



SHORT COMMUNICATION

Factor Analysis of the Determinants of the Farmers Entering into Contract Japanese quail Farming

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ABSTRACT

The farmers' perception on the determinants of entering into contract Japanese quail farming was analysed by factor analysis. The data for the study was collected through a pre-tested interview schedule from the contract Japanese quail producers in western zone of Tamil Nadu. Seven variables were considered emphasizing the factors to go in for contract. Out of seven variables, two variables, creating infrastructure and averting price fluctuation showed highest factor loadings on the first dimension While two variables, remunerative price and removal of exploitation by middle men had relatively highest factor loadings on second dimension and the other two variables like extending technical knowledge and forecasting disease outbreak higher in third dimensions.

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INTRODUCTION

Contract farming has been defined as an agreement between farmers and processing and/or marketing firms for the production and supply of agricultural products under forward agreements frequently at predetermined prices (Eaton and Shepherd, 2001). Partake of risk is one of the widely cited reasons for contracting. Various studies on contract farming emphasize risk reduction as a principal incentive for producers to enter into contracts (Covey and Stennis, 1985). Contract farming is fastly evolving as a mechanism of alternative marketing in India. Punjab, Karnataka, Maharashtra, Madhya Pradesh and Tamil Nadu have proved to be the front-ranking States in this respect (Paty, 2005). 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 inspite of vagaries of market returns. Some authors argue that contract farming is beneficial to the smallholder farmers since it enables farmers to increase income and to access upcoming and international markets (Minot, 1986; Key and Rusten, 1999; Kirsten and Sartorius, 2002; Minot *et al.* 2009). Among different types of contract poultry farming, contract Japanese quail farming is relatively a new venture in Tamil Nadu. This study was designed with the aim of analysing the determinants of the farmers' perception to enter into contract Japanese quail farming.

Similar study was carried out by Guo *et al.* (2005) and Stephen (2012) analyzed the determinants of contract farming participation with processing firms.

MATERIALS AND METHODS

For the present study, the western zone of Tamil Nadu was purposively selected. Since, the districts in this zone (Erode, Tiruppur and Coimbatore) have high concentration of Japanese quail farming activities. The primary data for the present study was collected from thirty each of the contract Japanese quail producers and non-contract or individual producers with a well designed pre-tested interview schedule.

Factor analysis

In order to get the factor loadings, the Principle component analysis method was used. The main purpose of adopting Principal component analysis was to know the most important factors that influence the Japanese quail farmers to go in for contract type of farming. The component model is expressed as follows

$$Z_i = a_{i1} X_1 + a_{i2} X_2 + a_{i3} X_3 + \dots + a_{ip} X_p$$

Where

Z_i - Magnitude of the variable

a_{ip} - The factor loading of variable i on factor p

Table 1: Factors influencing the farmers to enter into contract Japanese quail farming

Sr. No	Codes	Factors	Dimensions			
			I	II	III	IV
1.	RP	Remunerative price	0.12	0.59	0.08	0.02
2.	TIS	Timely input supply	0.06	-0.05	0.04	0.76
3.	ETK	Extending technical knowledge	-0.1	0.03	0.60	0.24
4.	FDO	Forecasting disease outbreak	0.17	-0.1	0.59	-0.24
5.	CIS	Creation of infrastructure	0.50	-0.12	-0.06	-0.19
6.	APF	Averting price fluctuation	0.59	0.13	0.128	0.267
7.	REM	Removal of exploitation by middle men	-0.1	0.56	-0.04	-0.06
		Eigen values	1.56	1.43	1.40	1.26
		Variation(V)	22.32	20.48	19.95	17.97
		Cumulative variation (%)	22.32	42.81	62.76	80.74

Xp-The amount of association in magnitude of indicators, the uncorrelated trait measured by factor 'p' which is possessed by variable.

i - Factor loading with reference to indicators 1, 2, 3 . . . p

p - A set of common factors (1, 2 . . . p)

a_{ip} X p - Factor co-efficient or loading of variables i on factor p

Those principal components whose Eigen values are greater than or equal to one would be retained to determine the number of components in the present study. While selecting the variables from the various extracted dimensions, greater and positive values from rotated component matrix (Varimax rotation method) was selected from their respective dimensions (Zakir, 2008).

RESULTS AND DISCUSSION

Factors influencing the farmers entering into contract Japanese quail farming

The technique of principal component analysis was employed for studying the factors that influenced the farmers to enter into Japanese quail contract farming system. Varimax rotation method was used. Seven variables were considered emphasizing the factors to go in for contract. The results of the Factor analysis are given in Table 1 and the factor loadings are given in table 1. In the principal component analysis, four dimensions were extracted and considered for interpretation. The variance explained in absolute values shows a decreasing trend from first dimension to all other dimension. It varied from 22.32 to 17.97.

Out of seven variables, two variables namely creating infrastructure (0.50) and averting price fluctuation(0.59) showed higher factor loadings on the first dimension and subsequent dimensions. While two other variables namely remunerative price (0.59) and removal of exploitation by middle men (0.56) had relatively higher factor loadings on second dimension than other dimensions. Similarly, variables like extending technical knowledge(0.61) and forecasting disease outbreak(0.59) showed highest factor loadings in third dimension whereas timely supply of inputs had highest factor loading(0.76)in third dimension. All the variables in all the dimensions were relatively associated among themselves.

First dimension

On the first dimension, factor loadings varied from 0.7 to 0.58-.Among seven variables, averting price fluctuation has higher factor loading (5.88) followed by

creation of infrastructure with factor loading of 0.496.This dimension explained 22.32 per cent variation.

Second dimension

The key variables identified in this dimension are remunerative price (0.59) and removal of exploitation by middle men (0.57).This dimension explained 20.48 per cent variation

Third dimension

The third dimension explained 19.95 per cent of variation. Two variables such as extending technical knowledge (0.6) and forecasting disease outbreak (0.59) had higher factor loadings in any other dimension.

Fourth dimension

This dimension explained 17.97 per cent variation. Only one variable had higher factor loading in this dimension. The factor identified was timely supply of input.

Conclusion

The results of the factor analysis to study the farmers' perception on the determinants of entering into contract Japanese quail farming showed that out of seven variables considered for analysis, two variables, creating infrastructure and averting price fluctuation showed highest factor loadings on the first dimension While two variables, remunerative price and removal of exploitation by middle men had highest factor loadings on second dimension and the other two variables like extending technical knowledge and forecasting disease outbreak showed highest factor loadings in third dimension.

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