CHAPTER III

REVIEW OF LITERATURE
In recent decades there was a substantial increase in the demand for poultry products due to increase in income of the people. The infrastructure facilities and financial assistance extended by the government have provided needed fillip for poultry farming. The poultry farming in its turn was expected to play an effective role in increasing employment and income of the rural poor.

The past studies and their findings relevant to the present study is reviewed in this chapter. In the review efforts are made to analyse different aspects of poultry industry, namely, investment pattern, poultry production, cost of production, profitability, marketing of poultry products and problems and prospects of poultry industry.

3.1 Commercial Hatching of Poultry in America

According to Herbert H. Knapp (1927), "In 1911 chicks were placed on sale by 5 and 10 cent syndicates in their chain stores. In the next ten years, these stores created a demand for millions of chicks, which were sold largely to be raised in city back lots, the prevailing retail price being 10 to 15 cents each."

Warren and Wermel (1935), in their study found that there were 11,405 hatcheries with a total egg capacity of 276,287,000 in the United States on July 1st 1934. And out of these, 43.3 per cent of hatcheries were small ones with capacity under 10,000 eggs, accounting for only 6.9 per cent of the nation's hatching capacity.²

Lowrie (1929) cited that the investment for Ohio hatcheries ranged from $8500 for an unit having an output of 109,000 chicks.³

According to Kimball, Moore and Smith (1945), the total incubator capacity in the United States was 504,640,000 eggs in 1943, while the number of hatcheries declined to 10,112.⁴

3.2 **Poultry Production in India**

Poultry production has become both an art as well as a science in modern times. It is an art because the profits depend mainly upon the skilful performance of the poultry entrepreneurs. It is a science because the most important inputs - chicks, feed and medicines - are from

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the scientifically advances. The recent advancement in the field of genetics has enabled the poultry owner to get nearly 280 eggs per year from a layer/2 kgs of broiler chicken weight by feeding less than 2 kgs of balanced feed during its life cycle.\(^5\)

Hiremath and Slattery John (1971) have stated that the poultry farmer has to be very careful in the selection of profitable egg producing breed, in order to obtain the optimum egg production. Other important factors which should be taken into account in scientific poultry farming are mortality percentage, body size, egg size and feed conversion ratio in the selection of birds and the level and type of protein of the mash for securing optimum egg production in layers.\(^6\)

Sidhu's study (1978) revealed that the total production of eggs depended upon the rate of egg laying and the number of layers. Production of eggs per layer was mainly determined by the breed and the feed intake.\(^7\)

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Kishan Rao (1982) analysis showed that in the total cost per 100 layers the fixed cost accounted for 13.66 per cent and the variable cost accounted for 86.34 per cent. The total cost of production per 100 layers varied for different size groups of the poultry farm units. The total cost varied from a minimum of Rs. 6,991 on medium and large farms to a maximum of Rs. 7,758 on small farms with an overall average of Rs. 7,218.  

Talukdar (1977) also arrived at similar conclusion in his study. The ratio of fixed cost to the total cost was 13.19 per cent and that of variable cost was 86.92 per cent. Talukdar's observation on the total cost per 100 layers was as follows: the total cost in the small, medium and large farms were Rs. 8,648, Rs. 8,477 and Rs. 8,378 respectively with an overall average of Rs. 8,501. This shows a tendency that as the farm size decreased the total cost increased. Azad et al (1980) have estimated


that at Kanpur during 1980 the fixed costs per 100 layers on cage farming were Rs.1,167. The working costs were Rs.5,021. The total cost of production per 100 layers was Rs.6,188.10

Chandra et al at Ajmer in 1982 in their studies of poultry units of different sizes have observed that the average cost of maintaining a layer was Rs.69.95. According to them, on an average the working or variable cost amounted to 74 per cent and the fixed cost 36 per cent in the total cost of production.11

Bansode et al in their study conducted during 1984 on the economic viability of 1000 bird poultry units in Kolhapur (Maharashtra) stated that the total cost of production of the unit was Rs.38,599 in the total cost, the working cost alone constituted 92 per cent.12

According to Anant Ram Verma and A.G.R. Pillai (1989) the average total investment on fixed and working capital

per 1000 layers was Rs.8,025 and Rs.40,170. And the average total investment on fixed and working capital per 1000 broilers was Rs.4,345 and Rs.17,505.\textsuperscript{13}

S.K. Das (1989) stated that the total investment on fixed and variable capital per 1000 Khaki Campbell Ducks was Rs.5,970 and Rs.13,900. And the total fixed and variable investment incurred on 100 white leghorn was Rs.7,225 and Rs.12,500.\textsuperscript{14}

Ashok Shah and Ranawat (1989) revealed in their study that for raising 200 broiler units in Uttar Pradesh, the total fixed and variable capital required was Rs.11,248 and Rs.4,600.\textsuperscript{15}

Srivastav (1990) stated that for raising 1000 broiler quails the total fixed and recurring expenditure incurred per batch was Rs.1,483 and Rs.2,610. And for raising 1000 quail layers the average fixed and recurring needed expenditure was Rs.2,283 and Rs.2,766.\textsuperscript{16}

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Ravindra Reddy (1990) in his study analysed that the total fixed and working capital required for raising a 500 layer unit was Rs.15,000 and Rs.53,250. In the total cost of Rs.68,250, the variable capital was of the order 78.03 per cent whereas the fixed capital was 21.97 per cent.17

3.3 Studies on Fixed Costs

Mathur and Gupta (1979) revealed that the capital investment on land, building and equipment in Maharashtra during the prelaying stage was Rs.2,479 and Rs.2,522 per 100 layers under the deep litter and the cage systems of rearing. This investment excluded the chick cost and working cost during the prelaying stage. In Gujarat the capital investment for 100 layers was of the order of Rs.2,345 and Rs.2,834 under the deep litter and cage systems of rearing respectively.18

According to Kishan Rao (1978) the total investment required for 100 layers on an average was Rs.2,630. This

investment pattern included the items like investment on land and buildings by Rs.2,127 (or 80.87%) and equipment by Rs.503 (or 19.13%).

Karanjikar and Soni (1980) reported that there exists a direct relationship between the amount of fixed investment and the size of the enterprise. But with regard to the investment per bird there exists an inverse relationship with the farm size. The investment in the larger size groups was only Rs.20.78 per bird whereas it was Rs.33.20 in the smallest size group.

Talukdar's (1977) study revealed that the capital investment in poultry farming in Hyderabad City ranged from Rs.24.58 in large size farms to Rs.30.42 in small size farms with an average of Rs.27.50 per layer. The investment pattern on land and buildings accounted for 82.15 per cent of the total investment in large size farms. And the investment on machinery per layer varied from Rs.2.59 to Rs.3.90 with an average of Rs.3.39.

Rao's (1981) study revealed an increasing trend in the investment pattern with an increase in the farm size. The average investment on poultry farm buildings was the highest item of expenditure (46.23%) followed by watering equipment (13.29%) and miscellaneous poultry equipment (1.64%). The investment on farm building was minimum in large farms (44.39%) and maximum (54.37%) in small farms. 22

Kulakarni's (1982) study showed that the fixed capital investment in poultry farming in-and-around Hyderabad per layer varied from Rs.
29.96 on large farms to Rs.
35.10 on small farms with an average of Rs.
31.96. The investment on land and buildings varied from 86.15 per cent in small farms to 84.49 per cent in large farms. 23

Ravindra Reddy (1990) estimated that the average investment on farm buildings was the highest item of expenditure (94.11%) in the fixed capital group and it is followed by the investment on machinery (5.89%) for rearing a 500 layer unit. And in the 250 Khaki Campbell

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63-67.
Duck unit the investment on buildings was of the order of 90 per cent and the investment on equipment was 10 per cent to the total investment of Rs.12,500.²⁴

Srivastav (1990) estimated the average investment for the construction of shed was 29.19 per cent. The investment required for two battery brooders, feeders, waterer, five tier laying cages was of the order of 36.49%, 1.09%, 0.36% and 32.85% respectively, in the total fixed capital investment.²⁵

3.4 Studies on Working Cost

The major items of costs included under working costs are cost of feed, cost of labour and cost of medicines. The size and composition of working costs are reviewed in the following pages.

3.4.1 COST OF FEED


Bansode et al (1984) observed that the major item of the total cost was only the feed cost which has accounted for 70 per cent to 75 per cent in egg production.²⁶

Rao (1981) conducted a study at Gudlavalleru town of Krishna district in Andhra Pradesh and came to the conclusion that the feed cost per 100 eggs was Rs.19.87 in the marginal and small farms, Rs.18.95 in medium farms and Rs.19.07 in the large farms respectively. The overall average feed cost was Rs.19.44 for 100 eggs.²⁷ Anant Rao Verma and Pillai (1989) in their study pointed out that the feed cost constituted a major share in the total cost of egg production. The share of feed cost is 89.76 per cent to the total cost.²⁸ S.K. Das (1989) revealed that the total feed cost constituted upto 88.69 per cent to the total cost of production per 1000 layers.²⁹

According to Srivastav (1990) the feed cost occupies a major share in the recurring investment and the next place is occupied by the cost of day old chicks. The cost

of feed and day old chick was 51.19 per cent and 39.77 per cent respectively in a 1000 quail layer farm to the total recurring investment.  

3.4.2 COST OF LABOUR

Rao (1981) revealed that the labour cost per 100 eggs was of the order of Rs.3.09 in marginal, Rs.3.35 in small farms, Rs.2.29 in medium and Rs.1.53 in large farms respectively with an overall average of Rs.2.56. Anant Ram Verma and A.G.R. Pillai has estimated that the labour cost constituted 6.72 per cent to the total working cost. The labour cost per 100 eggs was Rs.4.50 in small size farms.

3.4.3 COST OF MEDICINES

Mathur and Gupta (1979) revealed that the medicine cost constituted about 3 per cent to 4 per cent of the total working cost.

Bansode et al (1984) estimated that the medicines, electricity and water charges were Rs.1.50 per bird.

for 1000 bird unit and it amounted to 1.53 per cent of the total variable or working costs.34

According to S.K. Das (1989) the cost of medicines, vaccines and insurance premia was 5.04 per cent of the total working cost.35 Ashok Shah and Ranawat (1989) stated that the electricity, water and veterinary, medicine charges accounted to 8.69 per cent of the total variable cost.36 According to Srivastav (1990) the cost of medicine, electricity, etc., accounts for about 8 per cent of the total cost of production.37

3.5 Depreciation and Interest Charges on Fixed Capital.

Bansode et al (1984) calculated that depreciation on building and equipment was 5 per cent and 10 per cent amounted to Rs.2.48 per bird for 1000 bird poultry enterprise and accounted for 2.51 per cent of the total working cost.38

Pangaria (1981) had revealed that the costs like

37. Ibid., pp.21-25.
depreciation, interest, taxes, etc., accounted for 7 per cent of the total working costs in poultry enterprises.  

Srivastav (1990) had stated that the costs like depreciation of building, depreciation on equipment and interest on capital was 10 per cent, 15 per cent and 15 per cent respectively. Ashok Shah and Ranawat (1989) concluded the interest on capital investment was 12.5 per cent and depreciation on fixed cost was 5 per cent of the total operational cost.

3.6 Productivity in Poultry Farming

Azad et al (1980) concluded that the productivity in the poultry enterprise on an average was 18-25 eggs per bird per month. It was worked out to be about 219 eggs per cycle of 12 months.

Rao (1981) in his study concluded that the rate of egg laying was the highest on large farms with 266 eggs followed by 260 eggs in medium farms, 257 eggs in small farms...

farms and 251 eggs in marginal farms. Kulakarni (1982) estimated that the egg production in small farms was 226 and 236 in large farms.

3.7 Loss of Poultry Feed

According to Malhi (1991) at Ludhiana in large farms the sampling of poultry feed revealed (5 per cent and 1 per cent) samples contaminated with urine, faeces and hair in feed stores and feed hoppers respectively. Earlier studies of Parshad et al (1987) also revealed the existence of similar pattern of contamination in poultry feeds. Considering the price of the poultry feed to be Rs.4.75 per kilogram the loss of poultry feed by rodents comes to be about 285 per month.

3.8 Damage to Gunny Bags

Malhi et al (1991) reported that in Ludhiana of the total gunny bags used for storing the poultry feed, 24.07 per cent were damaged by rats to variable degrees as some

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of them were repairable while others were totally damaged. In one year rats damage 156 gunny bags, the cost of which at the rate of rupees five works out to be 780 per year that is rupees 65 per month.46

3.9 Cost of Production Per Broiler and Per Kg of Broiler

According to Rajendran (1991) at Madras, the total cost of production per broiler worked out to Rs.18.10 and Rs.18.48 in Group I and II respectively. Feed cost formed the major portion of the total cost amounting for 56.74 per cent and 54.41 per cent in Group I and II respectively. Chick cost formed 27.50 per cent and 27.71 per cent of the total cost and implies that there was no difference in the cost of feed among the size groups. Labour cost per broiler was Rs.0.58 and Rs.0.40 respectively for the two groups. The lower cost in Group II might be due to the efficiency in the use of labour in this group.

The total cost of production per kg of broiler amounted to Rs.13.84 and Rs.13.10 for Group I and Group II respectively. Further the cost structure revealed that variable cost formed nearly 94.00 per cent of the total

46. Ibid., p.23.
cost of broiler production.\textsuperscript{47}

According to Nagasekhar (1991) in Bapatla the total costs in layer farm worked out to be Rs.1,34,950 in small, Rs.2,67,950 in medium and Rs.9,62,603 in large farms, with an average of Rs.4,65,167. The per bird total cost were Rs.123.76, Rs.122.97, Rs.120.76 and Rs.122.49 for the corresponding size groups. Variable costs constituted 82.41 per cent of total cost on average farms.

Among the different cost items feed was the most important one. Its share in the total costs was 70.54 per cent on small, 70.51 per cent on medium and 70.09 per cent on large farms with an average of 70.27 per cent.

The other cost items in variable expenditure in order of magnitude were interest on working capital (5.01 per cent), labour (2.85 per cent), medicines (2.03 per cent), electricity charges (0.74 per cent), miscellaneous expenditure (0.73 per cent) and litter (0.53 per cent) on average size.\textsuperscript{48}


3.10 **Cost of Production in Prelaying**

Nagasekhar (1991) reported that at Bapatla, feed was the major item of costs occupying 36.45, 38.53, 39.69 and 29.93 per cent of total costs in prelaying on small, medium, large and average farms respectively. The total prelaying costs per bird were Rs.26.39, Rs.27.08 and Rs.27.79 on small, medium and large farms with an average of Rs.27.18.49

3.11 **Cost of Production in Laying Period**

According to Nagasekhar (1991) at Bapatla the percentage of variable costs in the total costs was more when compared to its percentage in the cost of production for one production cycle with 89.28, 89.42 and 88.78 per cent on small, medium and large farms against 82.54, 82.93 and 82.25 per cent in the same size group on the total production costs.

Feed was the major item of cost accounting for Rs.77.75, Rs.76.31, Rs.73.44 and Rs.76.64 per bird in small, medium, large and average farms out of the total costs of Rs.97.73, Rs.95.89, Rs.92.97 and Rs.95.37 in the

3.12 **Cost of Production of 100 Eggs**

In the study of K. Nagasekhar (1991) at Bapatla the variable costs for producing 100 eggs were Rs.36.36, Rs.35.49, Rs.33.41 and Rs.35.05 on small, medium, large and average farms out of the total costs of Rs.46.19, Rs.44.82, Rs.42.76 and Rs.44.05 in respective size groups.

3.13 **Costs in Egg Production**

Ramakrishna Reddy (1991) in his study pointed out that the total costs incurred in egg production per farm were Rs.1,63,669.98 on small farms and Rs.7,02,501.25 on large farms. The total costs incurred in production of eggs per unit of layers were Rs.15,941.08 and Rs.15,101.03 for small and large farms respectively.

Among the items of variable costs, the cost of feed on small farms amounted to Rs.12,838.15 per unit (80.53 per cent of total cost) while it was Rs.12,690.50 (84.03 per cent) per unit on large farms. The expenditure on

chicks was the second major item which accounted for 4.48 per cent of the total cost (Rs.714.50 per unit) on small farms and 4.71 per cent (Rs.711.05 per unit) on large farms. The cost on labour amounted to Rs.536.70 and Rs.258.90 per unit on small and large farms respectively.  

3.14 Farm Size and Rate of Returns

Sewak and Dhillon estimated (1983) that the total returns per bird was Rs.62.70, Rs.65.00 and Rs.67.22 respectively for small, medium and large farms. The net returns per bird per year in between size groups was worked out to be from Rs.2.10 to Rs.13.44 with an overall average of Rs.6.66.  

Karanjikar and Soni (1980) opined that the net profit ratio is higher in large size farms than in the small size farms, thereby indicating a direct relationship between net profit and farm size. According to the Indian Poultry Industry Year Book (1980) the gross and net returns

were estimated at Rs. 2,490.25 and Rs. 1,871.20 respectively for 100 layers.  

3.15 **Gross and Net Returns Per 100 Eggs**

Kulakarni (1982) stated that the gross returns per 100 eggs indicated an inverse relationship with farm size. It was Rs. 36.61 in small farm and Rs. 37.95 in large farm. The net returns per 100 eggs also showed a direct relationship with farm sizes. It was Rs. 2.56 in small farms and Rs. 5.57 in large farms. Bansode et al have revealed that the net profit per 1 egg to be Rs. 0.04 for over a period of 18 months for 100 bird units.

3.16 **Rate of Return on Capital Investment**

Azad (1980) et al observed that the percentage returns to investment turned out to be Rs. 9.03 which was much lower than in other livestock enterprises. Kulakarni (1982) opined that the rate of returns have a direct relationship with farm size around Hyderabad. It

has ranged from 4.98 per cent in small farm to 12.44 per cent in large farms. 58

3.17 Resource Productivity and Returns to Scale

Tej Bahadur et al (1980) have adopted a different version of methodology in examining the production and cost functions in poultry farming in twin cities of Hyderabad and Secunderabad. This empirical analysis showed the existence of diminishing returns and constant returns to scale irrespective of flock size. They have arrived at the conclusion that there were neither economies nor diseconomies of scale. 59

Kulakarni (1982) has reported an increasing returns to scale to the flock size and diminishing factor returns for feed, labour, medicines and overhead costs. He had arrived at the conclusion that there existed the constant returns to scales in poultry farming. The marginal value product (MVP) to factor cost ratios showed inefficient use of resources in poultry farming on all farm sizes since these ratios showed a deviation from unity. 60

58. Ibid., 1982.
60. Ibid., 1982.
According to Rajendran (1991), the total return realised per broiler was Rs.20.60 and Rs.22.24 respectively for the I and II groups. The higher return per broiler in value terms in Group II farms might be due to higher body weight. The net return per broiler worked out to Rs.2.50 and Rs.3.76 for Group I and Group II respectively indicating a higher profit in larger farms. The net return per kg of broiler for Group I was Rs.1.91 as against Rs.2.67 in Group II.61

T.V. Moorti (1991) in his study found that eggs were the major source of return accounting for nearly 82 per cent of the gross returns. It was followed by returns from culls (16 per cent) and chick manure (2 per cent). The average net returns over variable cost per 100 birds per cycle (cycle consists of 470 days) were worked out to be Rs.5,396 which increased with the increase in the size of flock.

Net returns over variable cost per 100 birds per cycle (cycle consists of 90 days) were Rs.1,344 which led to the conclusion that the broiler production was fairly

profitable as it ensured quite a sizeable margin to the producers in terms of net returns. The average net returns per rupee of investment were 0.51.62

Nagasekhar (1991) found that the returns from the sale of proceeds of eggs brought an amount of Rs.1,07,865, Rs.2,25,292, Rs.8,53,592 and Rs.3,95,583 to the small, medium, large and average farms. The returns per bird from the disposal of eggs touched an amount of Rs.98.96, Rs.103.39, Rs.107.17 and Rs.103.17 for the corresponding size groups.63

3.18 Physical Efficiency Measures

According to Rakesh (1991) the average flock size was as low as 153 birds on small layer farms and as high as 735 on big broiler farms. Rearing of layers on small farms was done for a comparatively shorter period of time (445 days) than on big farms (485 days) since the layer on small farms showed marked reduction in production and were culled for meat as a consequence. The broilers

however on big farms attained marketable size a big earlier (63.5 days) than on small farms (68.2 days).

The broilers in the big farms were better fed at 163 gms per bird per day than in small farms. Layers on big farms consumed approximately 18.7 kg of feed for producing 100 eggs which was significantly higher on the small farms. 64

3.19 Returns from Poultry Farming

Ramakrishna Reddy (1991) opined that the yield of eggs per farm on small farms was 2,94,234 (28,661 eggs per unit) while it was 13,52,517 (29,067 per unit) on large farms. The receipt from the sale of eggs constituted the major portion of gross returns per unit of layer amounted to Rs.15,028.90 (87.03 per cent) in small farms and Rs.15,242.00 (88.51 per cent) in large farms.

The sale of culled birds resulted in a return of Rs.1,802.60 (10.44 per cent) per unit in small farms and Rs.167.55 (9.71 per cent) on large farms. The sale of

manure yielded much higher returns in small farms (Rs.311.70 per unit) compared to a return of Rs.184.65 per unit in large farms. The value of gunny bags sold and retained accounted for about 0.70 per cent of the gross returns in both the size groups of farms. Thus the total gross returns were Rs.17,266.85 per unit in small farms and marginally lower at Rs.17,219.00 per unit in large farms. 65

3.20 Studies on Marketing

Jaggi and Robertson (1976) conducted an economic survey on marketing methods at Meerut district and came to the conclusion that there existed two common methods of marketing - (a) sales through egg merchants and (b) direct sales to consumers or through retail shops. From among the surveyed poultry farms 68 per cent of poultry farmers sold their eggs through egg merchants and the remaining 32 per cent directly to consumers.66

Sreenivasacharyulu (1978) stated that the poultry farmers of all size groups have marketed a higher percentage (86.11%) of eggs through wholesalers in Hyderabad City, whereas the small and medium farmers marketed (95.1% and 84.5%) of their total eggs to wholesalers. Further he has also pointed out that nearly 12.2 per cent, 8.2 per cent, 5.9 per cent and 0.2 per cent of total marketable surplus was sold by the farmers to commission agents, Andhra Pradesh State Meat and Poultry Development Corporation, directly to consumers and hotels respectively. 67

3.21 Costs of Marketing

Rangi and Sidhu (1980) estimated that the marketing costs of labour, transportation, breakage and storage of eggs were higher during lean period. 68

Kulakarni (1982) reported that the transportation costs were higher during the lean period than in peak period. It varied from 1.68 per cent to 3.32 per cent of

the consumer's rupee. Breakage and spoilage of eggs in peak period accounted for 0.95 per cent and 0.99 per cent of the consumer's rupee respectively. The packing costs remained unchanged (1.18% to 1.61% in both the lean and peak periods) whereas the labour and establishment charges have accounted for 0.70 per cent to 1.51 per cent of the consumer's rupee. 69

Raghuvanshi et al (1978) stated that the expenses were higher for sending to outstation retailers as compared to supplies of eggs to local retailers. The cost incurred for outstation of eggs. The loss of breakage in the case of outstation supplies should be borne by the retailers. The percentage of loss due to breakage was 3.02 per cent of the total value of eggs. 70

Rajendra Kumar and Tauseef Ahmed (1984) classified the costs incurred during marketing into three heads. They are (a) costs incurred by producer, (b) cost incurred by wholesaler, and (c) cost incurred by retailer. The

costs incurred by producer are packing (0.45%), transportation (2.13%), breakage (1.14%), labour (1.75%) and octroi (0.13%) during the process of marketing. The costs incurred by wholesaler are labour (2.36%), breakage and spoilage (1.13%). And the costs incurred by retailers are transportation (2.00%), breakage and spoilage (0.5%), shop rent (0.75%) and other costs (envelope, wrapper) (1.25%) respectively.71

Balister and Roshan Singh (1981) conducted surveys in Agra and Kanpur. According to their study conducted in Agra the costs of selling through different marketing channels is as follows. The costs incurred by wholesaler on packing, transportation, labour, breakage, shop rent and octroi per hundred eggs amounted to Rs.0.41, Rs.0.78, Rs.0.32, Rs.0.49, Rs.0.28 and Rs.0.62 respectively. The costs incurred by direct egg collectors on packing (Rs.0.22); transportation (Rs.0.41), labour (Rs.0.99), breakage (Rs.0.65) and octroi (Rs.0.17) respectively per hundred eggs.

And the costs incurred by retailers on transportation (0.12), breakage and spoilage (Rs.0.29), shop rent

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(Rs.0.11) and other costs like wrappers & envelope (Rs.0.49) respectively per hundred eggs.

And the price spread in Kanpur through different marketing channels are as follows. The costs incurred by wholesaler on packing (Rs.0.46), transportation (Rs.0.76), labour (Rs.0.15), breakage (Rs.0.52), shop rent (Rs.0.52) and octroi (Rs.0.22) respectively per hundred eggs. These costs respectively accounted for 0.92, 1.52, 0.30, 1.04, 0.44 and 0.24 per cent of the price paid by the consumer.

The costs incurred by egg collectors on packing (Rs.0.24), transportation (Rs.0.33), labour (Rs.0.94), breakage (Rs.0.47), shop rent (Rs.0.22) and octroi (Rs.0.14) respectively per hundred eggs. These costs accounted for 0.47, 0.65, 1.84, 0.92, 0.43 and 0.27 per cent respectively of the price paid by the consumer.

The costs incurred by retailers on transportation (Rs.0.13), breakage (Rs.0.27), breakage and spoilage (Rs.0.37), shop rent and other costs (Rs.0.41) respectively. These costs accounted for 0.25, 0.53, 0.72 and 0.80 per cent of the price paid by the consumer.

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3.22 **Marketing Channels**

Rangi and Sidhu (1980) stated that the poultry owners in Punjab sold their marketable eggs in three ways, namely,

(1) Sale at farms
(2) Disposal in the local market, and
(3) Despatches to distant big consuming centres like Delhi

However, the owners get better net prices for eggs by selling through cooperative societies.  

According to Reddy, the three major market channels in Hyderabad are:

(1) Producer - Wholesaler - Retailer - Consumer
(2) Producer - Retailer - Consumer
(3) Producer - Consumer  

Chand Sikka (1979) concluded that the main marketing channels of eggs in Simla were:

(1) Producer - Egg collector - Wholesaler - Retailer - Consumer
(2) Producer - Egg collector - Retailer - Consumer

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(3) Producer - Hawkers - Restaurants/Bakeries
(4) Producers - Agents - Wholesalers - Retailers - Consumers, and
(5) Producers - Consumers

In spite of the above channels the main link between the producer and wholesaler were the egg collectors. 75

Balister et al (1984) identified the main marketing channels present in Ajmer City.

(1) Producer - Wholesaler - Retailer - Consumer
(2) Producer - Cooperative Egg Marketing Society - Wholesaler - Retailer - Consumer
(3) Producer - Consumer 76

S.S. Chahal (1987) has listed out the main marketing channels existing in Ludhiana market.

Channel I  - Producer - Consumer
Channel II  - Producer - Wholesaler-cum-Commission Agents (local) Retailer - Consumer
Channel III - Producer - Cooperative Society - Wholesaler (Delhi) - Retailer - Consumer

76. Ibid., pp.41-45.
Channel IV - Producer - Wholesaler/Commission Agent (local) Wholesaler (Delhi) - Retailer - Consumer

Balister and Roshan Singh (1981) described the main marketing channels involved in the marketing of eggs in Agra and Kanpur. They are:

1. Producer - Wholesaler - Retailer - Consumer
2. Producer - Egg collector - Retailer - Consumer
3. Producer - Consumer

Rajendra Kumar and Tauseef Ahmed (1983) identified the existing marketing system in Dehradun. They are:

1. Producer - Commission agent - Wholesaler - Retailer - Consumer
2. Producer - Wholesaler - Retailer - Consumer
3. Producer - Consumer

A.M. Rajput et al (1991) discussed about the main marketing channels of broilers in Indore. They are:

1. Producers - Retailers - Consumers
2. Producers - Consumers

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78. Ibid., pp.23-27.