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Aaqib Rashid Khan
Division of Veterinary
Extension Education, ICAR-
I.V. R.I, Izatnagar, Bareilly,
Uttar Pradesh, India

Tanzeela Tabasum
Division of Animal Nutrition,
FVSc, SKUAST-K, Jammu
and Kashmir, India

Chitra Juniwal
Division of Livestock
Economics & IT, ICAR-I.V.
R.I, Izatnagar, Bareilly,
Uttar Pradesh, India

MP Sagar
Principal Scientist and head,
Technology Transfer section,
CARI, Izatnagar, Bareilly,
Uttar Pradesh, India

Foziyah Rashid
F.V.Sc & AH SKUAST-
Kashmir, Jammu and
Kashmir, India

Comparison of production parameters and experience of commercial poultry farmers in Temperate and subtropical area of Jammu and Kashmir

Aaqib Rashid Khan, Tanzeela Tabasum, Chitra Juniwal, MP Sagar and Foziyah Rashid

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Abstract

The study was conducted in two different area of Jammu and Kashmir i.e., Temperate and subtropical areas. From temperate area Budgam was selected and from subtropical area Jammu district was selected on the basis of greater number of poultry farms. The structured interview schedule was used to assess the production parameters and experience of the poultry farmers. Four blocks were selected purposively from each district on the basis of greater number of poultry farms and from each block 15 poultry farmers were selected based on stratified random sampling. The appropriate statistical tools for analysis of collected data were used viz., percentage, frequency, mean, standard error, standard deviation and t-test. The number of birds produced annually (farm size wise) in temperate area in small, medium and large sized farms was 10254, 16497 and 30500 respectively. While as in case of sub-tropical area, the number of birds produced annually (farm size wise) in small, medium and large sized farms was 12466, 21445 and 40900 respectively. The average indicates that sub-tropical area had higher annual production as compared to temperate area. The broiler poultry farmers in sub-tropical area were highly experienced and may have been in the business for a very long time. Thus training should be imparted to the poultry farmers in order to increase their poultry production especially in temperate area of Jammu and Kashmir.

Keywords: Jammu and Kashmir, production parameters, annual poultry production, t-test

Introduction

Poultry farming is the activity of producing domesticated birds for meat or eggs, such as geese, ducks, turkeys, and chickens. It plays an important role in animal husbandry and is a major global source of food production. Small-scale commercial chicken farming has given way to massive, industrialized enterprises. Over the past three to four decades, poultry has made significant strides, particularly in the private sector. As a result, India is now self-sufficient in terms of high-quality breeding stock, sophisticated poultry equipment, the availability of medicine and vaccines, and technically skilled professional manpower.

As per BAHS-2024, India's total production of meat is 10.25 million tonnes and poultry meat accounts for approximately 48.96 percent of total production of meat of India. The poultry meat requirement of J&K is 517 Lakh Kg/year and the production of poultry meat in J&K is only 172.50 Lakh Kg/year i.e. Only 35 percent requirement is met from Union territory and remaining 65 percent is imported from the neighbouring states.

Poultry farming is crucial in developing countries like India, where it has evolved into a vital sector for supplying high-quality protein to a rapidly booming human population. It is also essential in giving additional income to small or marginal farmers, especially women flock. On the other hand, this enterprise requires relatively little in the way of factor inputs and provides excellent returns in terms of poverty reduction, revenues, food security, and environmentally sound natural resource management. In many local communities, the poultry business also serves as a source of employment for underprivileged.

However, the sector's multiple challenges, dangers, and weaknesses, such as diseases, high feed prices, insufficient marketing infrastructure, and regional production imbalances, should be actively addressed and the sector's strengths adequately exploited in order to capitalize on the prospects. Apart from that, the poultry industry has a promising future.

Corresponding Author:
Tanzeela Tabasum
Division of Animal Nutrition,
FVSc, SKUAST-K, Jammu
and Kashmir, India

Methodology

The study was conducted in two purposively selected districts of Jammu and Kashmir—Jammu from the sub-tropical region and Budgam from the temperate region—both known for their significant poultry farming activities. Within these districts, the blocks with the highest poultry populations were chosen. Subsequently, four blocks exhibiting the highest number of poultry farms were selected from each district, totalling eight blocks. From each block, 15 poultry farmers were randomly selected, resulting in a total sample size of 120 respondents. The collected data were analysed using statistical tools such as percentage, frequency, mean, standard deviation and t-test.

Results

1. Production parameters

1.1 Number of batches (cycles) per year

The data shown in the table 1 reveals that in temperate area, 53.33 percent of the broiler poultry farmers reared 07 number of batches per year, followed by 6 batches (46.67%) and none of the broiler poultry farmers reared 08 number of batches per year. Whereas in sub-tropical area, 50 percent of the broiler poultry farmers reared 08 number of batches per year, followed by 07 batches per year (36.67%) and 06 batches per year (13.33%). The pooled data depicts that 45 percent of the broiler poultry farmers reared 07 number of batches per year, followed by 06 number of batches (30%) and 08 number of batches per year (25%). The average batches reared per year by broiler poultry farmers of temperate and sub-tropical areas was 6.53 and 7.37 respectively. It was evident from the independent sample 't' test analysis that there was significant difference ($p < 0.01$) in number of batches reared per year between the broiler poultry farmers of temperate and sub-tropical area. The broiler poultry farmers of sub-tropical areas had taken more batches (cycles) per year as compared to temperate area. The extreme cold climate in temperate area may be the reason of less number of batches in a year

Table 1: Distribution of broiler poultry farmers according to the number of batches per year

No. of batches per year (cycles)	Temperate area (n = 60)	Sub-tropical area (n = 60)	Pooled (N = 120)
Six	28 (46.67)	8(13.33)	36(30.00)
Seven	32 (53.33)	22(36.67)	54(45.00)
Eight	0 (0.00)	30(50.00)	30(25.00)
Mean $\pm$ SD	6.53 $\pm$ 0.5	7.37 $\pm$ 0.71	6.95 $\pm$ 0.74
t value	7.4022**		

(Figures in the parentheses indicate percentage) (** significant at 1% level of significance)

Table 3: Distribution of broiler poultry farmers according to the number of birds produced annually

Number of birds produced annually	Temperate area (n = 60)	Sub-tropical area (n = 60)	Pooled (n = 120)
Low (8550-25650)	54(90.00)	42(70.00)	96(80.00)
Medium (25651-42750)	06(10.00)	17(28.34)	23(19.16)
High (42751-59850)	00(0.00)	01(1.67)	01(0.84)
Mean $\pm$ SD	15942.58 $\pm$ 5978.4	23515.67 $\pm$ 9390.56	19729.13 $\pm$ 8712.04
t-value	5.2695**		

(Figures in the parentheses indicate percentage) (** significant at 1% level of significance)

1.4 Annual poultry production

The perusal of the table 4 depicts that in temperate area, huge majority (83.33%) of the broiler poultry farmers were having low (149.6-458.83 qt) annual production of poultry,

1.2 Number of birds produced annually (Farm size wise)

Table 2 reveals that in temperate area, majority (66.67%) of the broiler poultry farmers had medium size farms, followed by small farms (20%) and large farms (13.33%). While in sub-tropical area, huge majority (81.67%) of the broiler poultry farmers had medium size farms, followed by large farms (13.33%) and small farm size (5%). The average size of poultry farm in temperate area was 2586.67 birds while as in case of sub-tropical area average size of poultry farm was 3163.33 birds per batch. The number of birds produced annually (farm size wise) in temperate area in small, medium and large sized farms was 10254, 16497 and 30500 respectively. While as in case of sub-tropical area, the number of birds produced annually (farm size wise) in small, medium and large sized farms was 12466, 21445 and 40900 respectively.

Table 2: Distribution of broiler poultry farmers according to the number of birds produced annually (farm size wise)

Temperate area (n = 60)	Frequency	Production (no.)
Small (<1572 birds)	12 (20.00)	10254
Medium (1572-3602)	40(66.67)	16497
Large (>3602)	08(13.33)	30500
Average (birds per batch)	2588.67	
Sub-tropical area (n = 60)		
Small (<1956 birds)	03(5.00)	12466
Medium (1956-4371)	49(81.67)	21445
Large (>4371)	08(13.33)	40900
Average (birds per batch)	3163.33	

(Figures in parenthesis indicates percentage)

1.3 Number of birds produced annually

The perusal of the table 3 depicts that in temperate area, huge majority (90%) of the broiler poultry farmers were producing less number of birds per year, followed by medium (10%). Whereas in sub-tropical area, majority (70%) of broiler poultry farmers were producing less number of birds annually, followed by medium (28.34%) and high (1.67%). The pooled data depicts that huge majority (80%) of the broiler poultry farmers were producing less number of birds per year, followed by medium (19.16%) and high (0.84%). The average number of birds produced per batch in temperate area and sub-tropical area was 15942.58 and 23515.67 respectively. The pooled average of both the areas was 19729.13. Babu (2013) [1] found the similar results that majority of the farmers had low annual poultry production. It was evident from the independent sample 't' test analysis that there was significant difference ($p < 0.01$) in number of birds produced annually by the broiler poultry farmers between temperate and sub-tropical area.

followed by medium (6%, 458.84-768.067 qt) and high-level annual production (1.67%, 768.068-1077.3 qt). While in sub-tropical area, 55 percent of broiler poultry farmers were having low annual poultry production, followed by

medium (41.67%) and high (3.33%). The pooled data depicts that majority (71.67%) of the broiler poultry farmers were having low annual poultry production, followed by medium (25.83%) and high (2.5%). The average annual poultry production in temperate area and sub-tropical area was 316.512 and 445.05 quintals respectively. The pooled

average annual poultry production was 380.78 qt. It was evident from the independent sample 't' test analysis that there was significant difference ($p < 0.01$) in annual poultry production between the two areas. The average indicates that sub-tropical area had higher annual production as compared to temperate area.

Table 4: Distribution of broiler poultry farmers according to the annual poultry production

Production level (qt)	Temperate area (n = 60)	Sub-tropical area (n = 60)	Pooled (n = 120)
Low (149.6-458.83)	53(88.33)	33(55.00)	86(71.67)
Medium (458.84-768.067)	06(10.00)	25(41.67)	31(25.83)
High (768.068-1077.3)	01(1.67)	02(3.33)	03(2.50)
Mean $\pm$ SD	316.512 $\pm$ 130.79	445.05 $\pm$ 172.59	380.78 $\pm$ 165.58
t-value	4.5976**		

(Figures in the parentheses indicate percentage) (** significant at 1% level significance)

1.5 Mortality

Table 05 reveals that in temperate area, 41.67 percent of the small broiler poultry farmers reported 2.5-5 percent of chicks died during first week of production period, followed by up to 2.5 percent mortality (33.33%), 5-7.5 percent mortality (16.67%) and above 7.5 percent mortality (8.33%). Whereas in sub-tropical area, majority (66.67%) of the small broiler poultry farmers reported up to 2.5 percent of chicks died during first week of production period, followed by 5-7.5 percent mortality (8.33%). Among medium sized farms, in temperate area, 40 percent of the broiler poultry farmers reported 2.5-5 percent chicks died during first week of production period, followed by up to 2.5 percent mortality (37.50%), 5-7.5 percent mortality (12.50%) and above 7.5 percent mortality (10%). Whereas in sub-tropical area, 46.94 percent of the broiler poultry farmers of medium sized farms reported up to 2.5 percent of chicks died during first week of production period, followed by 2.5-5 percent mortality (42.86%), 5-7.5 percent mortality (6.12%) and above 7.5 percent mortality (4.08%). Among large sized farms, in temperate area, 37.5 percent of the broiler poultry farmers reported 2.5-5 percent chicks died during first week of production period, followed by up to 5-7.5 percent (25% each) and up to 2.5 percent mortality (12.5%). Whereas in sub-tropical area huge majority (87.5%) of the broiler poultry farmers of large sized farms reported that up to 2.5 percent of chicks died during first week of production period, followed by broiler poultry farmers with 2.5-5 percent mortality (12.5%).

In temperate area, huge majority (83.33%) of the small broiler poultry farmers reported up to 2.5 percent of chicks mortality during second week of production period, followed by 2.5-5 percent mortality (16.67%). Whereas in sub-tropical area, cent percent of the small broiler poultry farmers reported up to 2.5 percent of birds died during second week of production period. Among medium sized farms, in temperate area majority (70%) of the broiler poultry farmers reported 2.5-5 percent chicks' mortality during second week of production period, followed by poultry farmers with 5-7.5 percent mortality (37.50%), up to 2.5 percent mortality (5%) and above 7.5 percent mortality (2.5%). Whereas in sub-tropical area, 48.98 percent of the broiler poultry farmers of medium sized farms reported up to 2.5 percent of chicks' mortality during second week of

production period, followed by 2.5-5 percent mortality (44.9%), above 7.5 percent mortality (4.08%) and 5-7.5 percent mortality (2.04%). Among large sized farms, in temperate area 50 percent of the broiler poultry farmers reported that up to 2.5 percent chicks' mortality during second week of production period, followed by with up to 2.5-5 percent (37.5%) and 5-7.5 percent mortality (12.5%). Whereas in sub-tropical area, majority (62.5%) of the broiler poultry farmers of large sized farms reported that up to 2.5 percent of chicks' mortality during second week of production period, followed by 2.5-5 percent mortality (12.5%).

In temperate area, 58.33 percent of the small broiler poultry farmers reported that up to 2.5-5 percent of chicks' mortality during third week onwards of production period, followed by up to 2.5 percent mortality (41.67%). Whereas in sub-tropical area, majority (66.67%) of the small broiler poultry farmers reported that up to 2.5 percent of chicks' mortality during third week onwards of production period, followed by 2.5-5 percent mortality (33.33%). Among medium sized farms, in temperate area, majority (60%) of the broiler poultry farmers reported that up to 2.5 percent chicks' mortality during third week of production period, followed by poultry farmers with 2.5-5 percent mortality (27.50%), no mortality (10%) and 5-7.5 percent mortality (2.5%). Whereas in sub-tropical area, 55.1 percent of the broiler poultry farmers of medium sized farms reported that up to 2.5 percent of chicks' mortality during third week onwards of production period, followed by broiler poultry farmers with 2.5-5 percent mortality (22.45%), no mortality (18.37%) and 5-7.5 percent mortality (4.08%). Among large sized farms, in temperate area majority (62.5%) of the broiler poultry farmers reported that up to 2.5 percent birds died during third week onwards of production period, followed by no mortality (25%) and 2.5-5 percent mortality (12.5%). Whereas in sub-tropical area, huge majority (87.5%) of the broiler poultry farmers of large sized farms reported that up to 2.5 percent of chicks' mortality during third week onwards of production period, followed by 2.5-5 percent mortality (12.5%). This indicates clearly that most farms had mortality levels beyond acceptable levels i.e., 1-2 percent of mortality. This might be because of poor knowledge and adoption of biosecurity and disease management practices among broiler poultry farmers.

Table 5: Distribution of broiler poultry farmers according to mortality of birds in their farms

Mortality (%)	Temperate area (n = 60)			Sub-tropical area (n = 60)		
	Small farms (n = 12)	Medium farms (n = 40)	Large farms (n = 08)	Small farms (n = 03)	Medium farms (n = 49)	Large farms (n = 08)
First week						
Nil	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
Up to 2.5 percent	04(33.33)	15(37.50)	01(12.50)	02(66.67)	23(46.94)	07(87.50)
2.5-5 percent	05(41.67)	16(40.00)	03(37.50)	0(0.00)	21(42.86)	01(12.50)
5-7.5 percent	02(16.67)	05(12.50)	02(25.00)	01(33.33)	03(6.12)	0(0.00)
Above 7.5 percent	01(8.33)	04(10.00)	02(25.00)	0(0.00)	02(4.08)	0(0.00)
Second week						
Nil	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
Up to 2.5 percent	10(83.33)	02(5.00)	04(50.00)	03(100.00)	24(48.98)	05(62.50)
2.5-5 percent	02(16.67)	28(70.00)	03(37.50)	0(0.00)	22(44.90)	03(37.50)
5-7.5 percent	0(0.00)	09(22.50)	01(12.50)	0(0.00)	01(2.04)	0(0.00)
Above 7.5 percent	0(0.00)	01(2.50)	0(0.00)	0(0.00)	02(4.08)	0(0.00)
Third week onwards						
Nil	00(0.00)	04(10.00)	02(25.00)	0(0.00)	09(18.37)	0(0.00)
Up to 2.5 percent	05(41.67)	24(60.00)	05(62.50)	02(66.67)	27(55.10)	07(87.50)
2.5-5 percent	07(58.33)	11(27.50)	01(12.50)	01(33.33)	11(22.45)	01(12.50)
5-7.5 percent	00(0.00)	01(2.50)	0(0.00)	0(0.00)	02(4.08)	0(0.00)
Above 7.5 percent	00(0.00)	00(0.00)	00(0.00)	0(0.00)	0(0.00)	0(0.00)

(Figures in parenthesis indicates percentage)

2. Poultry farming experience

The data in table 06 depicts that in temperate area, 43.33 percent of the broiler poultry farmers had low level of experience (3-6 years) in poultry farming, followed by high (31.67%, >9 years) and medium (25%, 7-9 years) experience in poultry farming. While in sub-tropical area, 40 percent of the broiler poultry farmers had high experience in poultry farming, followed by medium (35%) and low (25%) experience in poultry farming. The pooled data depicts that 35.83 percent of broiler poultry farmers had high experience in poultry farming, followed by low (34.17%) and medium experience (30%) in poultry farming. The average experience in poultry farming of broiler poultry farmers in temperate and sub-tropical area was 7.57 and 8.95 years respectively. The pooled average of the two areas was 8.26 years. This is in disagreement with the findings of Babu (2013)^[1] and Bharti (2021)^[2], who reported that majority of the broiler poultry farmers had low experience in poultry farming. It was evident from the independent sample ‘t’ test analysis that there was significant difference ($p<0.05$) in experience of poultry farming between the two areas. The broiler poultry farmers of sub-tropical area had more poultry farming experience as compared to temperate area. The broiler poultry farmers in sub-tropical area were highly experienced and may have been in the business for a very long time.

Table 6: Distribution of broiler poultry farmers according to poultry farming experience

Experience (years)	Temperate area (n = 60)	Sub-tropical area (n = 60)	Pooled (N = 120)
Low(3-6yrs)	26(43.33)	15(25.00)	41(34.17)
Medium (7-9yrs)	15(25.00)	21(35.00)	36(30.00)
High (>9yrs)	19(31.67)	24(40.00)	43(35.83)
Mean ± SD	7.57±3.03	8.95±3.32	8.26±3.24
t value	2.3823*		

(Figures in the parentheses indicate percentage) (* significant at 5% level of significance)

Conclusion

Results revealed that the average number of birds produced annually in small, medium, and large farms was higher in

the subtropical zone (12,466; 21,445; and 40,900 respectively) compared to the temperate zone (10,254; 16,497; and 30,500 respectively). The average number of production cycles per year was significantly greater ($p<0.01$) in the subtropical zone (7.37) than in the temperate zone (6.53), likely due to the climatic advantage. Furthermore, the subtropical zone exhibited higher annual poultry production (445.05 quintals) and larger average farm sizes than the temperate zone (316.51 quintals). Mortality rates during the early production period were also lower in the subtropical zone. Trainings should be imparted to the farmers regarding the management of poultry farms so that mortality of the birds can be minimized and concurrently production can be increased especially in temperate area. The study concludes that poultry farmers in the subtropical area are more experienced and operate at a higher level of productivity. It recommends targeted training and support interventions for farmers in temperate areas to enhance production efficiency and reduce regional disparities in poultry output within Jammu and Kashmir.

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