 2016).

3.2. Performance of chicken raising in contract farms

Size of the chicken raising

The surveyed farmers raised quite a large size in comparison to the results in other similar research studies. The most popular size was from 3001 to 5000 heads, which occupied 60% total farms (Table 3). The small size in this area was even larger than that of the some previous studies (Bui Thi Nga, Philippe Lebailly, 2016).

Cost for chicken raising

Table 4 showed that, feed cost was too high, occupied 26,712 VND over the total average cost of 29,845 VND per chicken

¹ The cost of provided inputs will be recovered when the farmers provide CP group the eggs

head per month, which accounted for 87.7%, the largest share of chicken raising cost in the surveyed farms, followed by the labor cost (1,575 VND and 7.2%). The high feed cost led to lower performance and low farm efficiency. In addition, farmers almost used the bought feed for chicken raising, therefore, high feed cost also led to the situation of depending on the market of the farmers, which in turn resulted in the ability of the more vulnerable for them.

Performance of chicken raising

The survey results showed that the total revenue of the farm was not very high, at only 33,307 VND per head per month, of which, revenue from the main products of farms (egg) was 32,874 VND, accounted for 98.7%. Due to the high production cost of 29,845 VND per head per month, the farm income was rather low at only 3,462 VND per head per month, which accounted for only 10.4% total revenue of the chicken raising in farms (Table 5).

Table 1. Description of the dependent and independent variables used in the model

Variables	Description	Types	Values
SIZE	Scale of the farms	Continuous	Numbers of chicken head in the farms
HENHOUSE	Cost for hen - house	Continuous	Amount of VND invested in hen - house
LABOR	Labor cost	Continuous	Amount of VND pays for the hired labor in farms
TOOLS	Cost of tools and equipment	Continuous	Amount of VND invested in tools and equipment
FEED	Feed cost	Continuous	Amount of VND to buy feed for raising chicken
BYPRO	By - products	Continuous	Amount of VND received from selling chicken by - products such as manure, old hen
EGG	Egg laying rate	Continuous	Proportion of egg laying rate by hen
Y_{1i}	Performance of the contract farms	Continuous	The income of the contract farms counted by VND

Table 2. Characteristics of farmers

No	Criteria	Unit	Number	Ratio (%)
1	Average ages of the head of the households	Years	37	
2	Average family members	People	5.5	
3	Numbers of average labors	Labor/farm	3.1	
4	Educational level of the head of the household	People	40	100
	Secondary school	People	32	80
	High school	People	8	20
5	Experience time of chicken raising	Years		
	Less than 3 years	Farmers	5	12.5
	From 3 to 5 years	Farmers	20	50
	More than 5 years	Farmers	15	37.5
6	Land area			
	From 1000 to 5000 m ²	m ²	14	35
	From 5001 to 10,000 m ²	m ²	18	45
	More than 10,000 m ²	m ²	8	20

Source: Survey results, 2016

Table 3. Scale of raising

Scale of raising	Numbers of head	Proportion
Small size	Less than 3000 heads	20%
Medium size	From 3001 to 5000 heads	60%
Big size	More than 5000 heads	20%

Source: Survey results, 2016

Table 4. Cost for chicken raising in the study sites (Unit: VND/head/month)

Cost	Min	Max	Mean	Proportion
Labor cost	1,500	2,000	1,575	7.2%
Hen - house	298	383	340	1.1%
Feed	26,124	27,752	26,712	87.7%
Tools and equipment	315	450	374	1.2%
Interest	0	180	152	0.5%
Other cost (Electricity, water ...)	600	740	692	2.3%
Total	28,937	31,405	29,845	100%

Source: Survey results, 2016

Table 5. Performance of chicken raising in study sites (Unit: VND/head/month)

Item	Min	Max	Mean
Main products	32,350	33,450	32,874
By - products	400	450	433
Total revenue	32,750	33,900	33,307
Total cost	28,937	31,405	29,845
Income	2,813	3,495	3,462

Source: Survey results, 2016

Table 6. Affecting factors to the chicken contract farming in the study site

Factors	Coefficient	P - Value
Intercept	19835	0.19
SIZE	- 0.004	0.889
HENHOUSE	0.173	0.245
LABOR	- 0.995	$2.545 \cdot 10^{-7}$
TOOLS	0.034	0.714
FEED	- 0.123	0.171
BYPRO	1.144	0.001
EGG	367247	$5.574 \cdot 10^{-8}$

Note: $F = 7.1$, number of observations (N) = 40, Multiple $R = 0.6701$; R - squared = 0.6441, Adjusted R - square = 0.6189
Source: Survey data, 2015

3.3. Affecting factors to the performance of chicken contract farming

In the selection equation of the regression model, three variables were found to be significant affecting the chicken contract farming in the study site (Table 6). These were labor cost (LABOR); by - products (BYPRO), and egg laying rate (EGG).

$F = 7.1$, number of observations (N) = 40, Multiple $R = 0.6701$; R - squared = 0.6441, Adjusted R - square = 0.6189.

There was one variable, labor cost (LABOR) had negative effects on the performance of the contract chicken raising, and two variables, by - products (BYPRO) and egg laying rate (EGG) had positive on the performance of the performance of chicken raising in the study site. That means, any decrease in labor cost, for example, thanks to better labor manage, and any improvement in by - products revenue or egg laying rate will lead to the enhancement of chicken raising performance for contract farmers.

Although in the regression results, feed cost did not statistically significant affect the performance of the chicken raising, the reality of high proportion feed cost (87.7% of total cost) and the deep interview showed that this is one of the factor that has most impact on the performance of the chicken raising. According to the responds of the key persons with high experience in the study site, if the feed cost could be reduced, the farmers will surely have a chance to improve their farm's performance and develop more sustainably.

4. CONCLUSIONS

The surveyed results showed that the average age of surveyed household's head was medium at 37 years old with low

educational level. The farmers had experience in chicken raising as there were 87.5% of them rose chicken more than 3 years. The common households land area was around 5000 to 10000m² and popular scale of production was from 3001 to 5000 heads, which occupied 60% total farms.

Feed cost was too high, occupied 87.7% the total average cost of chicken raising, which led to lower performance, low farm efficiency, also led to the situation of depending on the market of the farmers. This, in turn, resulted in the ability of the more vulnerable for farmers. Total revenue of the farm was not very high, of which, revenue from the main products of farms accounted for 98.7%. The farm income was rather low, accounted for only 10.4% total revenue of the chicken raising in farms.

The results also showed that, three variables were found to be significant affecting the chicken contract farming in the study site: labor cost, by - products, and egg laying rate. Decrease in labor cost, increase in by - products revenue and egg laying rate will lead to the improvement of performance for contract farmers.

To improve the performance of chicken contract farming in the study site, there are some suggestions: (1) Firstly, it is necessary to reduce the feed cost of chicken raising. The farmers had better self - produce the feed for the chicken by mixing necessary materials, which are very available in their living area such as corn, rice, soybean, etc. This not only could help them to decrease the feed cost, but only help them not depend too much on the feed market. (2) Secondly, farmers should decrease the hired labor cost to improve their performance by using more suitable labor sources such as managing labors better, increasing the family labors. (3) Thirdly, farmers should increase their by -

products by accumulating the chicken manure to sell, which would increase their by - product revenue. (4) Finally, farmers should upgrade their knowledge and skill of chicken raising and find, buy good chicken breed to improve the egg laying rate, which in turn, would increase their performance.

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