

## **ADOPTION OF SCIENTIFIC BROILER FARMING PRACTICES AMONG CONTRACT AND NON-CONTRACT BROILER FARMERS IN EASTERN PLAIN ZONE OF UTTAR PRADESH**

**<sup>1</sup>Amit Kumar Singh, <sup>2</sup>M.P. Sagar and <sup>3</sup>\*Devesh Thakur**

<sup>1</sup>Food Safety Officer, Food and Drug Administration, UP

<sup>2</sup>Principal Scientist, Central Avian Research Institute, Izatnagar

\*<sup>3</sup>Assistant Professor, Veterinary and Animal Husbandry Extension Education,  
DGCN, COVAS CSKHPKV Palampur, Himachal Pradesh

**Abstract:** The present study was conducted to assess and compare the extent of adoption of scientific broiler farming practices among contract and non-contract broiler farmers. A total of 120 respondents (60 contract and 60 non-contract) were randomly selected from four blocks of Azamgarh and Varanasi districts of Uttar Pradesh. The information was collected with the help of a pre-tested structured interview schedule developed for the purpose. The study revealed that majority of contract (80%) and non-contract (81.67%) broiler farmers had medium level of adoption of scientific broiler farming practices. It was observed that the farmers with relatively small flock size were poor adopters of technology. In case of small and medium category, majority of respondents had medium level of adoption followed by high and none of the farmers had low level of adoption. Almost all of the large category farmers reported a high level of adoption. The mean adoption score of contract broiler farmers (63.75) was greater than that of non-contract broiler farmers (55.29). This indicates that, contract broiler farmers had better adoption of scientific broiler farming practices as compared to non-contract broiler farmers. This may be due to the extension and advisory services provided by integrators to the farmers.

**Keywords:** Adoption, Contract broiler farmers, Integrators, Scientific broiler farming practices.

### **Introduction**

The Indian poultry sector with 7.3 per cent growth in poultry population, has witnessed one of the fastest annual growth of about 8 per cent in eggs and 10 per cent in meat production, over the last decade (2003-2013) amongst all animal based sectors (CARI vision 2050). The high growth has placed India at 3<sup>rd</sup> position in egg production after China and USA with a production of 75 billion eggs and 5<sup>th</sup> position in chicken meat after USA, China, Brazil and Mexico (Kornel, 2008) with a production of 3.7 million metric tons of chicken meat. Poultry industry contributes about Rs. 600 billion, accounting for about 0.77 per cent of the national GDP and about 10 per cent of the livestock GDP and provides employment to over five million people in the country (CARI vision 2050). India exported 4.3 lac million metric tons

of poultry products to the world for the worth of Rs. 565.87 crores during the year 2013-14 (APEDA, 2013). Despite such progress, the average per capita availability is still merely 55 eggs and 2.8 kg of poultry meat against the recommended level of 180 eggs and 11 kg meat per annum.

Uttar Pradesh, in spite of its large human population, contributed just around 2.56 per cent of the country's poultry population. Out of the total poultry population of 18.66 million, the farm poultry constitutes 10.32 million birds (19<sup>th</sup> Livestock Census, 2012). During this period 2007-2012, poultry population in the state increased from 17.8 millions to 18.66 millions and egg production from 98.15 crores to 181.223 crores. (SDAH, 2013). It is much needed to prioritize poultry development in the animal husbandry sector as egg production of the state was 181.223 crores per year, while the consumption is 473 crores per year. This huge gap in demand and supply of about 292 crores per year was met by the private sector through procuring nearly one crores of eggs daily from other states (Reference). Similarly, the requirement of chicken meat was met through purchasing an approximately 10 crores day old broiler chicks from other states, annually. As per the recommendations of the Indian Nutritional Academy, Hyderabad, there should have been consumption of 182 eggs per head per annum as standard. At National level 55 eggs per person are consumed annually, while the state average is 22 eggs per person annually. Similarly, the standard suggested for chicken meat consumption is 11 kg, while the national availability is 2.8 kg and for U.P, it was 0.987 kg per head per annum (SDAH, 2013).

A contract farming arrangement in broiler production, referred to as "chick growing agreement" is generally a wage contract between an Integrator, who supplies the intermediate inputs and procures the output, and a poultry farmer, who provides the primary inputs in the production process. The Integrator provides the growing stock (DOCs; fatteners), feed, veterinary supplies and services, and implements the final marketing of the output. The contract farmer typically provides the space and facilities (land and housing), equipment, utilities, labours (family and/or hired) and day-to-day farm management. The farmer receives a guaranteed wage or growing charges for each live bird based on its live weight in a condition that is predetermined and agreed upon through contractual obligation (South Asia pro-poor livestock policy program, 2009). As in contract farming, the integrators provide the extension and advisory services to the farmers, so the present study was conducted to know whether the provision of extension and advisory services (EAS) by large private poultry

integrators through contract broiler farming has really improved the adoption level of scientific broiler farming practices or not.

### **Materials and methods**

For the present study, two districts Azamgarh and Varanasi were selected purposely, out of 12 districts of the eastern plain zone, on the basis of poultry population. Four blocks, two from Azamgarh (Mahrajganj and Bilariyaganj) and two from Varanasi (Kashi Vidyapeeth and Pindra) were selected, randomly. From each block, two lists, one of contract and another of non-contract broiler farmers were prepared. Fifteen contract broiler farmers from one list and 15 non-contract broiler farmers from another list, having at least 2000 birds and two years of experience in broiler farming were selected randomly. This made total sample size 120 broiler farmers (60 contract and 60 non-contract). Range method based on flock size was used to categories the broiler farmers into small (2000-5300 birds), medium (5300-8600 birds) and large (8600-12000 birds). The adoption of scientific broiler farming practices was measured using a pre-tested structured interview schedule developed for the purpose after proper consultation with experts. The schedule consisted of 18, 13, 11 and 15 questions pertaining to housing management, brooding management, feeding management and health care management practices, respectively. Based on broiler farmer's response, scores were assigned as two for full adoption, one for partial and zero for non adoption. The respondents were classified into three categories as low, medium and high level of adoption groups on the basis of equal interval between maximum and minimum score (range method).

### **Results and discussion**

#### **Extent of Adoption of scientific broiler farming practices**

The adoption of scientific broiler farming practices was studied with respect to housing, brooding, feeding and health care management practices, category wise i.e small, medium and large for in-depth study of adoption of scientific broiler farming practices. The results were given in the table 1, 2, 3 and 4.

#### **Housing management practices**

The data given in table 1 reveals that in small broiler farmers category, majority of contract and non-contract broiler farmers (67.44% and 69.56%) had medium level of adoption of scientific housing management practices, followed by high (27.91% and 26.09%) and low (4.56% and 4.35 %) level, respectively. Among medium broiler farmers category, in case of contract broiler farming system none of the broiler farmer had low level of adoption, whereas under non-contract broiler farming system 9.09 per cent had low level of adoption and

maximum percentage of them (58.33% and 63.64 %) had medium level of adoption, followed by high level (41.67% and 27.27%). With respect to large broiler farmers category, majority of them (60% and 66.67%) had high level of adoption, followed by medium level (40% and 33.33%) and none of the broiler farmer in large category had low level of adoption of housing management practices. The pooled data reveals that majority of contract and non-contract broiler farmers (63.34% and 68.33%) had medium level of adoption followed by high (33.33% and 26.67%) and low level (3.33% and 5%). The findings were in agreement with Babu (2013) and Ithika *et al.* (2013). The mean adoption score about scientific housing management practices of small, medium and large poultry farmers under contract and non-contract broiler farming systems were 20.71 and 18.04, 23.42 and 19.09 and 24.8 and 20.33, respectively. For the pooled data, the overall mean adoption score under contract and non-contract broiler farming system were 21.42 and 18.38 respectively. The overall as well as category wise mean adoption score of contract broiler farmers were greater than non-contract broiler farmers, which might be due to guidance and services provided by the Integrators to the broiler farmers.

**Table 1: Distribution of contract and non-contract broiler farmers with respect to Adoption of housing management practices**

Adoption Score	C.B.F				N.C.B.F			
	Small (43)	Medium (12)	Large (5)	Pooled (60)	Small (46)	Medium (11)	Large (3)	Pooled (60)
Low (0-12)	02 (04.65)	00 (00.00)	00 (00.00)	02 (03.33)	02 (04.35)	01 (09.09)	00 (00.00)	03 (05.00)
Medium (12-24)	29 (67.44)	7 (58.33)	02 (40.00)	38 (63.34)	32 (69.56)	07 (63.64)	02 (66.67)	41(68.33)
High (24-36)	12 (27.91)	5 (41.67)	03 (60.00)	20 (33.33)	12 (26.09)	03 (27.27)	01 (33.33)	16 (26.67)
Mean score	20.71	23.42	24.80	21.42	18.04	19.90	20.33	18.38

### Brooding management practices

Table 2 reveals that majority of contract and non-contract small broiler farmers (65.11% and 50%) had medium level of adoption of scientific brooding management practices, followed by high (30.24% and 45.65%) and low (4.65% and 4.35 %) level, respectively. Among medium broiler farmers category, in case of contract broiler farming system none of the broiler farmers had low level of adoption, whereas under non-contract broiler farming system 9.09 per cent had low level of adoption and maximum percentage of them (50% and 63.64 %) had medium level of adoption, followed by high level (50% and 27.27%). With respect to large broiler farmers category, majority of them (80% and 27.27%)

had high level of adoption, followed by medium (20% and 33.33%) and none of the broiler farmer had low level of adoption of brooding management practices. The pooled data reveals that majority of contract and non-contract broiler farmers (58.33% and 51.67%) had medium level of adoption followed by high (38.34% and 43.33%) and low level (3.33% and 5%). Babu (2013) and Ithika *et al.* (2013) reported the similar findings. The mean adoption score about scientific brooding management practices of small, medium and large broiler farmers under contract and non-contract broiler farming systems were 15.23 and 14.59, 16.33 and 15.72 and 20.20 and 20, respectively. For the pooled data, the overall mean adoption score under contract and non-contract broiler farming system were 18.35 and 16.43, respectively. The overall as well as category wise mean adoption score of contract broiler farmers were greater than non-contract broiler farmers.

**Table 2: Distribution of contract and non-contract broiler farmers with respect to Adoption of brooding management practices**

Adoption Score	C.B.F				N.C.B.F			
	Small (43)	Medium (12)	Large (05)	Pooled (60)	Small (46)	Medium (11)	Large (03)	Pooled (60)
Low (0-9)	02 (04.65)	00 (00.00)	00 (00.00)	02 (03.33)	02 (04.35)	01 (09.09)	00 (00.00)	03 (05.00)
Medium (9-18)	28 (65.11)	06 (50.00)	01(20.00)	35 (58.33)	23 (50.00)	07 (63.64)	01 (33.33)	31 (51.67)
High (18-24)	13 (32.56)	06 (50.00)	04 (80.00)	23 (38.34)	21 (45.65)	03 (27.27)	02 (66.67)	26 (43.33)
Mean score	15.23	16.33	20.20	18.35	14.59	15.72	20	16.43

### Feeding management practices

Table 3 reveals that in all the three categories of contract and non-contract broiler farmers, none of the broiler farmer had low level of adoption of scientific feeding management practices. Among the small broiler farmers category, maximum percentage (53.49% and 58.70%) had medium level of adoption and the rest (46.51% and 41.3%) had high level of adoption. Similarly, maximum percentage of the medium broiler farmers under contract broiler farming system (58.33%) had high level of adoption and the rest (41.67%) had medium level of adoption, whereas in case of non-contract broiler farming system, maximum percentage of the medium broiler farmers (54.55%) had medium level of adoption and rest (45.45%) had high level of adoption of feeding management practices. However, majority of large broiler farmers (60% and 66.67%) had high level of adoption, followed by medium (40% and 33.33%) level of adoption of feeding management practices. The pooled data reveals that majority of contract and non-contract broiler farmers (50% and 56.67%) had

medium level of adoption followed by high (50% and 43.33%) level. Babu (2013) reported the similar findings. Overall, none of the broiler farmer had low level of adoption of scientific feeding management practices. The mean adoption score about scientific feeding management practices of small, medium and large broiler farmers under contract and non-contract broiler farming systems were 13.19 and 12.54, 13.75 and 13.36 and 16.80 and 15.66, respectively. For the pooled data, the overall mean adoption score under contract and non-contract broiler farming system were 13.78 and 12.30, respectively. The overall as well as category wise mean adoption score of contract broiler farmers were greater than non-contract broiler farmers.

**Table 3: Distribution of contract and non-contract broiler farmers with respect to Adoption of feeding management practices**

Adoption Score	C.B.F				N.C.B.F			
	Small (43)	Medium (12)	Large (05)	Pooled (60)	Small (46)	Medium (11)	Large (03)	Pooled (60)
Low (0-7.33)	00 (00.00)	00 (00.00)	00 (00.00)	00 (00.00)	00 (00.00)	00 (00.00)	00 (00.00)	00 (00.00)
Medium (7.33-14.6)	23 (53.49)	05(41.67)	02 (40.00)	30 (50.00)	26 (58.70)	06(54.55)	01 (33.33)	34 (56.67)
High (14.6-22)	20 (46.51)	07 (58.33)	03 (60.00)	30 (50.00)	19 (41.30)	05(45.45)	02 (66.67)	26 (43.33)
Mean score	13.19	13.75	16.80	13.78	12.54	13.36	15.66	12.30

### Health care management practices

The data given in table 3 reveals that in small broiler farmers category, majority of contract and non-contract broiler farmers (79.07% and 71.34%) had medium level of adoption of health care management practices, followed by low (18.6% and 28.6%) and high level (2.33%) and none of the small non-contract broiler farmer had high level of adoption of health care management practices. Among medium broiler farmers, majority (50% and 63.64%) had medium level of adoption, followed by low (25% and 27.27%) and high (25 and 9.09%) level. With respect to large broiler farmers category, majority of them (40% and 66.67%) had medium level of adoption, followed by high (40% and 33.33%) and low level (20%), none of the large non-contract broiler farmer had low level of adoption of health care management practices. The pooled data reveals that majority of contract and non-contract broiler farmers (50% and 56.67%) had medium level of adoption followed by high (50% and 43.33%) level. Babu (2013) reported the similar findings. Overall, none of the broiler farmer had low level of adoption of scientific health care management practices. The mean adoption score of scientific health care management practices of small, medium and large poultry

farmers under contract and non-contract broiler farming systems were 9.37 and 9.45, 11.25 and 9.90 and 12.40 and 13, respectively. For the pooled data, the overall mean adoption score under contract and non-contract broiler farming system were 13.78 and 12.30, respectively. The overall as well as category wise mean adoption score of contract broiler farmers were greater than non-contract broiler farmers.

**Table 4: Distribution of contract and non-contract broiler farmers with respect to Adoption of health care management practices**

Adoption Score	C.B.F				N.C.B.F			
	Small (43)	Medium (12)	Large (05)	Pooled (60)	Small (46)	Medium (11)	Large (03)	Pooled (60)
Low (0-7.33)	08 (18.60)	03 (25.00)	01(20.00)	00 (00.00)	13 (28.26)	03 (27.27)	00 (00.00)	00 (00.00)
Medium (7.33-14.6)	34(79.07)	06 (50.00)	02 (40.00)	30 (50.00)	33 (71.34)	07 (63.64)	02 (66.67)	34 (56.67)
High (14.6-22)	01 (2.33)	03 (25.00)	02(40.00)	30 (50.00)	00 (00.00)	01 (09.09)	01 (33.33)	26 (43.33)
Mean score	09.37	11.25	12.40	13.78	09.47	09.90	13.00	12.30

#### **Overall adoption level of scientific broiler farming practices amongst contract and non-contract broiler farmers**

The data given in table reveals that in all the three categories of contract and non-contract broiler farmers, none of the scientific broiler farming practices was having low level of overall adoption. Within the category of small broiler farmers, an overwhelming majority of contract and non-contract broiler farmers (88.37% and 86.96%) had medium level of overall adoption of scientific broiler farming practices and the rest (11.63% and 13.04%) had high level of adoption. In medium broiler farmers' category, majority of contract and non-contract broiler farmers (75% and 72.73%) had medium level of overall adoption followed by high level (25% and 27.27%). However, majority of large contract and non-contract broiler farmers (80% and 66.67%) had high level of adoption of scientific broiler farming practices and the rest (20% and 33.33%) had medium level of adoption. The pooled data reveals that majority of contract and non-contract broiler farmers (80% and 81.67%) had medium level of adoption and the rest (20% and 18.33%) had high level of adoption of scientific broiler farming practices. Babu (2013) reported the similar findings. The overall mean adoption score of small, medium and large farmers under contract and non contract broiler farming systems were 58.50 and 54.64, 64.75 and 58.88 and 74.20 and 68.99, respectively. For the pooled data, the overall mean adoption score under contract and non-contract broiler farming system were 63.75 and 55.29 respectively.

**Table 5: Distribution of respondents according to their overall adoption level with respect to scientific broiler farming practices**

Adoption level	CBF				NCBF			
	Small (43)	Medium (12)	Large (05)	Pooled (60)	Small (46)	Medium (11)	Large (03)	Pooled (60)
Low (0-36)	00 (00.00)	00 (00.00)	00 (00.00)	00 (00.00)	00 (00.00)	00 (00.00)	00 (00.00)	00 (00.00)
Medium (36-72)	38 (88.37)	09 (75.00)	01 (20.00)	48 (80.00)	40 (86.96)	08 (72.73)	01 (33.33)	49 (81.67)
High (72-108)	05 (11.63)	03 (25.00)	04 (80.00)	12 (20.00)	06 (13.04)	03 (27.27)	02 (66.67)	11 (18.33)
Mean score	58.50	64.75	74.20	63.75	54.64	58.88	68.99	55.29

### Conclusion

The extent of adoption of scientific poultry management practices was found to be at medium level among small and medium sized contract as well as non contract broiler farmers. However, majority of large sized contract as well as non contract broiler farmers had high level of adoption of scientific poultry rearing practices.

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