Bulletin of Environment, Pharmacology and Life Sciences
Bull. Env. Pharmacol. Life Sci., Vol 7 [4] March 2018 : 96-100

Online ISSN 2277-1808
Journal's URL:http://www.bepls.com
CODEN: BEPLAD
Global Impact Factor 0.876
Universal Impact Factor 0.9804
NAAS Rating 4.95

ORIGINAL ARTICLE **OPEN ACCESS**

Economics Evaluation and Constraints of Contract and Backyard Broiler Farming

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ABSTRACT
A total of 15 contract and 15 non-contract broiler farmers were selected from the sample block of the three districts i.e Pune, Satara and Ahmednagar (Maharashtra) and surveyed through a well structured pre-tested interview schedule. The results of the study revealed that efficiency and body weight at marketing of broilers were non significant compared between contract and non-contract farming except liveability of birds which was significantly higher in non-contract broiler farming. Factors influencing profitability revealed that the age in years negatively influencing the profitability where as partnership venture and average body weight at marketing had positive impact on the profitability. Total investment and number of batches per year had negative influence on the profitability of contract broiler farming. Foremost constraints faced by the contract broiler farmers were untimely supply of quality inputs, non-remunerative price, poor quality inputs, exploitation by partnership organisation, and difficulty in availing credit and low productivity whereas the major constraints of non-contract broiler farmers were lack of finance, high rate of interest, repayment problems and difficulty in availing credit.
***KEY WORDS**: Contract broiler farming, Economics, Profitability, Partnership, Constraints*

Received 29.11.2017 Revised 12.01.2018 Accepted 01.03.2018

INTRODUCTION

Contract farming is the way of giving the power of scale to the small farmers, transferring corporate management skill to agriculture field, providing assured markets for the produce, reducing the transaction costs involved in the value chains of the commodities and the ensuring vertical integration through forward and backward linkages [2]. Contractual arrangements of different type shave existed in various parts of country for centuries and that too, not only in subsistence and commercial crops but also in livestock sector [3]. However, in the wake of economic liberalization, the concept of contract farming involving multinational firms provide the much needed technological and capital support to the farmers [1]. Contract farming in poultry is generally defined as raising poultry birds under a forward agreement between farmers and an agency called integrators engaged in trading or processing, frequently at predetermined price [4]. Within this broad frame work, there are different variants of contracts, depending on the intensity of contractual arrangements. Thus under the contract farming, the farmers producing chicks under the agreement with integrators, which contributes directly to the management of the farm through input supply as well as technical guidance through intermittent supervision and also markets for the produce. Thus, the farmer assumes that the production and marketing related risks are transferred to the contracting organisation.

Poultry farming came to be accepted as available activity by mid sixties and the real thrust to development came in 1971 with the establishment of Venkateshwara Hatcheries Pvt. Ltd. in Pune. In India, Pioneer poultry group was the first to introduce the concept of contract farming in the year 1980 and the concept of integration was introduced by Suguna farms in 1990. In southern part of India, the process of integration of poultry began in mid 1990s and accelerated rapidly as independent growers found guaranteed returns from contract farming in spite the vagaries of market returns. Keeping the factors in mind, the present study was designed with the objective of analyzing the profitability in contract broiler farming and in highlighting the constraints involved in broiler production.

MATERIALS AND METHODS

For collection of data, a multi-stage random sampling design (I stage selection of blocks and second stage selection of respondents) was used. From the districts in Western ghat zone of Maharashtra, three blocks were selected through simple random sampling technique. From each of selected block of Pune, Ahmednagar and Satara districts, five contract and five non-contract broiler farmers were selected by simple random sampling. Hence, fifteen contract farmers from Pune, Satara and Ahmednagar districts and fifteen non-contract broiler farms were selected from the same districts. Totally, 15 Contract and15 non-contract broiler farmers were selected for the stud Collection of data Information related to size of broiler unit, experience in broiler farming, source of inducement for establishing broiler farm, capital investment details, building particulars, labour involved, details of partnership arrangement, source of feed, input contribution, cost of production of broiler, quantity of broiler sold, constraints involved in production, finance and marketing in contract and non-contract farming were obtained from the non-contract and contract broiler farmers with well designed pre-tested interview schedule. Socio-economic particulars like the respondent's age, gender, occupation, income, education etc. were also collected from the survey. The collected data were tabulated and analyzed statistically.

RESULTS AND DISCUSSION

Production performance of broilers in contract and non-contract farming

The details regarding the body weight at marketing, feed efficiency and livability are given in Table 1. It could be seen from the table that body weight of broilers reared under contract farming were almost similar to those under non-contract farming (2.04 Vs 2.05 kg). Age of marketing under contract farming and non-contract farming were almost similar (40-44 days). Feed efficiency of birds reared under contract farming system was similar to those of non-contract farming (1.88 Vs 1.88). Per cent livability at market age appeared to be in favour of broilers grown in non-contract farms over those in contract farms (95.43 Vs 93.05 per cent) and the difference was found to be significantly higher (P≤0.01). In non-contract farming farmers tends to take more care of birds compared to contract farmers because they have invested more and had more responsibility and due to that only they maintained almost similar average body weight at marketing and feed efficiency [5]. Livability percentage in non-contract farms were significantly higher than those of contract farms which shows better involvement and care taking behavior of non-contract farmers [6].

Table 1 Performance of Broilers (Mean ± S.D)

Farmer Category		Body weight at marketing^{NS} (kg)	Feed fficiency^{NS}	Livability ** (%)
Small	Partnership (8)	2.07 ± 0.05	1.87 ±0.04	91.09^{a} ±1.48
	Non-partnership (0)	-	-	-
Medium	Partnership (4)	2.02 ±0.01	1.88 ± 0.01	93.02^{ab} ± 1.90
	Non-partnership (2)	2.04 ± 0.05	1.88 ± 0.11	95.06^{bc} ± 0.74
Large	Partnership (3)	2.05 ± 0.04	1.86 ± 0.02	94.97^{bc} ± 1.17
	Non-partnership (13)	2.06 ± 0.04	1.90 ± 0.05	95.90^{c} ± 1.14
Overall	Partnership (15)	2.04 ± 0.04	1.88 ± 0.05	93.05 ± 1.37
	Non-partnership (15)	2.05 ± 0.04	1.88 ± 0.03	95.43 ± 1.15

Economics of broiler production under contract and non-contract farming

The mean values of the cost incurred by the farmer to produce one kg broiler, net return for every 1000 broilers raised and benefit: cost ratio under contract and non-contract broiler farming system practiced in Maharashtra are given in Table 2. for comparing economic efficiency of broiler production under both the systems. The cost incurred to produce one kg of live broiler worked out to Rs. 57.78 under non-contract farming during the period under study. The average cost incurred by a farmer under contract farming was only Rs.2.90 per kg including input cost of self labour, since rest of the cost components like feed cost, chick cost, vaccine and medicine cost etc. were borne by the integrator. Hence, the cost incurred by the farmer under contract rearing system covers only the interest on his investment on building and equipment, labour cost, cost of labour and electricity.

Net return per 1000 broilers raised by the farmer worked out to Rs. 17101.63 under non-contract farming and Rs. 5157.58 under contract farming. Even though absolute net return values under contract farming were comparatively lower, it needs to be appreciated that such a return was obtained out of low level investment made by the broiler farmer under contract farming. The benefit: cost ratio worked out to be 1.21 for non-contract farms and 1.27 for contract farms indicating a definite higher benefit achieved by

the broiler farmer under such partnership. The difference in benefit: cost ratio between contract and non-contract farming was found to be significant (P≤0.05). Similar result also found by [7].

Table 2 Economic Efficiency of Broiler Farms (Mean ± S.D)

Farmer Category		Cost/ kg.** (Rs.)	Net Return/ 1000 Broilers**	B – C Ratio*
Small	Partnership (8)	3.24^{a} ± 0.26	3597.75^{a}±121.34	1.24^{ab} ±0.06
	Non-Partnership (0)	-	-	-
Medium	Partnership (4)	2.85^{a} ±0.15	5174.00^{b} ±148.05	1.26^{b} ±0.04
	Non-Partnership (2)	58.94^{c} ±0.86	16599.50^{d} ± 84.15	1.19^{a} ±0.01
Large	Partnership (3)	2.63^{a} ±0.07	6701.00^{c} ±159.77	1.32^{c} ±0.05
	Non-Partnership (13)	56.53^{b} ±1.71	17603.77^{e} ±363.06	1.24^{ab} ±0.03
Overall	Partnership (15)	2.90 ±0.16	5157.58 ±143.05	1.27 ±0.05
	Non-Partnership (15)	57.78 ±1.28	17101.63 ±223.60	1.21 ±0.02

Factors influencing the profitability of contract broiler farming

The multiple linear regression analysis was used to find out the factors influencing the profitability of contract broiler farming and the results are presented in Table 3. The adjusted co-efficient of multiple determination (adjusted R^2) was found to be 0.675, which indicated that 67.50 per cent variations in the dependent variable were explained by the independent variables. The F value (32.12) of the function was found to be significant at one per cent level. Among 14 variables considered for analysis, age of the farmer was significant (P≤0.05) and negatively influencing the profitability of contract broiler farming, which implied that participation of young and enthusiastic people in this venture results in significant increase in profitability. As a young person knows the importance of scientific knowledge and practical approach towards broiler farming, the profitability was higher.

Total investment was found to be significant (P≤0.05) and negatively influencing the profitability. It could be inferred that as the total investment increases, the fixed cost also increases leading to high interest on investment subsequently cause decrease in profitability which could be the reason for the negative sign prefixed with the co-efficient of this factor. The variables such as number of batches per year and average body weight at marketing were found to be significant (P≤0.05) and positively influencing the profitability of contract broiler farming. It could be inferred that as the number of batches per year increases which resulting in to increase the sale of total number of birds leading to increase in profitability and when the average body weight at marketing increases significantly, there is increased returns leading to increase in overall profitability to the farmers. The partnership venture was found to be highly significant (P≤0.01) and positively influencing the profitability of contract broiler farming, which implies that the contract farmers were investing very less in this venture and they had very lesser risk of loss. This could be the reason for higher profitability by adopting partnership venture.

Table 3 Multiple Linear Regression Analysis
Factors influencing the profitability of contract broiler farming

Xi	Variable	Standardised co-efficients ß	t- statistic	P- value
α	Constant		2.91	0.01
X_1	Age (in years)	-1.40*	-1.86	0.01
X_2	Land holdings (in acres)	-0.42	-1.64	0.02
X_3	Family size (no.)	-0.23	-1.25	0.23
X_4	Dependency ratio	-0.01	-0.06	0.95
X_5	Experience (in years)	-0.04	-0.17	0.87
X_6	Sex (1 = Male, 0 = Female)	-0.13	-0.57	0.58
X_7	Total investment (in Rs.)	-0.45*	-1.53	0.02
X_8	Number of batches per year	-0.24*	-1.65	0.02
X_9	Livability	-0.57	-1.95	0.07
X_{10}	Feed efficiency	-0.05	-0.31	0.76
X_{11}	Farm capacity (no.)	0.43	0.81	0.43
X_{12}	Educational status (0-4)	0.01	0.05	0.96
X_{13}	Partnership (1 = non-partnership, 2 – partnership)	1.50**	3.93	0.00
X_{14}	Average body weight at marketing	0.22*	1.65	0.02
	N=30	**F-statistic = 32.12****	**R^2 = 0.877**	**Adj. R^2=0.675**

Significant** * Highly significant**

Other variables such as land holdings, family size, dependency ratio, experience, sex, livability, feed efficiency, farm capacity and educational level were found to be non-significant. Prabakaran *et al* [8] analyze the private sector partnership in poultry production and stated that four independent variables were found to influence the profitability significantly ($P < 0.01$), Viz., experience of farmers, Sex of the farmers, feed efficiency and partnership in broiler farming.

Constraints faced by farmers in contract and non-contract broiler farming

Based on the Garret's ranking technique, the problems perceived by the contract and non-contract broiler farmers were ranked. Thus, by ranking the constraints, the problems of the farmers were prioritized.

Constraints faced by farmers in contract broiler farming

The details of constraints faced by the contract farmers are presented in table 4 It could be evident from the table that major constraints faced by the contract broiler farmers was untimely supply of quality inputs (72.00), followed by non-remunerative price (66.66), poor quality inputs (59.66), exploitation by partnership organizations (59.62), difficulty in availing credit (51.73) and low productivity (51.07). The foremost constraints perceived by the contract broiler farmers were untimely supply of quality inputs. Since, quality inputs not available on time leads to decrease in profit by reduction of output resulting in frustration. Hence, for better profitability, the timely supplies of quality inputs are necessary.

Constraints faced by farmers in non-contract broiler farming

The details of constraints faced by the non-contract farmers are presented in table 5 It is evident from the table that major constraints faced by the non-contract broiler farmers was lack of finance (76.00) followed by high rate of interest (70.32), repayment problems (64.03) and difficulty in availing credit (52.33). The major constraint of non-contract broiler farmers was lack of own finance. Unlike contract farmers, all the inputs were to be incurred by non-contract farmer himself. Hence, they might not have sufficient own finance to run the business. The present findings were in agreement with the findings of [9].

Table 4 Constraints faced by farmers in contract broiler farming

Sl. No.	Constraints	Score	Rank
1	Untimely supply of quality inputs	72.00	1
2	Non-renumerative price	66.66	2
3	Poor quality inputs	59.66	3
4	Exploitation by partnership organizations	59.62	4
5	Difficulty in availing credit	51.73	5
6	Low productivity	51.07	6
7	Lack of experience	46.37	7
8	Adverse climate	46.17	8
9	Mortality	45.23	9
10	Lack of scientific knowledge	36.72	10

Table 5 Constraints faced by farmers in Non-contract broiler farming

Sl. No.	Constraints	Score	Rank
1	Lack of own finance	76.00	1
2	Repayment problems	64.03	2
3	High rate of interest	70.32	3
4	Difficulty in availing credit	52.33	4
5	Lack of marketing facility	50.07	5
6	Poor price forecasting	32.42	6
7	Poor transport facility	34.33	7
8	Less bargaining power	38.33	8
9	Lack of marketing information	44.16	9
10	Low price for the input	36.12	10

CONCLUSION

The inducement mainly through self, relatives and MAFSU and in non-contract, it was self. Production performance under contract was better than non-contract broiler farming. The major constraints faced by the contract broiler farmers were untimely supply of quality inputs, non-remunerative price, poor quality inputs, exploitation by partnership organization, and difficulty in availing credit and low productivity

whereas the major constraints of non-contract broiler farmers were lack of finance,high rate of interest, repayment problems anddifficulty in availing credit.

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CITATION OF THIS ARTICLE

A Manoj Bhimraj, D Sagar Popat, A. Serma Saravana Pandian and O.P.Dinani. Economics Evaluation and Constraints of Contract and Backyard Broiler Farming**.** Bull. Env. Pharmacol. Life Sci., Vol 7 [4] March 2018 : 96-100