Problems and Prospects of Poultry Enterprise in Kathua District of Jammu and Kashmir

Thesis
Submitted to the Maharana Pratap University of Agriculture & Technology Udaipur
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By Narinder Paul
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CHAPTER - I

INTRODUCTION

“Milk is an animal product and cannot by any means be included in a strict vegetarian diet. It serves the purpose of meat to a very large extent. In medical language, it is classified as animal food. A layman does not consider milk to be animal food. On the other hand, eggs are regarded by the layman as a flesh food. In reality they are not. Now-a-days, sterile eggs are also produced. The hen is not allowed to see the cock and yet it lays eggs. A sterile egg never develops into a chick. Therefore, he who can take milk should have no objection to taking eggs.”

- Mahatma Gandhi

The rural scenario in our country is presently undergoing a rapid change from the traditional concept of farming as a subsistence activity, barely meeting the needs for food, fuel and fibre. Today, all efforts are underway to transform agriculture into a vibrant business that would enable farmers to live in dignity and prosperity.

Indian’s roots lie in agriculture with some three-fourths of its population still dependent on farming. However, its contribution to the national economy accounts for only one-third of GDP. There was a growing realization that for second economic growth, the basic concept of agriculture needs to be changed from survival/supplementary income approach to its becoming a viable agri-business. This transformation required dynamic linkages to be built up among the farmer, the consumer and the professional to bring about the needed induction of appropriate technology and adequate funds.

Among livestock based vocations, poultry occupies a pivotal position to bring about rapid economic growth particularly benefiting the weaker sections. Further, it needs low capital investment and yet assures quick returns, within weeks in case of broilers and months in case of layers.

Indian poultry industry as it exists today is a mixture of traditional backyard system of poultry keeping and modern space age technology. The latter has evolved from the former and has organized itself into a vertically integrated and organized form during last 40 years. The modern industry has achieved an impressive growth during this short period. The growth of industry has not only been in size but also in
productivity, sophistication and quality. Modern intensive system of poultry accounts for about 70% of total poultry meat and egg production in the country at present. The traditional system of poultry keeping although still prevalent in tribal and rural areas of the country is losing its importance day-by-day under the impact of modernization and industrialization.

The origins of the poultry industry can be traced back to India. The modern hybrid hen owes its ancestry to the Red Jungle fowl of India. However, poultry farming as a commercial enterprise is a recent phenomenon in our country.

Organized poultry farming, as opposed to backyard farming was introduced in the early sixties, as a part of the government approach for planned development of the agricultural sector. Initially, it gained ground as a commercial activity due to the extension work undertaken by the various agencies like the Department of Animal Husbandry, Agricultural Universities and Technical cooperation mission of Food and Agriculture Organization (FAO). However, the critical thrust came from a few private entrepreneurs. At the same time, this fact cannot be denied that the poultry sector is one of the rare examples of socio-economic development which attained its present advanced stage without much international aid or investment from Five-Year Plans.

During the past four decades, poultry farming transformed itself from merely a backyard activity into an organized, sophisticated medium scale industry using fundamental and applied research, transferring technology from the best sources abroad and utilizing highly professional Indian manpower. Through a well planned effect at indigenization and acclimatization, the productivity of broilers and layers was improved systematically with the result that our productivity levels are on a par, if not higher that, those of the developed countries.

The Govt. of India considers poultry as an activity on par with agriculture. However, various states apply various yard sticks in the context of different acts. For quite sometime, the Govt. of India has been activity considering the setting up of a “National Poultry Development Board” which will be an autonomous body working on all important aspects for further poultry growth. A strong production base already exists which can take care of not only the domestic requirement but also a sizeable share of the international market.

The poultry industry in India is transforming itself at an incredible pace with most modern housing and handing facilities. Presently, India is the fourth largest producer of eggs and eighth largest producer of broiler in the world with an annual output of 30,000 million eggs and 1,000 million broilers which yield 5 lakh ton of
Table 1. India's state-wise production of eggs (million numbers)

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<td>2,588</td>
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Source: Ministry of Agriculture, GOI
poultry meat (Indian Agriculture, 1999). At present poultry is estimated to provide employment to about 1.5 million persons and contributes Rs. 7,500 Crores to the national income.

In the recent years, while the output of crops in the country is going up at the rate of 1.5 - 2.0 percent, the output of poultry is going at the rate of 10 percent in egg production and 15 – 20 percent in broiler production annually. It has been estimated that an increase of one egg in per capita consumption can create 25,000 additional job opportunities. This shows tremendous potential for growth of industry in next two or three decades. It is a matter of regret that India’s share in the total world poultry trade is negligible.

Notwithstanding the fact that the growth rate of poultry industry has been much higher than that of other segments of livestock industry, as well as the agriculture sector as a whole, the per capita availability of eggs and poultry meat in India is far below the desired levels. Indian per capita availability is 36 eggs as compared to the average of 250 eggs in the developed countries, the world average of 119 and Nutritional Advisory Committee of Indian Council of Medical Research’s (ICMR) recommendation of 180 eggs. Similarly the per capita consumption of 850 grams of poultry meat compares poorly with the 28 Kg in developed countries, world average of 7.960 kg and National Institute of Nutrition’s recommendations of 10.8 kg (App.11 Kg). Clearly, there is a long way to go to abridge the gulf. It means that the average Indian diet should include half an egg per person and 30 gram poultry meat per person per day along with other food items in order to balance the same.

If growth rate of 10 percent in egg production and 15 percent in broiler production can be sustained for next ten years, the per capita consumption of egg will have to be increased to 75 and per capita consumption of broiler meat to 2.3 kg. The contribution to GNP will then be Rs. 23,000 Crores and employment generated will go up to 3.6 million (Rao, 1995).

The development of rural poultry production is a policy thrust area for the Govt. The eighth five year plan had indeed recognized rural poultry production as a trust area and had proposed to increase allocations in order to promote this industry (Ministry of Finance, Govt. of India, 1998). It is also planned to establish poultry estates through out the country to ensure ready assess to all systems and inputs (Anonymous, 2001). According to some expects, the poultry industry in India is expect to grow into a Rs. 27,000 Crores industry by 2005 due to increase in employment potential and income generation of rural poor and marginal farmers.
The consumption in domestic market is low mainly due to lower purchasing power. Today about 75 – 80 percent of eggs and poultry meat are consumed by just 25 percent of the population living in urban areas. The present consumption of eggs and meat in urban areas is 100 eggs and 1.2 Kg poultry meat per person per annum. However, in rural areas, the per capita consumption is only 15 eggs and 0.15 kg poultry meat (Indian Agriculture, 1999). The consumption however is expected to shoot up with rise in income in the coming years. Therefore, we must aim to produce 180 eggs per person per year and the required poultry meat.

The most important contribution of poultry is the rich protein it provides to the human diet. This is particularly significant since it uses 60 – 65 percent of the feed ingredients which are unfit for human consumption. Another major contribution of poultry to the agriculture sector is the organic manure. The poultry industry yields as a by-product more than 15.4 lakh tones of manure every year which is rich organic manure. One quintal of poultry manure provides about 4 kg of nitrogen, 2.8 kg of phosphorus, 2.3 kg of potash and other micronutrients.

It appears necessary to make a broad case for poultry and products as an essential component for earning livelihood and nutritional supplement, in the emerging scenario of new millennium. Static indigenous population, growth in the number of improved hybrid broilers may be projected scenario today. During 1980-81, the developing nations have shown an increased share in world’s market from 32.9 to 64 per cent against 5.84 per cent by the developed nations. Almost similar trend was observed for 1991-2000. India and china have shared improvement of 61.2 and 160.2 percent in the first and 136.4 and 81.5 percent in the second decade in the Asian market respectively.

China had produced 17,214,000 tones i.e.; 10.5 times more eggs against India’s 1,611 tonnes during early nineties. Similarly, during 1997, China and India produced 8,582 and 52,700 tonnes of chicken meat respectively. The FAO statistics have shown slowing down in the rate of expansion of Indian egg production since 1993 (+9%) to 1997 (+4%). The growth of egg production for the first five years i.e. up to 2005 was estimated @ 3.1 and next five years @ 2.8 percent in view of FAO projection trend. This may be close to reality due to recent reduction of a large no. of smaller egg farms and increasing trend of larger few integrated enterprises. For broilers, increasing pace of fast growth rate was taken as a base for projection. The second extension sector made of farms from 50-250 birds in backyard counting is


Table 2. Estimated production of eggs, broiler and poultry meat in urban and rural areas in India (2003)

<table>
<thead>
<tr>
<th>Area</th>
<th>Population (million)</th>
<th>Egg Production (million)</th>
<th>Broiler million ('000 tones)</th>
<th>Poultry meat Production (total g/year)</th>
<th>Per caput</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total No.</td>
<td>Per Caput.</td>
<td></td>
<td>Per caput</td>
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<tr>
<td>Urban</td>
<td></td>
<td></td>
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<tr>
<td>Mega cities</td>
<td>70.6 (08%)</td>
<td>11900 (40%)</td>
<td>141 (60%)</td>
<td>272 (60%)</td>
<td>3852</td>
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<tr>
<td>Other cities</td>
<td>162.4 (18%)</td>
<td>6700 (27%)</td>
<td>47 (20%)</td>
<td>91 (20%)</td>
<td>560</td>
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<tr>
<td>Total</td>
<td>233.0 (26%)</td>
<td>18600 (75%)</td>
<td>188 (80%)</td>
<td>363 (80%)</td>
<td>1558</td>
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<tr>
<td>Rural</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developed</td>
<td>215 (24%)</td>
<td>4100 (17%)</td>
<td>40 (17%)</td>
<td>77 (17%)</td>
<td>358</td>
</tr>
<tr>
<td>Developing</td>
<td>430 (50%)</td>
<td>2100 (08%)</td>
<td>7 (03%)</td>
<td>14 (03%)</td>
<td>33</td>
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<tr>
<td>Total</td>
<td>645 (74%)</td>
<td>6200 (25%)</td>
<td>47 (20%)</td>
<td>91 (20%)</td>
<td>141</td>
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<tr>
<td>Grand total</td>
<td>878 (100%)</td>
<td>24800 (100%)</td>
<td>235 (100%)</td>
<td>454 (100%)</td>
<td>517</td>
</tr>
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</table>

Figures in bracket represents percentage of total
Source: Indian Poultry Industry Yearbook 2003
more than 5 millions in rural houses which in future has to support rural based egg and meat production.

The revolutionary changes in poultry industry in last four decades itself is a matter of pride. Two factors were pre-eminent in sparkling and sustaining changes in the productivity. Primarily several fold improvements in the efficiency of egg and broiler meat production per unit per bird was achieved. In 1957, 6-week old broiler weight was 0.8 kg and 3.2 kg feed was required to produce 1 Kg body weight. Today at the same age 1.67 Kg body weight is attained at the feed efficiency of 1.9 Kg. The new applicable knowledge in the molecular genetics, continuous advances in the conventional genetics, nutrition, management and disease control measures will further govern the rate of progress for the improved efficiency of production. In broiler, the average gain of 25 – 30 gram may continue with better feed efficiency and reduction in the age of dressing by 0.5 day per year.

It is apparent that Indian bred cross-bred commercials are somewhat lower in performance than the exotic ones but the better adaptability and lower mortality profile are in their favour. However, this should also be the point of consideration that globally the number of poultry breeders has declined drastically from hundreds to few due to exuberant cost involved in even conventional breeding operations. Consequently, it may also be accepted that such advances under free trade system, of course are quickly transferred to any country applying latest poultry technology and may have a continuous impact on production and growth.

In the livestock sector, poultry production is an organized and successful enterprise today. In view of the limitations for production of meat from other livestock, a considerable portion of increased demand for meat has to be met from poultry source. A reasonable target of per caput consumption of 100 eggs and 2.5 kg poultry meat per year has to be achieved to increase per caput animal protein consumption from 9.5 gram to the world average 24.5 gram or a safe level of at least 20 gram along with milk and other meat sources.

Poultry meat has many specialties as compared to other red meats. It has excellent flavour, ease of digestion, lower fat content, high ratio of polyunsaturated fatty acids to saturated fatty acids, more tender due to the less connective tissue and shorter muscle fibre and; requires less cooking and retains more nutrients. Poultry meat is preferred in convalescent diets and the chicken soup is suggested to have curative powers. It is also considered nutrient dense food as it provides more nutrients per unit number of calories. Poultry meat is highly versatile meat offering
greater scope for developing variety of value added products. Newer poultry products provide variety to the consumer, facilitate utilization of by-products; improve the quality, marketability and demand for the product, reduce the cost of productivity and bring higher results.

With the advent of further processing and availability of new products, poultry consumption has increased manifold all over the world. Product industry assures the farmer a regular off-take of their produce at reasonable prices. Demand and supply position could be regulated through frozen storage of the dressed chicken and using the same for products at a later stage. Convenience of the consumer and economic advantage to the producer with better utilization of the commodity contributing to the development and growth of industry are the main aspects of further processing of poultry meat. Conversion of dressed chicken into cut up parts and pieces which are seasoned, battered, breaded and precooked as sausages, nuggets, patties, kababs, rolls or traditional pre-cooked products such as tandoori barbeque, friend chicken, roasted chicken, biryani etc. The term “convenience foods” is frequently used for such products. Processes such as portioning, deboning, size reduction, seasoning, tenderization, tumbling, reforming emulsion and a variety of cooking methods are utilized to produce a variety of convenience products.

Table 3. Poultry meat processing plants in India

<table>
<thead>
<tr>
<th>Name</th>
<th>State</th>
<th>Capacity / day</th>
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<tr>
<td>Venkey’s Swift Foods</td>
<td>Maharashtra</td>
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<td>Shiraz Foods</td>
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New Projects:

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<th>Name</th>
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<th>Capacity / day</th>
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</thead>
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</tr>
<tr>
<td>Gold Chick</td>
<td>Andra Pradesh</td>
<td>10 000</td>
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<tr>
<td>Golden Hill</td>
<td>Tamil Naidu</td>
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<tr>
<td>Capon Foods</td>
<td>Uttar Pradesh</td>
<td>10 000</td>
</tr>
<tr>
<td>Hind Foods</td>
<td>Maharashtra</td>
<td>16 000</td>
</tr>
<tr>
<td>Venkey’s</td>
<td>Haryana</td>
<td>24 000</td>
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</table>

Source: Indian Farming, September 1996.
The value of poultry and poultry and poultry products estimated to be at Rs 80,000 million accounts for more than 1% of total GNP. The primary business of poultry keeping has given rise to a number of supporting and allied industries like poultry egg and meat processing, compounded feed, equipment and machinery, pharmaceuticals, biologicals etc. With a turn over of more than 100 billion rupees, the industry provides a gainful employment.

Adequate research and development infrastructure has been developed both in public and private sectors to provide necessary support to the youthful and vibrant Indian poultry industry. Among the public sector institutions, Indian Council of Agriculture Research (ICAR), the nodal organization for agricultural research is playing a vital role in promoting poultry research in the country. Besides undertaking research at its own institutes, which includes Indian Veterinary Research Institute, Izatnagar; Central Avian Research Institute, Izatnagar and Project Directorate on Poultry, Hyderabad, the ICAR provides necessary financial and technical support for undertaking research in different disciplines of poultry science at Agricultural Universities as well as other poultry institutions in the form of coordinated research projects and cess-fund projects. Other public sector institutes which have been actively engaged in poultry research and development include Central Poultry Breeding Farms of Govt. of India; Central Food and Technological Research Institute of Council of Scientific and Industrial Research (CSIR) and; 32 Agricultural and 2 Veterinary Universities located in different states of India. The research efforts of private sector have primarily been directed towards pureline breeding of layer and broiler stocks. Some of the private companies are manufacturing and supplying excellent compounded feeds, poultry vaccines etc. Technologies developed with in the country as well as imported from abroad have contributed to the growth and development of the poultry Industry.

Superior genetic stock of poultry was developed in the meantime. The indigenous desi fowls were the mainstay of Indian poultry farming until recent years. Research efforts in the areas of poultry genetics and breeding were therefore detected for genetic improvement of these stocks in early phase of poultry development i.e.; in decades fifties and sixties. The results obtained from these studies although were highly encouraging, large scale importation of elite poultry stock in early sixties in the form of grand parents by the private sector and in the form of purelines by Government institutions to accelerate the growth and development of the industry caused a set back to the research programme. Since then, Indian poultry industry has been a potential market for the commercial layer and broiler stocks of
repute developed all over the world. This not only helped the poultry farmers to choose the genetic stock of their choice but also resulted in substantial improvement in production of poultry egg and meat in the country.

Private sector has entered into pureline breeding in a big way in recent years. While research is undertaken on Indian soil, most of the private breeding companies have developed collaborative arrangements with parent organizations from abroad.

Efficiency of feeding has been the major economic and manage-mental concern of raising poultry in the country, as it accounts 70 – 75 percent of the total cost of poultry production. Maize, rice and wheat which are the major sources of energy in poultry diet are being used as human food. In India, where food grain production is just adequate to meet the needs human population, further development of poultry will be severely affected until and unless the production of these ingredients is increased or alternative feed resources with higher energy content are identified. To overcome these difficulties in formulating poultry rations and to make poultry farming a viable and sustaining enterprise, considerable amount of research has been done in the country in the area of poultry nutrition to determine the nutritional requirements of different classes and age groups of poultry; to identify and evaluate alternate energy and protein rich feed resources and to devise suitable processing methods for improving the nutritional values of non-conventional poultry feed and to develop methods for identification and detoxification of feed toxins to improve the availability and utilization of nutrients.

Not much research has been done in the area of poultry housing and management. A few studies undertaken so far have been directed to standardize the housing systems and orientation of houses in different agro-climatic conditions; study the effect of population density on the production performance of layers and broilers; determine optimum requirement of floor, feeder and waterer space for different classes and age groups of poultry; compare locally available material for use as litter and to improve the managerial systems currently under practice.

With the active collaboration of the UNICEF and FAO and adoption of improved technology poultry equipments; like incubators, hatchers, feed mills, automatic feeding and water systems, feed pelleting machines, feeders and waterers, cages, battery brooders, egg machines, semi-automatic egg and meat processing plants, de-beak er and; other equipments and machinery necessary for poultry production have been fabricated and manufactured within the country.

The research in the area of poultry-products technology has primarily been
directed to develop appropriate technology for increasing the shelf-life of egg and poultry products; to identify the factors affecting meat yield and quality and to standardize the processing technology for manufacture of fast food. The work carried out on these aspects has resulted in the development of several methods for preservation of shell eggs at ambient temperature and to reduce damage to eggs during transport and distributing.

Poultry keeping in India was greatly handicapped in the past because of serious mortality and morbidity inflicted by various diseases. Not only diagnostic laboratories were inadequate, expertise was also lacking for their containment. Suitable biologicals and pharmaceuticals were not available in the country to combat the same. Illiteracy of the poor people who patronized poultry keeping and disorganized state of poultry farming caused serious setback in the prevention and control of diseases. With the increase of poultry production in the country, several diseases also made their way in the poultry industry. But research efforts undertaken in the country during the last four decades have resulted in significant breakthrough in the controlling many of the poultry disease. Effective diagnostic methods and vaccines have been developed against several killer diseases and especially new emerging diseases. Addition of disease-diagnostic laboratories has helped for quick diagnosis of diseases and for taking appropriate remedial measures.

In the field of automation in poultry management systems, considerable progress has been made by the equipment industry in providing modern equipment for incubation, hatching, feeding, watering etc. Innovations in the poultry shed ventilation systems have resulted in better environment conditions, bringing more comfort to the birds. With the commercialization of poultry and move towards sophistication, modern automatic systems have been introduced in poultry houses that would make routine operations less dependent on manual labour. One example is the auto feeding and watering. Another is the use of environment cooling system for better productions.

With the growing size of commercial farms; and hatcheries, automation is gaining strength. The automatic pan feeding as well as chain feeding systems are being manufactured in the country. With the introduction of plastics in the poultry industry, especially in the equipment manufacture, the maintenance problem has been solved. Indian today boasts about 120 sheds with automatic system of feeding, watering environmental control and gas brooding.

Besides meat and egg, poultry yields a number of by-products. By-products of
poultry industry may be defined as every thing from poultry farm or processing plant that may not be used directly as human food. The by-products may be edible or inedible. Edible by-products are mainly tissues and bones from the carcasses. Inedible by-products include manure, feathers, offal, blood, egg shell and hatchery waste.

Table 4. By-Products from broilers, fowl and turkey

<table>
<thead>
<tr>
<th>Material</th>
<th>Live weight (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Broiler</td>
</tr>
<tr>
<td>Offals</td>
<td>18.5</td>
</tr>
<tr>
<td>Blood</td>
<td>3.5</td>
</tr>
<tr>
<td>Feathers</td>
<td>7.0</td>
</tr>
<tr>
<td>Mixed by-products (total by-products obtained)</td>
<td>28.0</td>
</tr>
<tr>
<td>Dry products (8% moisture)</td>
<td></td>
</tr>
<tr>
<td>Offals</td>
<td>5.8</td>
</tr>
<tr>
<td>Blood meal</td>
<td>0.8</td>
</tr>
<tr>
<td>Feathers meal</td>
<td>5.5</td>
</tr>
<tr>
<td>Mixed poultry by-products</td>
<td>12.8</td>
</tr>
<tr>
<td>Pressed products (1% fat)</td>
<td></td>
</tr>
<tr>
<td>By-products meal</td>
<td>5.2</td>
</tr>
<tr>
<td>Grease</td>
<td>0.6</td>
</tr>
</tbody>
</table>

Source: Indian Farming, September 1996.

Many of the inedible by-products from poultry processing plants are wasted or dumped in open areas giving a possibility of environment pollution. The wastes may be salvaged by suitably processing them in by-products processing plants utilizing wet or dry rendering process. By-products from poultry industry are classified into three categories viz; by-products from production phase which include litter and manure from farm; by-products emanating from hatchery which represent shells of hatched eggs, dead embryo which and chicken; and by-products of poultry processing plant which include, feathers, offals, condemned birds etc. All these three categories of by-products are suitable for converting them into valued added products.

Poultry litter and poultry manure from caged layers are used extensively in feeding poultry and livestock. They are being incorporated in feeds as protein supplement. Poultry manure can be used as feed supplement after sterilization and dehydration. The dehydrated poultry manure can be used upto 20-25 percent in total diet of broilers and layers.
Besides their entry into the livestock and poultry feed, the manure and litter are also being used as surface dressing of agricultural fields. Poultry manure is not only a good source of nutrients but also improves physical structure of soil. Feathers of the poultry bird account for 7-8 percent of live weight and have varied uses such as livestock feed, bedding, ornament, clothing, insulation, decoratives, some supporting equipments, fertilizer and as a filler for chemical fertilizer. Their other possible uses include painting brush, bristles, sizing agents, foaming agent for use in the fire extinguishers, resin extenders and set-retarding agents for plaster, adhesive and insulating boards. Feathers can also be converted into feather meal. It contains 70-80 percent digestible protein, less than 10 percent moisture and less than 4 percent fibre (Sharma and Rao, 1996). Ruminants like cattle, sheep, goat and buffaloes utilize feather meal more efficiently. Use of feather meal in poultry ration is limited to the extend of 4-5 percent because of its poor amino acid profile.

Gliding on the same track, poultry industry in the trouble torn state of Jammu and Kashmir (J&K) also made rapid strides during the last 4 decades. In J&K, during last sixties, commercial poultry farming took the place of backyard layer keeping. Evidences show that a large number of people availed loans under different employment generation schemes and started the vocation of rearing poultry birds. Layer keeping gained quite momentum upto late eighties but beginning of nineties saw a nightmarish period for layer farming. Many large scale layer farms got closed and poultry broiler keeping began to spread its wings. Very few layer farms are presently in operation in J&K.

Despite a phenomenal growth, the overall scene of poultry production when compared with the states like Tamil Naidu, Andra Pradesh, Punjab, Kerala etc. is quite dismal for Jammu and Kashmir. With an annual production of 412 million eggs (Ministry of Agriculture, Govt. of India) and poultry population of 3, 29, 11,320 per lot (16th quinquennial livestock report, 1997), it lies at 15th position when compared with other states in terms of poultry products output. J&K Govt. earns Rs 150 Crores revenue every year on poultry (Anonymous, 2003). In Jammu region, poultry production is mainly concentrated in Jammu, Kathua and Udhampur districts. Majority of the farms are broiler farms. The broilers are reared under the deep litter system and sold as live birds about 15 – 20 locally and rest 80-85 percent produce is transported to Srinagar city which is the main center of poultry trade in J&K.

Recently Jammu and Kashmir Govt. prepared a holistic project for integrated development of poultry under cooperatives to give boost to rural economy and generate new avenues of employment in the state. At high level meeting chief
minister M.M Sayeed approved the project which would be executed with the support of National Cooperative Development Corporation (NCDC) for tapping vast market available for it in the state. It was decided till NCDC scheme becomes operational; the State Govt. would take it up on experimental basis on its own to promote a new culture of poultry farming in all the three regions of the state.

Kathua district is the pioneering district of Jammu region in which seeds of commercial poultry farming first began to sprout. A large pool of manpower including unemployed youth, small farmers, self employees, part time farmers and retired personnel have adopted the profession of poultry farming in the district. In addition, there are other people who are indirectly associated with this profession like feed supply agents, equipment manufactures, pharmaceutical dealers, transports, labourers etc. The overall scenario is that the vocation of poultry farming has gained wide popularity and has earned a good name over the last decades in the said district.

**STATEMENT OF THE PROBLEM:**

In recent years, the government of India has paid increasing attention to the development of poultry industry as a means of increasing the production of animal protein as well as a way of providing employment. Progress have made in the private sector through the use of low interest loans and through the development of cooperatives by National Cooperative Development Corporation (NCDC), as well as of state sponsored poultry complexes. However, the explosion of industry has been limited by traditional system in operation which has largely failed to make changes in order to efficiently handle and to market increased production.

While the Urban areas are fast expanding, the vast rural areas with 75 percent of the country’s population, present a dismal picture. The availability of poultry eggs and meat in rural areas is low indeed, while its selling price is high. Thus, the potential demand in villages remains largely unfulfilled because of poor distribution network of poultry products there. As the situation prevails in rural areas, the low volume of demand gives little incentives to traders to bring poultry products from urban areas.

In J&K, while the decade of “seventies” saw rapid production of eggs, having more than doubled, the decade of “eighties” witnessed a phenomenal increase in the output of boiler by six-fold. Despite the promise of the revolution in broiler production in the late eighties, it seems to have failed to take of. Where have things gone
In Kathua district state Govt. had taken concrete steps to provide technical supports to the poultry farmers. The farmers can get training at the Demonstration centers on poultry functioning in each block of the district. Besides private agents have also taken a leap and are contributing to the expansion of this vocation. As a result of collaborative efforts and personal caliber of the poultry farmers, a large no. of poultry farms (nearly 1,000) some registered and some unregistered are presently in operation in the district.

Considering the vast scope of poultry in increasing the state’s revenue as well as a no. of poultry farms in operation in perspective, it was felt imperative to conduct a probe on poultry enterprise. Considering all this background in view, a study entitled “Problems and prospects of poultry enterprise in Kathua district of Jammu and Kashmir” was undertaken.

1.2 SPECIFIC OBJECTIVES OF THE STUDY:

1.2.1 To study information input its processing and entrepreneurial behaviour of poultry farmers.

1.2.2 To study inter-relationship among different dimensions of poultrypreneurship and antecedents of poultry farmers.

1.2.3 To find out existing level of knowledge of poultrypreneurs about recommended poultry keeping practices.

1.2.4 To find out extend of adoption of recommended poultry keeping practices by the respondents.

1.2.5 To study attitude of poultry keepers towards poultry enterprise.

1.2.6 To study major constraints as perceived by the poultry farmers and explore the future prospects to make the poultry enterprise more remunerative.

1.2.7 To study effect of distance from poultry demonstration center on the variables under study viz; knowledge, adoption, constraints, attitude, information input, information processing and entrepreneurial behaviour of the poultry farmers.

1.2.8 To conduct case studies of a success and a failure case of poultry enterprise in the study area.
1.3 ASSUMPTIONS

1.3.1 It is assumed that the conditions prevailing in the study area are conducive for the expansion of poultry enterprise.

1.3.2 It is assumed that the poultry farmers have availed different sources of information to a desirable extent.

1.3.3 It is assumed that the poultry farmers properly process the information once it is received.

1.3.4 It is assumed that poultry farmers possess the attributes of an ideal entrepreneur.

1.3.5 It is assumed that poultry farmers possess a fair degree of knowledge about recommended poultry keeping practices.

1.3.6 It is assumed that the poultry farmers have adopted the recommended poultry keeping practices to a desirable extent.

1.3.7 It is assumed that the poultry farmers were confronted with some type of constraints.

1.3.8 It is assumed that poultry farmers have positive attitude towards poultry enterprise.

1.3.9 It is assumed that the antecedents of poultry farmers have some relationship with different dimensions of poultry entrepreneurship.

1.3.10 It is assumed that there are wide and rich prospects of poultry in the study area.

1.4 HYPOTHESES:

According to George A. Lundberg, “A hypothesis is a tentative generalization, the validity of which remains to be tested.” In its most elementary stage, the hypothesis may be any hunch, guess, imagination or ideas which become the basis for action and investigation.

According to Goode and Hatt, “Proposition which can be put to test to determine its validity is called hypothesis.”

Prior to any investigation, formation of hypothesis is imperative due to following reasons:
1. Hypothesis makes the research more specific and to the point.
2. Hypothesis helps in deciding the direction in which to proceed and;
3. Hypothesis helps in drawing specific conclusions.

Keeping in view the specifics objectives of the study, broad hypotheses were developed and tested. The broad hypotheses are stated in null form as under:

\( H_01: \) There is no difference in peripheral and distant farmers with respect to information input behaviour.

\( H_02: \) There is no difference in peripheral and distant poultry farmers with respect to their information processing behaviour.

\( H_03: \) There is no difference in peripheral and distant poultry farmers with respect to their entrepreneurial behaviour.

\( H_04: \) There is no relationship among the various dimensions of poultry entrepreneurship.

\( H_05: \) There is no relationship between personal antecedents of the respondents and components of entrepreneurial behaviour.

\( H_06: \) There is no difference between peripheral and distant poultry farmers with respect to knowledge of poultry keeping practices.

\( H_07: \) There is no difference between peripheral and distant poultry farmers with respect to adoption of poultry keeping practices.

\( H_08: \) There is no difference between peripheral and distant poultry farmers with respect to their attitude towards poultry enterprise.

\( H_09: \) There is no correlation between peripheral and distant poultry farmers with respect to constraints perceived by them.

\( H_010: \) There is no relationship of distance of location of shed from poultry demonstration center and variables under study.

1.5 NEED AND IMPORTANCE OF THE STUDY:

So far, India’s agriculture has been dominated by the belief that its base is crop production. Its importance is beyond dispute since; food grains fulfill the first basic need by providing calories for sustenance of population. Having achieved a measure of self sufficiency in cereal production, attention now needs to be given to nutritional security and economic access to food. Also focus should be shifted from
quantity to quality in the daily diet by enhancing the intake of animal proteins, the major sources of which are egg and meat.

India is known to be the home of the modern hen, which owes its ancestry to the Indian Red Jungle fowl. Found in the Jungles of South and South-East Asia, it is regarded as the ancestor of the present day chicken breeds of the world. Good specimens are found with the nomads in parts of Andra Pradesh and Kamataka.

Various recent studies suggest that the livestock sector has an enormous potential to improve the socio-economic status of the rural population particularly the landless. Because poultry farming requires minimum capital and ensures quick return it can help improves the quality of life for rural poor. The rearing of poultry can provide an excellent opportunity for idle or unemployed members of rural families. It is known that children and women can handle the birds with case.

The introduction of hybrid birds has made poultry farming a viable and a rapidly growing segment of dynamic agri-business. A note-able aspect about poultry is that it is an efficient converter of low-fibre food – stuffs, unfit for human consumption into highly nutritive animal protein food. Village poultry production offers one hope by setting up the local units to serve a cluster of villages. The challenge is to induct a small dose of appropriate husbandry technology which will permit effective management of small flocks.

Despite the promise of revolution in broiler production, it seems to have failed to take off. Presently, we are not been able to emerge as the leader in poultry production in general and broiler production in particular. The old farms are being closed no doubt, new farms are also being opened at the same time but it leads to almost negligible net progress. This calls for a holistic study on the various physical, social and psychological factors associated with the poultry industry.

Jammu and Kashmir state too has 5 decades old history of development of poultry industry but still it is at infancy stage. A huge pool of manpower directly or indirectly is associated with poultry. In this direction, the importance of poultry industry in the state’s economic scenario can be gauged from the fact that J&K state government recently prepared and approved a holistic project for integrated development of poultry under the cooperative fold to give boost to rural economy and generate new avenues of employment in the state. It is a general thinking that poultry can assist to give a new direction to the state’s economy and efforts need to be focused towards promotion of poultry in a big way.

So far as poultry farming in J&K is concerned, considerable development can
be observed over the years but no systematic efforts have been made to find out the possible factors and their extent behind the low productivity at producer level and condition of the farmers as well as the factors associated with Farm Farmers Market interaction. Further, no effort has been made to explore the possible reasons allocated to slow pace of poultry industry i.e. whether it is due to lack of market, cognitive deficiencies or lack of knowledge of technologies or some other factors. At the same time, it is also imperative to know whether the poultry farmers consider farm as an enterprise or not, often the small entrepreneurs fail and their enterprises fold up because of lack of support and guidance and; non possession of required attributes for successful launch and management of enterprise. This calls for assessment of entrepreneurial behaviour of poultry farmers.

Providing balanced food to the rapidly increasing population of the country which has crossed the figure of 1 billion and may be more in the years to come is a basic challenge before us. The task of providing balanced diet to ever increasing population is a stupendous task especially with the limitation of land under cultivation and small size of holding. This has to be met by undertaking livestock based vocations like poultry farming. Undoubtedly, as compared to other states, the production and productivity of poultry in our state is far less. So, there is a wide scope for promotion of this industry in the state.

The present investigation was aimed at studying the information input and information processing behaviour of the poultry farmers. The outcomes of these two parameters of study would be of immense help to the concerned agencies to exploit the sources and channels being commonly used for further dissemination of information relevant to poultry to the concerned farmers in more comprehensive and successful ways. Further, knowledge regarding information processing behaviour of poultry farmers would immensely help in strengthening and modifying the popular modes so that poultry farmers may get maximum possible advantage from them.

As proposed, the present study has analysed the entrepreneurial behaviour of the poultry farmers. This would help access the degree to which the poultry farmers of the study area possess the components of entrepreneurial behaviour. How far do they consider poultry as an enterprise in real spirit? Besides, this would help in tailoring training programmes for them to fulfill the requirement of deficiency areas and to inculcate in them the required attributes for becoming a successful entrepreneur.

The present investigation was aimed at studying the existing level of
knowledge of poultry farmers about scientific poultry rearing practices. The outcome of this aspect will be of great value to the top and grass root level functionaries to know where client system stands so far as knowledge of advocated scientific poultry keeping practices is concerned. Thus, looking to the present level of knowledge of poultry farmers, the future line of action could be standardized for working with the poultry farmers and abridging their knowledge gulf.

As also part of proposal, the present study has analyzed the extent of adoption of recommended poultry keeping practices. Therefore, the obvious evidences regarding the adoption level is expected to make the extension agents and various agencies working in the field of poultry production and management aware about what ought to the recommended practices. Hence, the findings about adoption level of recommended poultry keeping practices would assist both governmental as well as private agencies working in the field for augmenting the adoption level where it would be at the very lowest level.

The present study has also a cursory look on the constraints encountered by the poultry farmers in sustaining with the vocation of poultry farming. Knowledge of such obstacles with their magnitudes which “put shackles on” in the adoption of recommended poultry keeping practices would be of immense help to devise a plan of action for the concerned departments, SAUs, Directorate of Extension and; top ranking policy makers and administrators to ease them.

One of the objectives of the present study was to find out the attitude of poultry farmers towards poultry enterprise which would highlight the psychological domain of poultry farmers regarding the vocation they have adopted. The findings about attitude would highlight their degree of favourableness or unfavourableness towards poultry farming. Further, the knowledge of prospectus of poultry farming as well as personal experiences of successful and unsuccessful poultry farms would provide an insight into the actual position of industry in a very different way.

Lastly, the present study vividly ascertains the association between components of entrepreneurial behaviour and personal antecedents of the poultry farmers which is further a pivotal launch pad in designing future strategy for promotion of poultry industry in the state as a whole.
1.6 LIMITATIONS OF THE STUDY:

1.6.1 Through all possible precautions were taken to make the study more precise, objective and reliable, yet because of limited time and resources available at the disposal of the student researcher, the study was confined to only one district and further to only four blocks.

1.6.2 Since the study was confined to only four blocks, the large area was not covered. This has been a serious handicap in generalizing the findings.

1.6.3 As the entire investigation is based on the expressed verbal responses of the respondents selected under study, individual biasness and prejudices on the part of respondents might have influenced the various finding of the study.

1.7 DEFINITIONS OF IMPORTANT TERMS USED:

1.7.1 Adoption: It is a decision to make full use of new idea as the best course of action available. The term in the present investigation refers to the use of recommended practices of poultry broiler production either fully, partially and not at all.

1.7.2 Knowledge: A clear and certain perception of something; the act, fact or state of knowing or understanding is called knowledge (Webster, 1958). Also, knowledge are those behaviour and test situations which emphasized the remembering either by recognition or recall of an idea or/ and material on some phenomenon (Bloom et.al., 1955). In the present context, this term refers to the totality of understood information of poultry broiler production and management practices possessed by the respondents.

1.7.3 Constraints: Constraints in the present investigation may be defined as the impediments, obstacles or bottlenecks which “put shackles on” in the propagation of poultry enterprise and in the adoption of recommended poultry production and management practices.

1.7.4 Attitude: Attitude may be defined as the feeling of like or dislike, interest or apathy, attraction or repulsion towards or against some psychological or concrete object or idea. In the present study, attitude may be conceptualized as the opinion, belief, feelings and answers to the priorly formulated queries by the poultry farmers of the study area regarding the benefits, and suitability of the poultry enterprise in the social system.
1.7.5 **Feeding:** Feeding referred to providing feed to the broilers so as to achieve maximum benefit.

1.7.6 **Management practices:** It is the art and science of combining ideas, facilities, processing, materials and labour to produce and market a worthwhile product or service successfully which included proper brooding, housing, profitable poultry production and health care.

1.7.7 **Antecedents:** All those variables presents in the situation prior to the introduction of an innovation are called antecedents e.g. Individuals personal attributes.

1.7.8 **Age:** refers to number of years a respondent is old at the time of interview.

1.7.9 **Education:** It is the level of literally formal education told by the respondents at the time of interview.

1.7.10 **Caste:** Caste is a social category whose members are assigned a permanent status within a given social hierarchy and their contacts are restricted accordingly (Lundberg).

1.7.11 **Size of poultry unit:** It is the number of poultry birds a respondent reported to rear at the same time in a similar lot.

1.7.12 **Socio-economics status:** This refers to the position of an individual in the society on the basis of such indications as age education caste, family type, size of poultry unit, income level; and social participation.

1.7.13 **Interview:** Is essentially a conversation face to face carried out by a researcher with the respondent for getting his response.

1.7.14 **Schedule:** Refers to a set of questions which are asked and filled in by an interviewer in a face to face situation with another person.

1.7.15 **Brooder house:** Is a small room/compartment of big room or shed which can be heated by the centrally heating device or with any smokeless fuel system. Brooder is an alternate of mother hen.

1.7.16 **Brooding:** Is the process & practice of providing the required heat to the day old chicks by artificial heat arrangements. This practice is carried for 21 days.

1.7.17 **Broiler:** Broiler is a meat producing hybrid poultry bird of improved strain or breed and includes both male and female birds. In the present investigation the term poultry means boiler.
1.7.18 **Floor space:** The space on the floor of poultry shed required for healthy growth of birds without any competition is termed as floor space.

1.7.19 **Feeder space:** The space required around the feeders for feeding birds in such a way that all the birds of a particular shed can feed at the same time is referred to as feeder space. The requirement of feeder space varies along with the increase in the age of birds.

1.7.20 **Vaccination:** Is administering vaccines to the birds in order to generate immunity in their bodies against various diseases.

1.7.21 **Housing:** The practice of providing safe accommodation to the poultry birds in which they can grow well is termed as housing. Now a day’s scientific housing structure are in use.

1.7.22 **Sanitation:** Refers to the practice of keeping poultry shed and the surroundings clean to create hygienic conditions.

1.7.23 **Information input:** Implies the sources of information which an individual use to avail the information relating to a particular cause.

1.7.24 **Information processing:** refers to the handing and curtailing of information received according to the needs of the receiver or it is all that is done to the received information before it is put to actual use.

1.7.25 **Enterprise:** is a potentially viable and income generating unit. In the present context, enterprise implies poultry enterprise.

1.7.26 **Entrepreneurship:** The degree of competence in setting up and managing an enterprise successfully.
CHAPTER - II

REVIEW OF LITERATURE

Review of literature relevant to the objectives of the study is an indispensable part in any research endeavour. The term “review” implies “a look back on” or “a retrospective survey or view of the post events, experiences etc.” It provides knowledge of the latest research findings which indeed is essential for a research worker not only to get acquaintance with the past work but also to apply previous research findings to solve day to day problems and; to plan and conduct further researches based upon the past human experience and experiment.

The main function of review of literature is to determine what work both theoretical and empirical has been done previously to get assistance in the delineation of the problem area. Besides, it provides an insight of the methods and procedures suggests operational definitions to the major concepts and provides a basis for interpretation of findings. Further, it provides the testimony that the researcher is well versed with what is already known and what is still unknown and untested so as to avoid the duplication.

In view of this, an attempt has been made to subsum the summaries of the writings of recognized authorities and findings of the previous researches in this chapter having direct or indirect bearing on the present study. The review of literature has been presented into the following sections:

2.1 Information input behaviour.
2.2 Information processing behaviour.
2.3 Entrepreneurial behaviour of the respondents.
2.4 Level of knowledge regarding poultry keeping.
2.5 Level of adoption by the respondents.
2.6 Attitude profile of the respondents.
2.7 Constraints of poultry development.
2.8 Relationship between antecedents of the respondents and different dimensions of poultrypreneurship.
2.1 Information input behaviour:

Berlo (1960) revealed that effective communication behaviour is one of the functions of individual attitude towards inter-personal relations.

Ambastha and Singh (1974) operationalized the concepts and measurements of technology in terms of information input pattern and information output pattern.

Punjabi (1990) studied the information seeking behaviour of small farmers in relation to their age, caste, education and socio-economic status. These four variables formed the predictors of response variables i.e., information seeking behaviour of small farmers.

Bareth and Intodia (1997-98) revealed that “Village Extension Workers (2.58 MS)” were the main sources of information for small farmer. Next were “Friends (MS 2.21)”, Assistant Agricultural Officers (AAOs) with 1.83 Mean Score and “Neighbours” (1.83 MS). But in case of marginal farmers, the order was slightly changed i.e.; Friends were given first priority in stead of Village Extension Workers and vice-versa. The least used sources by small farmers were “Krishni Upaj Mandi”. Similarly, among marginal farmers, “Cooperative Society” and “Film Shows” were least used sources.

Panjabi et.al. (1997-98) reported that among the personal localite sources, relatives (96.11 percent) and neighbours (95.85 percent) were the most utilized sources of information by the respondents. The village leaders were less approached by the respondents in getting information. Further, the agricultural supervisors and extension officers as the personal cosmopolite sources of information proved to be the most important as these were accorded first and second ranks respectively.

Borah et.al. (2000) revealed that as a basis for sound decision making, farmers need information on the imbalances that are existing in the present utilization of sources.

Khandekar and Sharma (2000) brought to light the fact that majority of the farmers did not seek any information regarding the vaccines administered at hatchery.

Veeranna and Jawali (2000) found that the sources of information utilized by the entrepreneurs were mainly their neighbours, veterinary officers and relevant literature.

Kumar and Se (2001) revealed that the most preferred mode of getting information by the respondents was interview (76.6%) followed by drama (68.8%) and folksongs (56.6%). However, the least preferred mode was straight talk.
Natyh et al. (2001) found that most of the respondents received information by training on farm (90 percent) followed by the agricultural extension officers (86.66 percent), field day (80 percent) and result demonstrations (76.66 percent) under the personal cosmopolite sources. Training on station (90.99 percent), training on farm (83.33 percent) and field day (70 percent) were the personal cosmopolite sources perceived in order of importance by the concerned farmers. In case of impersonal cosmopolite sources of information, majority of the opinion leaders had sought information from television (90.00%) followed by radio (86.66%) and newspapers (80.00%). Where as, farmers consider radio (96.66%) as the best source of information for opinion leaders. In the personal localite category, both the opinion leaders as well farmers had sought information from agricultural input suppliers 93.33 percent and 98.33 percent respectively followed by friends and immediate neighbours.

Sah et al. (2001) revealed that maximum percentage of selected farmers (50.83%) and farm women (74.17%) felt minimum level of information needs. Further, information requirement was found to differ significantly between the selected districts and male and female respondents.

Singh and Mishra (2001) reported that as communication sources, neighbours were used up to the greater extent followed by both relatives and friends and; leaders, village development officer, progressive farmers, veterinary officers and bank personnel. University staff was found to be the least used source. Among group communication sources, demonstration was the most used source followed by meetings and field days. However, training, video and group discussions were other less used group communication sources. Among mass communication sources, radio was the most frequently used source followed by television, fair and exhibition. Newspaper, poster and film were least used sources of mass communication by respondents for availing information.

Ahmed et al. (2002) revealed that the daily newspapers were the main information sources through which farmers know about the date and location of extension activities.

Bhimawat (2002) reported that all the respondents had strongly expressed that the use of television followed by group discussion was very essential.

Choudhary et al. (2002) calculated the utilization pattern of different formal information and mass media sources on three major aspects viz.; extent of contact, degree of understanding and trustworthiness. They found that informal sources had
more importance than the formal and mass media sources. The formal media got third place in the same context. It led to the conclusion that through the informations were received by the farmers indirectly through informal sources, yet they give more importance to formal and mass media sources.

Enwere and Madukwe (2002) revealed that the respondents were not adequately linked to information sources and extension organizations.

Jones and Evans (2002) opined that farmer organizations and technologically innovative farmers were the most effective modes for delivery of technological information to the fellow farmers.

Kaushik (2002) concluded that inter-system communicational linkages were not very strong in availing information. The top-bottom and bottom-top linkages showed inconsistency, hence, a need was felt for input system for frequent facilities for communication and exchange of ideas.

Lalitha et al. (2002) revealed that agricultural assistants were the most consulted sources of information followed by field assistants.

Ozcalbas and Sozer (2002) found that 72.2 percent of the farmers believe that giving information to the farmer by different means helps in increasing their input setting. They suggested that official extension services and farmers organizations should cooperate with themselves to ensure optimum usage of information input in agricultural production.

Pyasi et al. (2002) respected that only 58.33 percent of the respondents had radio and 28.33 percent had television as source of information.

Rancoli et al. (2002) revealed that farmers were interested in receiving scientific information because they perceive local knowledge as less reliable. It emphasized need for scientists to integrate information dissemination projects with effects to improve farmers capacity to respond positively.

Shriram and Chauhan (2002) revealed that progressive farmers (MS 2.25), neighbours (MS 2.62) and local leaders (MS 2.55) were the major personal localite sources of information used by majority of the respondents. Among personal cosmopolite sources of information village extension worker (MS 2.92), was the most used source followed by group meetings (MS 2.75), farmer’s fair (MS 2.69), demonstrations (MS 2.61), training in Directorate of Extension Education and Agriculture Department (MS 2.50) and Assistant Agricultural Officer (MS 2.20) were the main sources of information. Likewise, from impersonal cosmopolite sources,
television (MS 2.92) and radio were prominent. There were also commercial agencies as sources of information.

Vipinkumar and Karippai (2002) opined that farmers naturally become fully conscious about the necessity of keeping good interpersonal relationships for availing information with other farmers to reduce the cost of cultivation and thereby to achieve maximum yield.

2.2 Information processing behaviour:

Bhardwaj (2001) highlighted the need for requisite information processing and management as a key focus for sustainable development of agricultural enterprises.

Garforth (2001) showed differences between men and women, socio-economic categories and villages in access to, uses of sources of information and its processing before actually putting to use.

Malik et.al. (2001) renewing the multifarious roles of new information technologies center could be developed through coordinated effects of SAUs and target group i.e.; farmer, youth and farm women and; other extension organizations for proper discussion (processing) of information. Nodal members like communicators, researchers and community leaders are to be identified to aid in information processing. The feasibility of promoting networking with other developmental activities should also be foreseen as another step to improve the information processing standards.

Nath et.al. (2001) revealed that majority of the opinion leaders had judged the received information by consultation with other specialists (90.00%) followed by technical feasibility (83.33%) and consultation with concerned farmers (66.67%) working in the field. As per the perception of the concerned farmers, Judgment based on the economic feasibility (86.66%), consultation with other farmers (83.33%) and acceptance of technology with little modifications (78.33%) depict to the information processing behaviour of the opinion leaders.

Chermak and Krause (2002) opined that information processing is an important determinant not only in strategy choice but also in the choice to strategize over multiple rounds.

Fritz (2002) concluded that it is necessary for information flow to get proper processing procedures between the enterprises as determined by the sector’s particular production conditions. Different types of processing patterns are followed
according to different mechanisms. Possible impacts of information processing on an enterprises internal organization and interim coordination are positive.

Hubbard (2002) reported that the main contribution of assessing the utility of information before using is to take better and informed decisions and; is in facilitating the spread of further refined information to the peer group. He suggested to create more opportunities for information judgment.

Hueth and Marcoul (2002) found that information sharing generally leads to increase in expected total welfare but may reduce expected profits. Even when expected profits increase, information sharing does not represent equilibrium behaviour. This situation can be overcome if enterprise commits to simultaneous reporting their received information and if reports are verifiable.

Huffman (2002) reported that an increase in the respondents education lowers the probability of sharing the received information with others. Educated receivers generally do not process the information using external sources but use it according to their own comprehension.

Just et.al. (2002) suggested that by focusing on three axes of heterogeneity i.e.; diversity among decision markers, information services providers and information itself, one is able to identify key structural and functional relationship in agriculture information system.

Kandian and Kumar (2002) analyzed information processing pattern of the respondents in terms of preservation of information and; the method used for evaluating the information for decision making and ultimate use. It was found that majority of the farmers preserve the information in their memory. The evaluation of received information was done by discussing with friends, relatives and progressive farmers (87.22%) as well as considering the feasibility and profitability of the innovation. Due consideration must be given to educate the farmers so that they may maintain subject matter file to preserve the useful information.

Legesse (2002) reported that differences in gender and marital status of the respondents, educational level and size of unit set up were associated with differential processing pattern of information.

Ozcalbas and Sozer (2002) found that 27.28 percent of the respondents were trying to get help from others for deciding the information use. 72.2 percent of the respondents believed that sharing information with other farmers helps in maximizing the output.
Vipinkumar and Karippai (2002) operationalized processing skill as the ability of a respondent to process on information. It was measured in terms of three specific components viz.; translation, interpretation and extrapolation. The skill in translation is defined as the degree to which a farmer can give meanings to the message he receives from the “other farmers” in an interpersonal communication situation. The skill of interpretation is the degree a farmers can record these ideas in a new configuration based on the already available mental images and identify the inter-relationships of these ideas in an inter-personal communication situation. Skill of extrapolation is defined as the degree to which a farmer can visualize or predict the implications of an idea received from another farmer in his own conditions and life situations.

Buhr (2003) revealed that multiple modes were involved in information system for support of traceability or the origin of raw materials (meat and poultry products) and their transformation.

Dhinga and Hasija (2003) opined that the information regarding technologies should be promoted using every conventional and non-conventional media and should be disseminated in such a way that it reaches the target audience timely and fits in their life style.

Fountas et.al. (2003) revealed that about 80 percent of the respondents liked to store the information themselves. Only a few indicated that they exchange the information regarding management practices with others.

Gueye (2003) concluded that appropriate information processing techniques are those that ensure to make efficient use of conventional as well as non-conventional sources. While introducing information discussion, socio-cultural and economic environments of target group should be taken into account.

Hudson and Hite (2003) opined that how well a technology integrates into current farming practices depends to a large extent on the degree to which the information received regarding the technology is discussed before putting to use.

Just et.al. (2003) revealed that the information processing behaviours are differentiated on the basis of their access to specific information sources. Even when information sources are available, the value derived depends on the analytic capacity of the decision maker for making use of specifically formulated information. It is accounted to the relationship between information format and actor’s analytic capabilities.
Kole (2003) reported that the poultry farmers take into account relative importance of the information received during decision making.

Ramson et al. (2003) found that the respondents had highly ranked priority for information sharing gained by differential means on farm and paddock comparison of farming practices.

Mahaliyanaarachchi (2003) revealed that the respondents processed the received information from their respective information sources based on the quality and quantity of information required.

2.3 Entrepreneurial behaviour of the respondents.

Kootz et al. (1980) opined that most of the other managerial functions are to a great extent structurally embedded in the enterprise/organization that is the only function left to the manager to be intelligently manipulated to improve entrepreneurial efficiency. The ability to load effectively is one of the keys to being an effective manager of an enterprise. Often the influential increment which may be conventionally designated as managerial leadership cuts across all other management functions which may distinguish good from the poor or the best from better managers.

Patel and Chatterjee (1997-98) concluded that entrepreneurship is a complex involving a set of complicated factors. They were of the view that this definition of entrepreneurship has never been differentiated on the basis of enterprise and hence could be extended to agricultural enterprises without any restriction.

Vijayaraghavan (1997-98) found that more than 80 percent of the poultry farmers had expressed economic gain and prior income as major factors influencing entrepreneurship. Among the technological factors, guidance from private agencies was expressed by cent percent of the farmers. Among personal factors, majority of them had expressed achievement motivation. This led to the conclusion that entrepreneurship training programmes should be tailored to the needy farmers to inculcate and promote desired entrepreneurship behaviour in them.

Patel and Patel (1999-2000) revealed that the managerial ability of farmers directly influences their decision making ability. They calculated managerial ability index using a specially constructed measurement test and revealed that majority of the respondents possessed medium level of managerial ability. Further, an equal number of respondents fell in the categories of low and high levels of managerial
ability.

Prajapati and Patel (1999-2000) while studying entrepreneurial behaviour of the farmers revealed that the respondents were having good decision making ability (69.69 Entrepreneurial Behaviour Index), followed by achievement motivation with Entrepreneurial Behaviour Index (EBI), 60.90. The remaining components viz.; innovativeness, knowledge of the enterprise, information seeking behaviour, risk taking ability, coordinating ability, managerial ability etc. had comparatively less EBI. The least EBI was found with leadership ability (10.92).

Mohammed and Storck (2001) revealed that the existence of entrepreneurial behaviour differences among farmers result in farmers’ action, opinion and decision. The role of management capacity of the farmers and/ or managerial behaviour of farmers in explaining performance variation among farmers has been found to be powerful. Thus, the behaviour of farmers which is an influential factor of the management capacity of the farmers should be taken into account as an important variable in any performance analysis and examination of sources of variation in the performance of farmers as well as in the formulation of agricultural policies.

Kumar and Shukla (2002) opined that management is very important aspect for running a poultry farm successfully and any mismanagement creates problems for proper rearing of birds.

Mathew et al. (2002) concluded that the effective managers are those who demonstrate genuine interest in their subordinates and motivate them with effective guidance and support. On the other hand, those who are less effective are so due to their overall avoidance of responsibility and failure to take decision and provide clear instructions about activities of an enterprise.

Millard (2002) suggested the approach of creating incentives for small enterprises to invest in conservation in a financially sustainable way. The factors promoting entrepreneurial behaviour were; a strong market, local commitment to enterprise development business, increased earning potential, services and national resources management.

Sarkar (2002) measured the behavioural pattern of nursery growing entrepreneurs in terms of composite scores of planning behavioural pattern (P.B.P), decision making behavioural pattern (D.B.P), participatory behavioural pattern (Pt.B.P), interactional behavioural pattern (I.B.P) and economic behavioural pattern (E.B.P.) with respect to management practices.
Talukdar and Bannerjee (2002) revealed that a substantial majority (55 percent) of the women entrepreneurs fell under low category of role conflict. The means role conflict was 29.13 which suggested that respondents on an average faced less conflict in their role as entrepreneurs.

Alvarez and Aries (2003) found that managerial ability of the entrepreneurs had an important implication for enterprise growth. It was concluded that increasing enterprise size while holding managerial ability constant can be an important source of diseconomics of the size of enterprise.

Ambrozyova (2003) reported that compared to the respondents having major enterprises, medium sized and small sized entrepreneurs had recorded markedly lower costs, production, revenue assets and fixed assets. The overall capital indebtedness had dropped down in each group of enterprise with the exception of medium sized enterprises.

Anonymous (2003) recognized promotion as an important function for expanding the choice available to rural entrepreneurs. It realized the importance of income generating activities for the rural poor and diversification into entrepreneurial behaviour promotion through training and credit programmes for groups.

Bheemappa (2003) conceptualized that an entrepreneur is basically an innovator who introduces something new in the economy. He is a person who is capable of taking investment decisions, calculated risks under the conditions of uncertainty, can plan and innovate, take prompt and wise decisions in selection of a product or product mix and marketing. He is a dynamic agent of change or catalyst who transforms the physical, natural and human resources into corresponding production possibilities. Besides, entrepreneurship is the creative and innovative response to the environment which can take place in a variety of fields and is a potential limiting factor in economic development. Infact, it is a mental urge to take risk in the face of uncertainties and; an initiation and capacity of seeing things in a way afterwards proves to be true. And it is an individual set up of managing things in a proper manner. It is multi-dimensional encompassing financial, managerial and functional aspects.

Castelon (2003) found that the optimum combination of resources and technologies maximized the entrepreneurial competitiveness of the farmers. More importantly, it stimulated complex interactions between entrepreneur and factors associated with management practices.
Dabson (2003) found the factors associated with entrepreneurship as; importance of entrepreneurship, obstacles and opportunities in starting an enterprise, the current state of public policy practice in rural development and enterprise infrastructure.

Danilowska (2003) opined that external support is necessary to the entrepreneurs to gap up the disparity between rural and urban perception about enterprise.

Feenstra et.al. (2003) revealed that small entrepreneurs are still the most numerous and they had both less business and marketing experiences. Small entrepreneurs were engaged in fewer entrepreneurial activities, made fewer business contracts and acquired fewer skills compared to medium and large enterprises. They thought few option for enterprise to maintain or/ and enhance their market niche in community.

Klychova and Zakirova (2003) found that the potential agricultural entrepreneurs use grouping of expenses outlined in the plans. Respondents perceived that grouping of expenses will allow for easier and quicker presentation of information on costs of production.

Kumar et.al. (2003) revealed that majority of the respondents had low entrepreneurial behaviour. They had very low farm decision making power, low leadership ability, low risk taking ability, low innovativeness, medium achievement motivation and medium market orientation.

Mattoo (2003) urged educated youth to exhibit entrepreneurial skills and set up their own income generating ventures thereby developing a positive change in the behavioural complex.

Mishra and Prusty (2003) suggested a number of areas including poultry which requires policy measures on entrepreneurship and concluded that there are vast entrepreneurial abilities in India.

Nana et.al. (2003) reported that the implementation of management advise for the entrepreneurs strengthen the farmers decision making capacity through training and extension. Based on global farm approach, the entrepreneurial management advice inculcates the behaviour of the entrepreneurs the factors to stimulate thought, promote measurement and forecasting and; techno-economic aspects in the reasoning of enterprise.
Rao and De (2003) revealed that the respondents had fairly good entrepreneurial behaviour. Eight predictor variables were found to be significant viz.; education socio-economic status, training received, marketing facilities, ability to coordinate farming activities and value orientation.

Sevast'yanov and Sukhanova (2003) found that the respondents followed an internal accounts system within an enterprise as a market economy process of regulation under conditions of transitional market.

Streef (2003) reported that the entrepreneurial behaviour was greatly influenced by consumer prices. High market prices resulted in a positive change in the behaviour of large entrepreneurs than the small.

2.4 Knowledge level of the respondents

Dana et.al. (1995) found that majority of the respondents (43 percent) were having low level of knowledge where as, 38 percent had medium level of knowledge and only 19 percent possessed high level of knowledge about poultry health control measures.

Bhatt et.al. (1997-98) revealed that the majority of the trained farmers (61.00 percent) belonged to the category of high level of knowledge where as, about three-fourth (76.00 percent) of the untrained farmers belonged to the medium level of knowledge category. Trained farmers had significantly more knowledge of improved practices than the untrained farmers.

Chauhan and Rathore (1997-98) revealed that majority of (56.67 and 57.33 percent) of the small peasants had low level of knowledge regarding modern practices. Very few (11 and 22 percent) had high level of knowledge.

Hingu and Patel (1997-98) found that majority of farmers (66.67 percent) had medium level of gain in knowledge.

Kavad et.al. (1997-98) found that majority of members (65.96%) possessed medium level of knowledge followed by 31.91 percent of respondents who had high level of knowledge while majority (68.33%) of non-members were found to be in the category of medium level of knowledge followed by 34.04 percent respondents with low level of knowledge.

Patel and Acharya (1997-98) found a greater percentage of participant farmers in higher knowledge group (68.00 percent) compared to non-participant
farmers (12.00 percent). The medium knowledge group includes 28.00 percent of participants and 78.00 percent of non-participants farmers. Whereas, 4.00 percent of participants and 10.00 percent of non-participant farmers were in the low knowledge group. In high knowledge group, only participant farmers were dominated while in medium and low knowledge group, non-participant farmers dominated.

Sapcota and Ray (1997) reported that students exhibited a growing interest in poultry training programme to enrich their knowledge level. Further, they construed that farmers having small size farms were more interested for training programmes probably to expand their knowledge on poultry farming.

Sharma and Intodia (1997-98) concluded that tribal farmers significantly gained in terms of knowledge after attending training programme.

Sapcota and Ray (1998) revealed that majority of the respondents i.e. 69 percent had the lowest level of awareness regarding poultry keeping. It was followed by 22 percent of them having medium and only 9.00 percent had the high level of awareness regarding poultry keeping.

Khandekar and Sharma (2000) revealed that majority of the farmers were aware of the fact that the poultry birds are to be fed different rations at different ages and for different breeds.

Parkash et.al. (2000) found that caging and disease management aspects were quite unknown to the poultry farmers.

Rohilla et.al. (2000) found during their investigation in Negaland that only 30 percent poultry farmers were aware of improved poultry rearing practices.

Satyanarayana and Rao (2000) found that about 60 percent of the respondents possessed medium knowledge while 28 percent and 12 percent had high and low level of knowledge respectively.

Sharma et.al. (2000) found that about 58.5 percent of the poultry farmers had knowledge about balanced ratio i.e. about minimum requirement of crude protein and ME.

Kandian et.al. (2001) conducted a study in Umiam (Meghalya) with the objective of investigating the participation of women and impact of training conducted by Trainers’ Training Center (TTC) in the year 1990-2000. A large no. of women were engaged in training on poultry. A significant gain in knowledge was found and some socio-personal traits of women like education, mass-media exposure and social participation were found significantly related with gain in knowledge.
Sankhala and Sharma (2001) elucidated that majority of the respondents (76 percent) had medium knowledge level with an average knowledge score of 27.31. About 14 percent of them had low knowledge level with an average score of 18.85. Only 10 percent had high level of knowledge with an average knowledge score of 36.80.

Awasthi et.al. (2002) revealed that 31 respondents (38.75 percent) were having medium level of knowledge 22 and 27 respondents i.e. 33.75 and 27.50 percent respondents possessed high and low level of knowledge respectively.

Bhatti and Sharma (2002) found that 35.64 percent, 35.44 percent, 27.13 percent and 1.99 percent of the respondents fell under the knowledge categories of low, medium, high and very high respectively, as far as their over all knowledge about recommended production technology was concerned. It may be indicated that more than half of the farmers were having medium to high knowledge level about recommended production technology.

Chaudhary and Panjabi (2002) revealed that more than half of the respondents (66.25%) fell in the medium knowledge group while only 15.42 percent could be placed under high knowledge category. The proportion of respondents reported in the low knowledge group was 18.33 percent in the study sample.

Issar and Dhakar (2002) revealed that extremely a high majority of respondents fell in medium knowledge category i.e. 90.83 percent. About 1/10th of the respondents (9.17 percent) had their degree of knowledge to relatively low level. However, none of them had relatively high level of knowledge.

Pyasi et.al. (2002) reported that of the total rural respondents, 40 percent had low scientific knowledge followed 41.67 having medium and 18.33 percent high scientific knowledge respectively. In case of urban respondents, 13.33 percent had low scientific knowledge followed by 48.34 and 38.33 percent having medium and high level of scientific knowledge respectively.

Singh and Bhimawat (2002) found that majority of the respondents (55.83 percent) had medium knowledge while 25.00 and 19.17 percent possessed poor and high knowledge respectively.

Singh and Waris (2002) reported that about 47.50 percent beneficiaries were having medium level of knowledge while only 35 percent non-beneficiaries were having medium level of knowledge. Higher level of knowledge was found in more number of beneficiaries (22.50%) as compared to non-beneficiaries (7.5%). The
majority of non-beneficiaries (57.57%) were having low level of knowledge.

Tiwari et.al. (2002) categorized 70 percent of the respondents in medium, 29 percent in low and only 1 percent of the respondents in high knowledge group.

Paul et.al. (2003) revealed that more than half of the respondents were from medium knowledge category followed by 24 percent respondents who possessed high level of knowledge. Further, 18 percent of them had low level of knowledge.

2.5 ADOPTION LEVEL OF RESPONDENTS:

Chattopadyay and Pareek (1963) operationalised the extent of adoption as the degree to which the cultivator has actually adopted a practice. When extent of adoption is equal to potentiality of use, the adoption is recognized as full at that time and when the extent is nil, it is considered as non-adoption.

Anonymous (1994) revealed that due to gap in adoption of technology, small scale poultry farming has not flourished as it should. The estimates show that only 1/5th of the technology has been utilized in the villages benefiting only 1/10th of the population. Apart from the number of practices adopted, the level of adoption of poultry technology also varies.

Khati and Kumar (1996) analyzed the methods generally adopted in the brooding of chicks and suggested that whatever method is adopted to generate heat in brooding operation, it must be kept in mind that the ambient temperature also plays a significant role.

Mahapatra (1996) located about 1,00,000 farms of varying flock sizes ranging from 5-250 poultry birds in rural areas which had adopted backyard or semi-backyard system of poultry keeping.

Mahapatra (1996) revealed that most of the private breeding companies have developed collaborative arrangements with parent organizations from abroad. As a result of these arrangements, they not only receive the improved genetic stocks for use in their breeding programme but also breeding technology to be adopted to bring about further improvement. He further reported that quail egg is small in size, wide acceptability of its egg and meat by all sections of society makes it an excellent species to be adopted by the small and marginal farmers, landless labours and other rural poor for improvement of their socio-economic status.
Verma (1996) opined that the tremendous increase in poultry production had been owing to the adoption of improved intensive production system.

Mathiyalagan (1997) after studying the extent of adoption of poultry practices by the farmers revealed that the practices like disinfection, feeders space, watering space, balanced ration, lighting, litter management, vaccination, debreaking and deworming were adopted by almost all the respondents whereas, the housing and floor space were not adopted by nearly two-third (2/3rd) of the respondents. The least adoption was found with respect to the practice of culling (32 percent) followed by housing (14.64%).

Bhatt (et.al.) (1997-98) revealed that more than half of the trained farmers (52.00%) were found in the category of high level of adoption. While in case of untrained farmers, about 2/3rd (64.00 percent) of them belonged to medium level of adoption category. Trained farmers had significantly higher adoption of improved practices than the untrained farmers.

Jagadeeshawara et.al. (1997-98) found that different categories of farmers viz. small, marginal and SC/ST differed in their extent of adoption.

Kavad et.al. (1997-98) revealed that majority of the member farmers had medium level of (68.83 percent) adoption, followed by high level of adoption (32.98 percent). Whereas, majority (65.96 percent) of non-members fell under the medium level of adoption, followed by low level of adoption (31.91 percent). They found a significant difference in the adoption between members and non-members respondents.

Mundhwa et.al. (1997-98) reported that nearly three-fourth (68.33 percent) of the respondent farmers had medium level of adoption. Remaining 8.34 percent and 23.33 percent of respondent farmers had respectively low and high level of adoption respectively.

Patel et.al. (1997-98) revealed that majority of respondents (63.75%) had medium extent of adoption followed by low (23.75%) and high (12.50%) extent of adoption.

Patel and Acharya (1997-98) reported that majority of the participant (76.00%) and non-participant (82.00 percent) farmers were in the medium adopter group. The high adopter group consisted of 24.00 percent of the participant farmers as against 12 percent of the non adopter farmers. Whereas, 6.00 percent non-participant farmers were in low adopter group. The difference in percentage between
the participant and non-participant farmers of adoption also revealed that in high adoption group only participant farmers dominated while in the low and medium adoption group, non-participant farmers dominated.

Chauhan and Siddharth (1999-2000) while studying the consequences of personality traits of poultry enterprises on adoption of modern practices found that almost half of the poultry entrepreneurs (47.50 percent) had high level of adoption of modern practices of poultry enterprise. This was followed by 33.75 percent having low and 18.75 percent having medium level of adoption of modern poultry keeping practices. They allocated probable reasons to it that majority of the poultry entrepreneurs had upto high school or more than that level of education which might have helped them to understand somewhat difficult technology of poultry in a better way for adoption.

Intodia and Mathur (1999-2000) found that the technologies that required purchased inputs were less adopted due to poor economic conditions of the farmers and suggested technology assessment and refinement in view of local conditions.

Mundhwa and Patel (1999-2000) found that nearly two-third of the respondents (63.33%) had medium level of adoption. Whereas, 16.67 percent and 20 percent of them had high and low level of adoption respectively.

Patel et.al. (1999-2000) reported that 77.50 percent of the respondents had medium level of adoption. There were 12.50 and 10.00 percent of the respondents who had low and high level of adoption respectively.

Patel et.al. (1999-2000) revealed a greater degree of technological gap in different recommended practices of poultry keeping. The extent of technological gap in all practices ranged from 19.89 to 46.83 percent. The maximum gap was observed in feed management followed by health care. On the basis of their findings they concluded that over three-fourth (75.71 percent) of the poultry farmers had medium technological gap in adoption of poultry farming practices. Though technological gap was low in some of the aspects, the business being very sensitive to the market, for keeping profitability intact, the entrepreneur shall adopt all the recommended technologies at their farm.

Khandekar and Sharma (2000) revealed that majority of the technologies recommended were not utilized and adopted fully. Though the chicks of reported hatcheries were being purchased by 48 percent of the respondents, but the other management practice were not being followed to the full extent. Forty-one percent respondents had their farms at less crowded places and 62 percent had well
connectivity with roads, 17.00 percent had adopted the farm-size, window-size and no. of windows as per recommendations. Since only 16 percent of the respondents were keeping layers and mere 8 percent had separate brooder houses which were situated away from the other birds. 75% of the respondents had the farm buildings at the ground level and 18 percent had it at about half-feet height. Only 16 percent of the farmers had adequate electricity connections at their farms and 14 percent had adopted alternate heating arrangements in case of power cuts. With regards to arrangement prior to arrival of new-flock, only 11 percent respondents white-washed the poultry house every time. Whereas, 70 percent changed litter, 15% disinfected rooms and 17.00 percent cleaned and disinfected equipments. Besides only 20 percent of the poultry farmers arranged to ensure optimum temperature and 19 percent for optimum and adequate equipments in the brooder house. 43 percent of them provided balanced diet and 36 percent provided feed to the birds three times a day. They were not making full use of health practices, 44 percent of the respondents who reared broilers did not administer any vaccine, only a mere nineteen percent always administered all the essential vaccines for broilers. 27.00 percent of the respondents always gave tonics and medicines to flocks.

Nair and Ghadoliya (2000) reported that 85.82% of the total farmers had adopted large sized farms structure and concluded that the farmers who had adopted large sized farms had been making more profits as compared with medium and small group farmers.

Reddy and Reddy (2000) revealed that with particular reference to housing relating to the practices of “locating poultry house at an elevation of ground” was adopted by more than 50 percent of the poultry farmers on an average. The practice of “nearness to the market” was adopted by about 40 percent of the respondents. Other practices like “nearness to human dwelling,” “orientation of shed (west to east)” were also adopted by a fair majority of respondents. The practice of “deep little system of rearing” was adopted by all the respondents (100%) of the related enterprises. The practices of “types of birds maintained,” “starting the unit with day old chicks” and “rearing only one age group within the shed”, “number of strains maintained”, under management aspect were fully (100%) adopted by all the respondents. “Periodical vaccination”, “use of coccidiostats”, “de-worming”, “de-ticking”, under health cover were also adopted by all the respondents. Finally, 10 out of 26 recommended practices of poultry were adopted fully by the respondents.

Sharma et.al. (2000) found that majority of the poultry farmers practiced all in-all out system (67%) and on an average 5.25 batches in a year. All the farmers had
adopted deep litter system for rearing broilers and provided recommended floor space (about 900 sq.cm /bird). For litter, they had adopted saw dust (72.5%), rice-husk and sand. Most of the farmers got vaccinated against Ranikhet and Gumboro diseases. For feeding, they had adopted semi-automatic type of feeders (65.5%). Commercially compounded feed was found to be used by them to an extent of 40 percent.

Singh and Chahal (2000) revealed that none of the farmers among different categories had adopted extra feed supplements. The farmers preparing their home feed were not found adopting the practice of feed pre-mix preparation. The poultry farmers purchased the ready made feed in the forms of mash by spot purchase (80 percent) and only 20% adopted purchase through quotation. 76.67 percent of the farmers had not adopted the practice of fumigation, 18.33 percent used other chemicals and 5 percent adopted physical methods for the control of insects and pests in feed godown. Regarding vaccination 73.33 percent performed fowl-pox, 53.33 percent Ranikhet disease, 90% Gumboro, and 53.33% CRD, coxy and lecchy vaccination.

Goswami (2001) while studying chick rearing practices adopted by the poultry farmers in Kolasib district of Mizoram revealed that only 5% of the sampled poultry farmers had adopted improved farming practices.

Khatik (2001) revealed that majority of the respondents i.e., 62 percent were under the category of medium level of adoption 24 percent respondents were having high level of adoption followed by 14 percent respondents having low level of adoption. It revealed that the majority of farmers were medium level adopters. Moreover mean adoption was found to be 61.20.

Rai and Kushwaha (2001) found that majority of farmers (66.88%) were found in medium adoption category followed by about equal distribution in low and high categories.

Ranish et.al. (2001) concluded that 68.42 percent small farmers had medium level of adoption. In large category of farmers, 54.24 percent had medium level of adoption followed by 32.20 percent having high level and 13.56 percent had low level of adoption. After pooling the data, they found that 62.50 percent of the farmers had medium level of adoption followed by 20.83 percent level and 16.67 percent had low level of adoption. The adoption score of the farmers ranged from 12.29 as against the maximum possible score of 30. The mean adoption score of the respondents was 20.72 which is 69.06 percent of the maximum possible obtainable score.
Upamanya et.al. (2001) opined that the technologies developed in the laboratories should reach to the farmers and these should be accepted and adopted by them for increasing production and productivity. They found that 36 percent of the farmers had adopted modern techniques who were earlier adopting the traditional practices.

Dutt and Mishra (2002) disclosed that farmers were found to adopt various components of technology in various degrees and concluded that there was a wide scope for planners and extension personnel to put efforts in the direction of complete adoption of improved package of practices.

Rao and Mathur (2002) revealed that farmers in all the three categories had adopted the technology under study to a great extent. A considerable number of farmers had achieved medium level of adoption.

Singh and Kushwaha (2002) opined that the adoption behaviour of farmers is an expression of his transactional action and is the function of the situation in which he lives, his socio-psychological syndrome and his cosmopolitan degree. His behaviour may appear extravagant to a stranger, still his behaviour never abstains from projecting his own perception of world view. Hence before adopting an innovation, he always tries to look into its realities and relevances to his situations and if finds rewarding, he decides upon the course of action, in terms of future and finally acts upon.

2.6 ATTITUDE PROFILE OF THE RESPONDENTS:

Singh (1997) reported that nearly half of the respondents had favourable attitude towards livestock based vocations.

Dixit (1988) observed that majority of the respondents had favourable attitude.

Sapcota and Ray (1997) found that 50, 33.33 and 16.67 percent of the farmers had neutral, negative and positive attitude respectively for starting a poultry farm before training. However, after the training period, the corresponding percentages were 15.5 and 80 respectively. This concluded that training could bring about change in attitude of the farmers towards poultry farming to a great extent.

Sharma (1997) revealed that the farmers had their attitude in positive direction as 70 and 16 percent of them had favourable and most favourable attitude respectively while remaining 14 percent had less favourable attitude.
Khare (1998) in a study on attitude found that over three-fourth of the respondents (76.83%) had high degree of attitude followed by medium (21.95%) and low (1.22%) degree of attitude respectively.

Pareek (1998) in a study on advanced technology found that most of the farmers had their attitude in positive direction towards advanced production techniques.

Shinde and Singh (1998) revealed that 74.17% of the respondents had favourable attitude whereas, 12.50 percent respondents had unfavourable attitude and only 13.33 percent respondents possessed neutral attitude.

Singh et.al. (2000) reported that about that 60 percent women had favourable attitude towards backyard poultry production system rather than towards intensive one as often propagated by large poultry farms and institutes. They often show positive preferring attitude towards indigenous breeds rather than the so called improved ones.

Khajuria et.al. (2001) revealed that majority of the respondents (64.58%) had favourable attitude. It was followed by one-fifth of them having most favourable (20.84 percent) and only 14.58 percent had least favourable degree of attitude.

Rathore et.al. (2001) found that 13.73 percent of the beneficiaries were having most favourable attitude towards dairying and livestock based enterprises. Whereas, 73.52 percent of the beneficiaries had favourable attitude. There were only 12.75 percent beneficiaries who expressed to have least favourable attitude.

Singh and Singh (2001) revealed that more than half of the farmers (57.78 percent) had favourable and most favourable attitude towards new technologies. 20 percent of small farmers had favourable and 7 percent had most favourable attitude. While 22.22 percent showed neutral attitude towards new farm technology.

Awasthi et.al. (2002) reported that 40 respondents (50 percent) expressed high level of attitude, followed by 28 (35 percent) and 12 (15 percent) possessing medium and low level respectively.

Bhimawat (2002) experienced that favourable attitude towards any programme was bound to have a cumulative effect in the form of favourable reactions of the clients to make the programme successful.

Pyasi et.al. (2002) found that there were 51.67 percent rural people who were having negative attitude towards scientific technology.
Rathore and Kalla (2002) ostensized that nearly 2/3rd of the respondents (65.83 percent) had favorable attitude with mean score between 49.92 to 81.36. This was followed by 18.34 percent of them having more favourable attitude.

Sawant et.al. (2002) revealed that 65.82 percent of the respondents had favourable attitude followed by 18.36 percent of them having unfavourable and 15.32 percent having most favourable attitude.

Tiwari et.al. (2002) reported that 58.33 percent of the respondents were having favourable attitude, 17.50 percent had more favourable and about 24 percent of the respondents had less favourable attitude.

Bondt and Horne (2003) found that 32.47 percent of the respondents had changed their attitude from favourable to unfavourable owing to the spiraling cost of production of broilers.

Jasirowski and Pzysucha (2003) reported that unfavourable attitude of the respondents towards management of poultry farms was the prime factor leading to disenchant with the vocation.

Kole (2003) opined that influencing the poultry producer’s attitude towards improved poultry production methods involves dynamic changes in the knowledge level and ensuring accountability for the relative importance of several aspects related to their attitude towards it. These attitude changes would be unique and can alter the dependence on information and knowledge use.

Lawn (2003) opined that economic parameters play a significant role in framing the attitude of the respondents towards agricultural based enterprises.

Reuter (2003) found a very positive attitude of the respondents towards poultry products.

Rijsberman (2003) suggested to overcome the related undesirable factors relevant to production, consumption and distribution systems so as to pave the way for a significant change in the attitude of targeted population.

Santucci (2003) revealed that the average farmer had positive opinion towards the vocation of poultry farming. Their opinion was greatly influenced by the demand and market accessibility to the poultry products. Only 2.41 percent of the farmers disregarded poultry farming.

Santucci (2003) reported that 36 percent of the respondents had the most favourable attitude and were willing to attend the training programmes for the
Storstad and Bjorkhang (2003) indicated that average farmers had common attitude towards general questions related to the improvement of poultry industry. Conventional farmers had higher degree of attitude towards the way in which poultry farming is being done today. They did not see environmental problems with poultry farming.

Ulbricht (2003) revealed that a fair majority of the respondents exhibited favourable attitude towards installment of automatically controlled feeders and waterers at their farms. Their attitude towards value-addition to the poultry products was also significantly positive.

**2.7 CONSTRAINTS OF POULTRY FARMING:**

Rao (1995) revealed that the demand for eggs and poultry meat falls considerably during summers and festival seasons and price falls below the cost of production. Lack of adequate storage facilities and the perishable nature of the product further compound the problems and the farmers are left with no alternatives but to sell the produce at distress prices.

Khati and Kumar (1996) reported that in high altitude areas where cold climate pre-dominates, sources of energy are limited and paying capacity of farmers is not very sound. Even the well planned farmers feel crisis of energy to rear the chicks during extreme winter months more so at higher elevations. A layman either does not cherish to rear the small birds during winter months or faces great setbacks. Sometimes when farmers start it in hills and high altitude areas to get more profit in off season, he has to face high rate of mortality just due to failure in maintaining desired temperature range specially for birds of small age groups.

Mahapatra (1996) opined that lack of suitable expertise and exposure of scientists to modern methods of poultry keeping have been the major constraint for accelerating the research in the discipline of poultry housing and management.

Sathe (1996) found that a majority of rural population had a little religious taboo against consuming egg and poultry meat.

Sharma and Rao (1996) reported that the main problem faced in utilization of poultry by-products was collection of enough material for processing it economically.
Verma (1996) revealed that with the intensification of poultry products, several diseases non-existent in the past have appeared and a few existing ones have emerged in altered form creating bottlenecks and giving challenges to the poultry production in the country. Diseases are responsible for high economic losses causing mortality, reduction in growth or egg production and through cost of treatment or preventive measures.

Sapcota and Ray (1997) studied the major problems confronting the poultry farmers and revealed that lack of capital was the chief constraint with MPS 75.66 followed by lack of knowledge (MPS 64.44), non-availability of marketing facilities (54.33 MPS), lack of veterinary services (MPS 34.22) and non-availability of inputs for poultry farming.

Vijayaraghavan (1997-98) found that the problems encountered by the respondents were non remunerative egg prices (100 percent), high cost of feed (90%), presence of IBD disease (79.17%), high capital investment (75%), high expenses for construction of cages (72%), marketing (71.67%), maintenance of health of birds (68.33%) and involvement of risk and uncertainty (60%).

Khan (2000) opined that there is lack of facilities to test the vaccine efficiency in the country, spot analysis of viral infection to identify threat of immuno-suppressive agents, needs further pondering morbidity status of flock due to sub-clinical infections like that of New-castle, Infectious Bronehitis, Mareek’s and Leucosis are still in prevalence.

Khandekar and Sharma (2000) found that the major problem in small scale rural poultry farming is that the farmers are not aware of the practices to be followed. The exotic breeds are being reared in backyard with no inputs or low input. Such birds are susceptible to diseases and have low productivity in the backyard.

Kumar et.al. (2000) revealed that technological constraints, marketing constraints, general constraints, storage constraints and financial constraints were the major constraints perceived by the respondents in decreasing order of their magnitude with MS 13.50, 13.47, 10.80, 8.54 and 7.80 respectively.

Narinder Reddy et.al. (2000) found that the constraints perceived by the respondents ranged from 7.89 to 84.21 percent in case of women and 19.96 to 90.24 percent in case of men. They responded in high proportion to the constraints like non remunerative prices, lack of training facilities on management and live stock health.
Nath et al. (2000) reported that in rural conditions, the veterinarians are always over-burdened with clinical cases as well as farmers are also unable to give actual case history.

Parkash et al. (2000) reported that lack of knowledge (43 percent), lack of governmental and institutional support (25.45%) and unorganized marketing sector (18.25%) were the major causes behind traditional poultry rearing.

Ramanna et al. (2000) revealed that the main constraints faced by the respondents were labour scarcity (60%), high input cost (56%), lack of quality feed, the company delay in payment (54%) and power failure (20%).

Shaji et al. (2000) revealed that lack of scientific management, inadequate veterinary services and absence of locally adaptable breeds were the main problems faced by the respondents.

Sharma et al. (2000) disclosed that the main reasons for not using compounded ration by the poultry farmers were high cost, lack of trust in feed quality and poor perception of quality.

Singh and Chahal (2000) while analyzing the constraints of poultry farmers opined that feeds and feed ingredients, feed plant machinery, vaccines and feed supplements were very costly and simultaneously their quality was not ensured. The availability of good quality feeds and feed ingredients in local market was very poor and no quality checks were made from any government agency. Further, relevant package of practices or related literature from proper guidance and education was not available.

Banerjee and Talukdar (2001) divulged that a majority of the entrepreneurs (50%) faced less number of problems while 35 percent faced a moderate number of problems. Only 15 percent of the selected entrepreneurs faced greater number of problems. However, 10 percent of them had not met with any problem at all.

Ghosh and Chand (2001) after analysis of the constraints of different types disclosed that the dominance of economic constraints followed by infrastructural constraints. The technical and socio-psychological constraints were next in the order of importance. Expect large farmers who were well endowed, small and marginal farmers experienced multiple hindrances which they suggested could be easily nullified by a careful effort of development personnel.

Gogoi and Talukdar (2001) reported that irregular production, lack of technological guidance, short duration, lack of regular marketing facilities, lack of
relevant literature etc. were the major constraints perceived by the respondents.

Goswami (2001) reported that the main constraints faced by the poultry farmers were non-availability of improved variety poultry birds, high cost of one day old chicks and high cost of market-feeds.

Kumar and Satpathy (2001) reported that high cost of feed and disease control in poultry were the main constraints faced by the farmers in the water-shed area.

Paul et al. (2001) reported that major constraints perceived by the respondents were technological constraints, marketing constraints, financial constraints, social constraints and input supply constraints.

Reddy et al. (2001) concluded that the percentage of farmers who perceived the problems ranged from 11.64 to 88.63. Non-ruminative prices of the produce and irregular payment for the sale by the procuring agencies were the problems perceived by the majority (88.33%) of the farmers. There existed a significant difference in the perception of the problems between the farmers’ group categories based on land and animal holdings and; social status.

Resmy et al. (2001) revealed that lack of knowledge was the problem of majority of small farmers (88.3%) and big farmers (93%). 86.66 percent of small farmers felt that lack of technical guidance was the next important problem followed by lack of information sources (71.66%) and disease and pest attack (70%). Whereas, 80 percent of the big farmers reported lack of information sources as the next important problem followed by disease and pest attack (72%) and lack of technical guidance. In addition to it, the constraints in adopting sustainable practices by big farmers were high transportation charges (65%), labour scarcity (58.33%), inadequate loan (55%) and high labour charges (53.33%).

Bandhopadhyay and Sawat (2002) revealed that non-availability of good quality seed/spawn, non-availability of good quality feed, incidence of white-spot disease, inadequate technical guidance from extension personnel, poor co-operation among farmers, inadequate credit support and lack of up-dated information about price were the major constraints faced by the respondents. Besides, involvement of middle-men was also one of the impediments. High cost of feed ingredients formed the primary reason for non-availability of good quality feed. Farmers also opined that feeds often become infested with mould as a result of inadequate storage as well as inconsistent quality of feed ingredients. Lack of good storage practices was reported by 26.25 percent of the respondents. About 25 percent of the respondents strongly
resented the habit of groupism and favourism to extension personnel giving undue preference to some farmers over the others. About 20% of the respondents complained that many a time, scientific terms used by extension personnel were unfamiliar to them and hence they were unable to understand. Due to lack of knowledge and absence of their own reasoning power many illiterate and ignorant farmers were easily fooled by the middlemen and were not prepared to listen to the warning from their literate colleagues. 46.25 percent of the farmers felt that irregularities in the availability of printed media had resulted in non-availability of updated information about price trend. Another constraint was fluctuation in prices.

Chand et.al. (2002) concluded in line with their finding that wherever the scarcity of money and high cost technology existed, they became severe constraints as perceived by the farmers. By and large, lack of knowledge and lack of skill were the two most disturbing barricades in the adoption of improved practices.

Rai and Singh (2002) found that non-availability of inputs from reliable sources, lack of knowledge about operations, high cost of chemicals and complicated policy and procedures of getting government loans were the major constraints perceived by the respondents.

Rajput (2002) revealed that lack of knowledge about marketing organization among the respondents and lack of institutional finance for marketing were major constraints felt by 100 percent farmers of all the three categories viz. small, medium and large. The ignorance about support price was also noted as constraint for 62 percent small, 44 percent medium and 33 percent large farmers.

Sharma and Singh (2002) concluded that if problems hindering adoption are taken care of, technologies would find ready acceptance by the rural people.

Singh (2002) opined that prior to liberalization of economic policy, the government plan priority was more on commercial poultry production than on processing. Thereafter food processing in general and poultry processing in particular started gaining momentum. However, lack of strong market back, conventional dietary habits of consumers, inadequate advertising and campaign to highlight the quality of such products in the absence of quality assurance programmes, non-awareness about availability and usually high price of processed products and inadequate infrastructure like processing equipments, cold-chain including refrigerated transport are the major bottle-necks that confront in the growth of poultry processing sector.
Singh and Khushwaha (2002) concluded that consideration of taste, risk and ease in operation were no more constraints of adoption but hindrance to practical adoption can be attributed to their low-purchasing power of inputs and unhealthy approaches by change agents.

Bhattu and Maskina (2003) corroborated that among the constraints related to the supply of day old chicks, poor quality (poorly vaccinated and uneven size) and time lag in availability emerged as the most important factors. Among the constraints related to input supply, high price and poor quality of feed emerged as other important factors. Non-availability of disease investigation facilities was the most serious problems among the provision of healthy coverage. The other problems were fluctuations in broiler prices, unilateral price fixation and high cost of transportation. The marketing was predominantly in the hands of private traders and commission agents who fix the whole sale price of the chicks.

2.8 Association between personal antecedents of the respondents and entrepreneurship.

Sinha (1980) revealed that authoritarian and bureaucratic climate were inversely related with organizational efficiency.

Huli (1989) reported that affiliation climate had the greatest contribution and positive influence on efficiency followed by conflict management and bureaucratic climate both having a negative influence on enterprise efficiency.

Talukdar and Banerjee (2002) found a negative and significant correlation between extent of entrepreneurship and role conflict as an entrepreneur. This implies that with the increase in role conflict, between entrepreneurial work and house-hold responsibility, the extent of entrepreneurship tends to increase.

Patel and Chatterjee (1997-98) found obvious a considerable extend of inter-relations among the dimensions of entrepreneurship. Out of 13 dimensions of entrepreneurship, 12 dimensions namely risk taking, future orientation, goal oriented hard-work, persistency, realistic, drive for persistency, ability to exploit situation, success oriented decisions, opportunity seeking, competitiveness, innovativeness and dynamic leadership were significantly and positively correlated with one another. However, the dimension “challenge acceptance” was significantly and positively associated with risk taking, future-oriented, drive for independence, ability to exploit situation and opportunity seeking.
Patel and Patel (1999-2000) revealed that the managerial ability had no concern with entrenched characteristics either like age or size of land holding and economic conditions. Contrarily, it is highly correlated with literacy level, social-participation and extension participation. This clearly shows that managerial ability is not associated with in-gained factors, but it will be more if one keeps more linkages with people and extension.

Prajapati and Patel (1999-2000) found that among the variables selected for the study nine variables namely “education”, “Cropping intensity”, “annual income”, “social participation”, “extension participation”, “credit orientation”, “market orientation”, “knowledge” and “adoption” were observed to be positively and significantly related with the entrepreneurial behaviours of the respondents, variables like age, land holding and irrigation facilities were not associated with the entrepreneurial behaviour.

Barah et.al. (2000) revealed the importance of size of the farm which had contributed significantly to the meat production compared to other variables. They found that an increase in the size of the farm would result in significant increase in the yield level. The returns to the scale was more than one which explained that the expansion of the poultry enterprise with increased use of significant inputs understudy would result in higher efficiency in meat production.
CHAPTER - III
RESEARCH METHODOLOGY

This chapter of dissertation throws light on the adopted *modus-operandi* for achieving the objectives of the present investigation. Various methods and procedures employed to study the set objectives have particularly been discussed and the detail thereof incorporated herein including methods and procedures followed in selection of locale and sample. Further, the construction and standardization of research tool, method employed in collection of research data including design of research as well as statistical analysis are also discussed under this chapter.

The design and conduct of the study was developed according to the central purpose and nature of the specific objectives as outlined in the first chapter. Therefore, it was necessary to accomplish the following steps before data was presented in the study.

3.1. Locale of research and selection of study sample.
3.2. Construction and standardization of research tool.
3.3. Collection of research data.
3.4. Measurement of variables.
3.5. Analysis of data.
3.6 Statistical measures used.

3.1. LOCALE OF RESEARCH AND SELECTION OF STUDY SAMPLE:

The present investigation was conducted purposively in Jammu Division of Jammu and Kashmir State. Jammu division consists of six districts viz.; Jammu, Kathua, Udhampur, Rajouri, Doda and Poonch. The procedure followed in the selection of district and study sample is as:

3.1.1 Selection of district:-

With intentions to investigate on the set objectives, Kathua district was purposively selected from among the poultry producing districts of Jammu division. The said district has made remarkable progress in the poultry development in the last four decades. Kathua district known as “Gateway of Jammu and Kashmir” lies in the
South-East of the state. It is bounded on East by Chamba district of Himachal Pradesh (H.P) and on South by Shakerghar tehsil of Pakistan and Gurdaspur district of Punjab. Ramnagar tehsil of Udhampur district and Bhaderwah tehsil of Doda district falls on its North while Samba tehsil of Jammu is in its North-West. On the South-West of Kathua district lies India Pakistan International border. It is located between 32°17’ to 32°55’ North latitude and 75°32’ to 75°76’ East longitude. Spread over the area of 2,651 sq.kms, it constitutes 1.9 percent of the total area of J&K state. The district broadly comprises three distinct zones. These can be described as border, Kandi and hilly areas. The district has 587 villages, 115 panchayats and equal number of patwar halquas.

The economy of the district is basically agriculture oriented as 70 percent of work force is engaged in it. 83 percent of the cultivators are small and marginal farmers. The land holdings are very small and no consolidation thereof took place resulting in undertaking uneconomical agricultural operations in bits and pieces. The agricultural operations in Basholi, Bani, Billawar and Lohi Malhar (hilly areas) are nearly to meet the domestic consumptions. Even in Ghagwal, Hiranagar, Barnoti and Kathua blocks, vast areas fall in sub-mountaneous (kandi) zone which depend on rainfed farming. Irrigation facilities are available to an extent of 22,000 ha and a majority of irrigated area lies near the international border with Pakistan and is prone to disturbances. Because of altitudinal variations, there is a vast difference between the temperature of different regions. The temperature rises as high as 48°C in plains and goes down below 1.5°C in the upper hilly areas. The average rainfall ranges between 200-1200 mm for different regions. The two main rivers of the district are Raavi and Ujh. Added reasons behind contemplation and selection of Kathua district for undertaking present investigation are:

(i) The research was well acquainted with the culture, traditions and dialect of the district which could enable him to get responses in a significant manner to achieve the targeted objectives.

(ii) This district is one of the leading producers of broiler meat and live broilers in the Jammu division with “Lion’s share” in the purchase and sale market relevant to poultry inputs and products.

(iii) There are a number of densely situated small as well as big, registered as well as unregistered poultry farms in the various pickets of the district. This district has witnessed a revolutionary history of poultry growth for the last 4-decades.
3.1.2 Selection of blocks:

The block is the basic unit for the preparation of perspective and annual action plans, implementation of various developmental programmes and for providing feedback. For administrative purposes, Kathua district is divided into four tehsils viz., Kathua, Hiranagar, Basoli and Billawar. These tehsils are further divided into eight blocks viz.; Kathua, Barnoti, Hiranagar, Ghagwal, Basholi, Bani, Billawar and Lohi Malhar. The former four blocks lie in plains while later four are hilly areas with little concentration of population. For conducting the present investigation, Hiranagar, Ghagwal, Kathua and Barnoti blocks were selected based on maximum number of registered and un-registered poultry farms in these blocks. For selecting blocks, official records of Poultry Extension Officers of all the tehsils, Chief Animal Husbandry Officer, District Kathua and Poultry Development Officer (PDO), Kathua were consulted and personal deliberations were held with them. The bolstering points which enabled researcher to select aforesaid blocks are:

(i) There are maximum number of poultry farmers in these blocks which are actively engaged in poultry farming.

(ii) Maximum consumption of feed and poultry concentrate is in these blocks

Table 5. Number of viable poultry units in various blocks of the proposed district

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Block</th>
<th>Perheral</th>
<th>Distant</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Kathua</td>
<td>72</td>
<td>64</td>
</tr>
<tr>
<td>2.</td>
<td>Hiranagar</td>
<td>65</td>
<td>57</td>
</tr>
<tr>
<td>3.</td>
<td>Barnoti</td>
<td>48</td>
<td>41</td>
</tr>
<tr>
<td>4.</td>
<td>Ghagwal</td>
<td>39</td>
<td>52</td>
</tr>
<tr>
<td>5.</td>
<td>Billawar</td>
<td>24</td>
<td>13</td>
</tr>
<tr>
<td>6.</td>
<td>Basholi</td>
<td>15</td>
<td>19</td>
</tr>
<tr>
<td>7.</td>
<td>Bani</td>
<td>18</td>
<td>09</td>
</tr>
<tr>
<td>8.</td>
<td>Lohi-Malhar</td>
<td>05</td>
<td>08</td>
</tr>
</tbody>
</table>

Source:

(i) Office of the Poultry Extension Officer block Hiranagar and Ghagwal.
(ii) Office of the Poultry Extension Officer block Kathua and Barnoti.
(iii) Office of the Poultry Development Officer district Kathua.
(iv) Office of the Chief Animal Husbandry Officer, Kathua.
3.1.3 Selection of the respondents:

A comprehensive list of all the registered poultry farms in each selected block of the proposed district was prepared with the help of Poultry Extension Officers of the concerned blocks. For recording un-registered poultry farmers, the feed supply agents, chick supplying agents and middlemen involved in it were personally contacted and a separate list of un-registered farm was prepared. To avoid duplication, both the lists were merged as one. After preparations of the lists, the poultry farmers in each block were categorized into two groups viz.; peripheral poultry farmers i.e. with in the radius of 10 Km distance from the block Poultry Demonstration Center of Department of Animal Husbandry, J&K Government and distant poultry farmers i.e. situated at the distance of more than the radius of 10 Km from the Poultry Demonstration Center of the concerned block. Further from the separate lists so prepared, 30 poultry peripheral farmers and 30 distant poultry farmers from each of the selected blocks were randomly chosen. Thus, the study sample consisted of 120 peripheral and 120 distant poultry keepers i.e. a total of 240 respondents.

3.2 Construction of research tool:

Construction of relevant research tool to achieve the objective of the research is an important step in any extension research for measuring the behavioural domain. Every research tool how reliable and valid it may be is not applicable in all the situations. So, for obtaining appropriate and valid research results, it becomes very necessary to design, develop and standardize the research tool specifically for the study area and the study sample. This ensures universal result true to the reality. Standardization of research tool provides a predisposition about the type of responses to be obtained and suggests a criterion for weeding out irrelevant or non-responding stimuli or to modify the stimuli according to the initial responses obtained. It also helps in curtailing and hence shortening the length of research tool/schedule and; in saving the time as well energy of the researcher during data collection.

The research tool for the present investigation consisted of the following sections and was constructed as:
Section - I

This section has two parts

A. **General Information:**

This part of the section deals with general information of the respondents which included information about age, education, caste, family type, family size, size of poultry unit, extension contact, field experience, social participation etc.

B. **Socio-economic status scale:**

This part deals with measuring the socio-economic status of the respondents. For this purpose, modified Trivedi scale was adopted.

Section – II

This section was developed to assess the information input behaviour of the poultry farmers. The tool was specifically standardized for the present investigation using the following procedure:

(a) **Collection of item representing information channels and sources:-**

All possible sources of availing information were collected from available literature and discussions with the personnel having relevance with communication field. There information availing sources were grouped under three major heads i.e.; personal cosmopolite, personal localite and impersonal cosmopolite sources. 12 sources were included under personal cosmopolite category, 9 sources were kept under personal localite category and 8 sources were placed under the category of impersonal cosmopolite sources for availing information relevant to poultry. All these 29 sources constituted initial test battery to find out their Relevancy Coefficient for the study area by subjecting them to item analysis.

(b) **Item Analysis:-**

For item analysis, entire initial test battery was administered among 30 poultry farmers of the study area selected at random from varied places of the four selected blocks. The responses were collected on three point continuum of Always, Sometimes and Never responses and; the scores of 2, 1 and 0 were given to these responses respectively. The Mean Percent Scores of the responses were calculated and the Relevancy Coefficient (Rc) for all three categories for each response item was calculated using the formula.
Obtained MPS for an item

\[
\text{Relevancy Coefficient (Rc)} = \frac{\text{ Obtained MPS for an item}}{\text{Maximum obtainable MPS of test battery}} \times 100
\]

Since, here no. of responses in test battery was 29

Therefore, maximum obtainable MPS of test battery was 2900.

(C) Final selection of items:

Items having zero Relevancy Coefficients were excluded from the test as they were not found relevant for collecting data in the study area. The final test consisted of 6 sources in the personal cosmopolite category, 6 sources in the personal localite category and 3 sources in the impersonal cosmopite category. In all, 15 sources formed the test for assessing the information input behaviour of the poultry farmers (Appendix-II).

Section - III

This section of the research tool was designed to study the information processing behaviour of the poultry farmers. Specifically for the present study, this part of the research tool was designed in the study area using followed procedure.

(a) Collection of items relevant to the processing of information:

The literature pertaining to information processing behaviour of different categories of farmers was thoroughly studied and all possible modes of processing were listed. It is necessary here to mention that information processing implies what is done to the information once it is received to take decision about its application. In all, 16 possible modes of processing the received information were included in the initial test battery to find out the Relevancy Coefficients (Rc) for the standardization of tool for the present investigation.

(b) Item Analysis:

The initially collected modes of information processing were administered to 30 poultry farmers of the study area selected at random from varied localities of the blocks under investigation. They were asked to give their responses on a three point continuum to the individual items i.e.; Always, Sometimes and Never. Accordingly, scores 2, 1 and 0 were given to these responses respectively. The Mean Percent Scores of the responses obtained were calculated followed by calculation of relevancy coefficient for each item. Relevancy Coefficient (Rc) was calculated using the formula:
Obtained MPS for an item

\[
\text{Relevancy coefficient} = \frac{\text{Maximum obtained MPS for total test battery}}{\text{Maximum obtainable MPS}} \times 100
\]

Since, here total number of responses were 16.

Therefore, maximum obtainable MPS for the test battery by each individual would be 1600.

(c) **Final selection of items:**

Items with high Relevancy Coefficient (Rc) were considered suitable for inclusion in the research tool as they were in a better position to measure the variable under study in a meaningful way. Items pertaining to the mode of information processing having “Zero” Relevancy Coefficients were excluded as they were not found related with the variable under measurement. In all, 12 modes of information processing constituted the standardized tool well suited to assess the degree of information processing behaviour of the poultry farmers (Appendix-III)

**Section - IV**

This section developed with a view to measure the entrepreneurial behaviour of the poultry farmers included all the fundamental attributes which an entrepreneur must possess to run the enterprise successfully.

Vijayaraghvan (1997-98) had measured the entrepreneurial behaviour of the small farmers by adopting a scale developed by Nandapurkar. Raghavacharya (1983) developed a scale consisting of 7-components. However, for the present investigation, a specific scale for measuring the entrepreneurial behaviour of the poultry farmers of study area was designed and standardized using followed procedure.

(a) **Collection of item vindicating components of entrepreneurial behaviour:-**

The content of scale for measuring entrepreneurial behaviour are called items. Various possible and relevant items were collected from different sources such as literature pertaining to entrepreneurship, past studies, field level functionaries, specialists and experiences of other researchers etc. The items were collected in relation to the attributes which an entrepreneur must possess. In all, 18 components of entrepreneurial behaviour were collected.
(b) **Item verification** :-

The stimuli so framed were discussed with the various specialists and then the entire set of items was administered to 30 poultry farmers selected at random from varied localities of selected blocks. Personal interview technique was followed for getting responses. After administering the scale, it was found that the informants responded positively to all the items initially selected. However, some modifications were required to be made in the wording of stimuli/ questions. Thus the finally drafted scale consisted of 18 items (Appendix-IV).

**Section-V**

This section was developed to know the extent of Knowledge of poultry farmers about scientific poultry (broiler) keeping practices. Since a test developed at other place is not suitable everywhere so, in order to measure knowledge of the poultry farmers in study area, a knowledge test was developed and standardized particularly for the present investigation.

Knowledge test:

Knowledge test in this study was operationalized as a standardized situation designed to elicit a sample of individual behaviour and consists of questions. Kerlinger has defined test as a systematic procedure in which the individual to be tested is presented with a set of constructed stimuli to which he responds, the responses enabling the test to assign testee a numeral or set of numerals from which inferences can be made about the testee’s possession of whatever the test is supposed to measure. On the basis of this criteria, “knowledge test” was developed. Further, owing to non-availability of a standardized test on knowledge of scientific poultry (broiler) keeping practices, it was decided by the investigator to develop a knowledge test following standardized techniques. The procedure followed in this regard is as:

(a) **Item collection:**

The content of knowledge test is composed of question called items. An item pool of knowledge was prepared by consulting the literature relevant to rearing poultry (broiler) on scientific lines. A large number of items were also obtained from the specialists of poultry, Department of Animal Production Rajasthan College of Agriculture, Udaipur and; Poultry Extension Officers and Poultry Development Officer of Kathua.

Besides, some items were also collected from the grass-root level extension
workers engaged in transfer of knowledge relevant to poultry and some progressive farmers. Initially, 125 items were collected in ten areas of broiler rearing on scientific lines viz.; chick procurement, Brooding practices, litter management, temperature regulation, feeding, watering, equipment and spacing, diseases and parasites, vaccination and; Sanitation.

(b) Initial selection of items;

Initial selection of items was done on the basis of following criteria:

(i) It should promote thinking rather than mechanical memorization.

(ii) It should differentiate the well informed respondents from poorly informed ones and should have a certain difficulty value.

It means that items which were not well understood by the concerned and the items which could not be correctly replied by all or none were not suitable for knowledge test.

Based on the above criteria, 115 items were initially selected encompassing major areas of broiler rearing. The items selected were according to the level of comprehension of the poultry farmers and level of technology of the area. A schedule was prepared for administering them to the farmers. Correct replies for the items were ascertained in consultation with the specialists and experts to prepare a key. The items were in interrogative form, objective type, yes/no, known/unknown, open ended etc. All these 115 items formed the initial test battery for item analysis. In selecting the items, the procedure followed were according to Lindquist (1957).

(c) Administration of knowledge check:

The knowledge check thus prepared was administered to 30 poultry farmers of the proposed district selected at random following personal interview technique. These respondents were not included in the final data collection. Responses were recorded accordingly during interview. If a poultry farmer gave correct answer to an item, he was given a score of 1 and those who gave incorrect answer or replied don’t know got a score of “zero” for that item. Thus, the range of obtainable score was 0-115.

(d) Item Analysis:

Item analysis of a test yields two kinds of information i.e.; an index of item difficulty and an index of item validity. For item analysis, the total score obtained by each poultry farmer was calculated. The scores obtained by 30 respondents for the
test battery were arranged in the descending order i.e.; from higher to lower as suggested by Harpur et.al. (1964). After that, the respondents were divided into six equal groups viz.; G₁, G₂, G₃, G₄, G₅ and G₆ with 5 respondents in each group. The middle two group namely G₃ and G₄ were eliminated retaining only the four terminal groups with high scores (G₁ and G₂) and low scores (G₅ and G₆). The range of scores obtained by four groups of respondents were as follows:

\[
\begin{align*}
G₁ &= 82-90 \\
G₂ &= 67-81 \\
G₅ &= 32-45 \\
G₆ &= 24-31
\end{align*}
\]

(e) **Calculation of difficulty index:**

The difficulty index of an item was defined as the proportion of the respondents giving correct answers to that particular item. It was calculated using formula.

\[
P_i = \frac{n_i}{N_i} \times 100
\]

Where, \(P_i\) = Difficulty index in percentage of \(i^{th}\) item.

\(n_i\) = Number of respondents giving correct answers to the \(i^{th}\) item.

\(N_i\) = Total number of respondents to whom \(i^{th}\) item was administered i.e. 30 in the present case.

The calculated values of difficulty index have been presented against each item in Appendix-IV.

(f) **Calculation of discrimination index:**

Discrimination index is the degree to which an item is able to discriminate a well informed respondent from poorly informed one. The discrimination index was calculated using \(E^{1/3}\) formula (Singh, 1980)

\[
E^{1/3} = \frac{(S₁ + S₂) - (S₅ + S₆)}{N/3}
\]

Where, \(E^{1/3}\) = Discrimination index of an item.

\(S₁, S₂, S₅\) and \(S₆\) are the frequencies of correct answer in group G₁, G₂, G₅
and \( G_b \) respectively.

\[ N = \text{Total number of respondents in the sample of item analysis.} \]

The calculated values of discrimination index have been presented against each item in Appendix-IIV.

### (g) Selection of item for the test:-

Two criteria viz.; item difficulty index and item discrimination index were considered for selection of items in the final format of knowledge test. The underlying assumption was that difficulty was linearly related to the level of individual knowledge about the subject. Items with difficulty index from 20-80 and discrimination index ranging from 0.2-0.8 were finally selected i.e.; the items which were neither too difficult nor too easy to reply and could discriminate the well informed poultry farmers from less informed ones were selected. 89 items were finally selected for the knowledge test to measure knowledge of the poultry farmers.

### (h) Reliability of the test:-

According to Kerlinger (1967), “Reliability is the accuracy or precision of measuring instrument”. Anastasi (1968) referred reliability to the consistency of the scores obtained by the same individual when re-examined with test on different locations with different sets of equivalent items or under variable examining conditions.”

To know the reliability of the test so developed, split half method was applied. The test was divided into two equal halves i.e.; by taking even items on one side and odd items on the other. Each of the two sub-tests were then introduced as two full scale to 8 respondents. The correlation coefficient between scores so obtained was calculated. Using Spear-Brown formula, reliability coefficient was calculated as:

\[
\text{Spear-Brown formula:} \quad r_{\Pi} = \frac{2 \text{roe}}{1 + \text{roe}}
\]

Where, \( \text{roe} = (r) \) Karl Person correlation coefficient.

The value of \( r_{\Pi} \) came to be 0.92142 which reflects high reliability of the test developed.

### (i) Validity of the test:

The term validity means truth or fidelity. Lindquist (1951) defined validity of
the test as accuracy with which it measures that what it is intended to measure. Validity means correct measurement. Validity of the test was assessed by following Jury opinion method. Four experts were given the test so developed for getting their views. High degree of uniformity in their views or opinion regarded test of high validity.

(j) **Administration and scoring of knowledge items:**

The selected items which formed the knowledge test were incorporated in the final format of interview schedule for administration to the sampled respondents. Each correct answer was given 1 mark and wrong reply or “do not know” response was given 0 score.

**Section - VI**

This section was developed with a view to find out the extent of adoption and differential adoption levels of scientific poultry keeping practices by the sampled poultry farmers. To ensure proper recording of responses, efforts were made to include only those practices of poultry (broiler) keeping in which adoption can practically and really be noted. This section was divided into 10 major aspects viz.; chick procurement, brooding practices, litter management, temperature regulation, feeding practices, watering practices, equipment and spacing, disease management sanitation and; records keeping and marketing.

(a) **Collection of items:**

Adoption items relating to each sub-section were collected from relevant literature, resource personnel, progressive farmers etc. Moreover, field level functionaries of the selected blocks were also consulted for securing practically appropriate adoption items. These items were converted into interrogative form for getting responses. In all 62 items formed the adoption scale.

(b) **Pre-testing:**

So as to make adoption scale befitting to the study area, and make necessary modifications, the initially drafted adoption items were administered to 30 poultry farmers selected at random from various places of selected blocks. This was done to ensure clarity of language and coverage of subject matter. The scale was modified in light of the responses obtained and suggestions were incorporated in it.

(c) **Reliability:**

Reliability of the scale was measured using split half method. The value of
reliability coefficient came to be 0.8714 which indicated high reliability of the adoption scale.

(d) **Validity:**

Validity was assessed using Jury opinion method. All the Judges gave similar favourable opinion for the adoption items indicating their high validity.

(e) **Scoring:**

Data were to be recorded on a three points continuum i.e.; fully adopted, partially adopted and not adopted at all and scores of 2, 1 and 0 were to be given to these responses respectively.

Section - VII

This section was developed to measure attitude of the respondents towards poultry enterprise. For this purpose, an attitude scale was constructed using Likert method of summated rating as follows.

(a) **Collection of attitude statements:**

A number of statements relating to the each subunit of poultry as an enterprise were collected from the available literature, consultation with concerned specialists, progressive farmers and other resource persons. At this stage, 49 statements were collected.

(b) **Editing the statements:**

Following the criteria suggested by Want (1932), Thurstone and Chave (1929), Likert (1932) and Edward (1948), the statements were edited. This was done to avoid factual statements, to avoid double negatives, to avoid irrelevant statements, to make wording simple and short, to avoid ambiguity and to make statements likely to be endorsed by everyone. At this stage, the number of statements got reduced to 32.

(c) **Selection of scaleable statement:**

After initial editing and scrutinizing, a few scaleable statements were selected with the help of specialists of poultry. The number of items at this stage was 27.

(d) **Subjecting the scaleable statement to Likert method of summated rating:**

Scaling by summated rating is also known as Likert method of attitude scale construction as it has been named after Likert who claimed that the method of summated rating is simpler and easier to apply in constructing an attitude scale.
After selecting the scaleable statement, they were administered among 28 poultry farmers selected at random from various localities of the district in which investigation was to be conducted, the ideas being that they were exactly similar to the respondents for whom the scale was to be constructed. They were asked to give their responses on a five-point continuum to the statements individually i.e.; Strongly agree, Agree, Undecided, Disagree and Strongly disagree. After recording their responses, scores were given to each item for each individual. For positive statements, scores of 5, 4, 3, 2 and 1 were given to Strongly agree, Agree, Undecided, Disagree and Strongly disagree responses respectively. However, for negative items, pattern of scoring was reversed i.e.; scores of 1, 2, 3, 4 and 5 were given to Strongly agree, Agree, Undecided, Disagree and Strongly disagree responses respectively. Following this scoring pattern, the responses were decoded on tele-sheet and total scores obtained by each respondent as well as for each statement were summed up. Then, the respondents were arranged in the descending order of the total scores obtained by them. In order to discrimination more vividly, the items between high score and low score on total scale, top 25 percent and lowest 25 percent of the respondents were selected for further analysis and middle 50 percent were eliminated. It gave rise two extreme quartiles i.e.; higher quartile and lower quartile.

(e) Computation of t-values:

For evaluating the responses of the high and low group to the individual statement, Critical ratio (t-value) was worked out using the formula:

\[ t = \frac{X_H - X_L}{\sqrt{\frac{\sum (X_H - X_H)^2 + \sum (X_L - X_L)^2}{n(n-1)}}} \]

Where,

- \( \sum (X_H - X_H)^2 = \sum X_H^2 - \frac{(\sum X_H)^2}{n} \)
- \( \sum (X_L - X_L)^2 = \sum X_L^2 - \frac{(\sum X_L)^2}{n} \)

- \( \sum X_H^2 \) = Sum of squares of individual scores in high group.
- \( \sum X_L^2 \) = Sum of squares of individual scores in low group.
- \( (\sum X_H)^2 \) = Square of sum of individual scores in high group.
- \( (\sum X_L)^2 \) = Square of sum of individual scores in low group.
XH = Mean score on a given statement for the high group.
XL = Mean score on a given statement for the low group.
n = Number of subjects in each group.

(f) Final selection of items:

Only those statements having “t”-value greater than 1.68 were finally selected for their inclusion in attitude scale, other were rejected. Thus only 18 statements constituted the attitude scale (Appendix-V).

(g) Reliability:

Reliability of the scale so developed was calculated using split half method. Scale was divided into two equal halves taking even items under one sub-group and odd items under the other. The two subscales were then administered as in depends scales to 8 respondents and reliability coefficient was calculated. The value of the coefficient came to be 0.895 which indicated that the scale was highly reliable.

(h) Validity:

Validity of the scale was judged by jury opinion method. The scale was presented before 4 experts of poultry. They all rated the scale as highly valid for measuring the attitude of the poultry entrepreneurs.

(i) Administration:

The final scale consisted of 18 statements out of which 9 were positive and 9 were negative. The scale was to be administered for taking responses on 5-point continuum i.e.; Strongly agree, Agree, Undecided, Disagree and Strongly disagree. The pattern of scoring would be 5-score for strongly agree, 4 score for agree, 3 score for undecided, 2 score for disagree and 1 score for strongly disagree responses in case of positive statements. Contrarily, in case of negative statements, pattern of scoring would be 5 score for strongly disagree, 4 score for disagree, 3 for undecided, 2 for agree and 1 for strongly agree responses.

Section - VIII

This part of the schedule dealt with the identification of magnitude of constraints as perceived by the poultry farmers. Scrupulously, 58 obstacles under 8 different categories viz.; technical constraints, infrastructural constraints, economic constraints, marketing constraints, social constraints, input related constraints, power
related constraints and miscellaneous constraints, were identified through a thorough scanning of relevant literature and; discussions with field level staff and progressive farmers of the area. Efforts were made to ensure that no crucial constraints is left out of the initially prepared list.

The list so prepared was administered to 30 poultry farmers of the study area to make necessary modifications and for clarity of language. In light of the respondents’ responses to the items, they were slightly modified. The responses were to be taken on three points continuum i.e. Most severe, Severe and Never.

3.3 COLLECTION OF RESEARCH DATA:

Keeping in mind the purpose of study and subjects included in the sample, the researcher selected interview method as the most appropriate and practical technique for collecting the required data. The final standardized interview schedule (Annexure-I) acted as a stimulus and was administered to the sampled poultry farmers individually. Local dialect i.e. Dogri was used to ask the queries and responses were recorded accordingly by the researcher himself on the spot in the field situations. The interview method of data collection was preferred over other methods of data collection because of several added advantages. The interview technique provides a situation where face to face opportunity to explain the purpose and significance of the study and to clarify points, remove doubts and uncertainties and; motivate respondents to answer questions carefully and truthfully is possible. Another advantage of this method is that there is cent percent surety of obtaining information.

3.4 MEASUREMENT OF VARIABLES:

This part of the chapter concerns with the measurement of various independent and dependent variables included in the study.

3.4.1 Measurement of independent variables:

Age, education, caste, family type, family size, size of poultry unit, extension contact, experience, social participation etc. are the important personal characteristics of the respondents and also referred to as antecedent variables. The details of these variables with their respective measures are as under;

3.4.1.1 Age:

On the basis of the reported age, the respondents were grouped into three
categories using calculated mean age and standard deviation.

(i) Young age = Below 29 years
(ii) Middle age = Between 29-42 years
(iii) Old age = Above 42 years

3.4.1.2 Education

The respondents were grouped into 7 categories on the basis of their reported education.

(i) Illiterate = Cannot read and write
(ii) Primary = Upto class 6th
(iii) Middle = Upto class 8th
(iv) Matriculate = Upto class 10th
(v) Higher Secondary = Upto class 12th
(vi) Graduate = B.A./B.Sc./B.Sc (Ag.)
(vi) Post Graduate = M.A/M.Sc.

3.4.1.3 Caste:

Considering caste, respondents were grouped as:

(i) Scheduled caste
(ii) Scheduled tribe
(iii) Other Backward caste
(iv) General caste

3.4.1.4 Family Type:

Respondents were grouped into two categories depending upon the composition of the family i.e., joint and nuclear.

3.4.1.5 Family size:

The size of family of the respondents was categorized as follows:

Small = Below 5 members
Medium = 5-10 members
3.4.1.6 Size of poultry unit:

Three categories of the respondents were framed on the basis of possession of unit:

(i) Large farm = > 2000 birds housing capacity
(ii) Small farm = 1000-2000 birds housing capacity
(iii) Marginal farm = <1000 birds housing capacity

3.4.1.7 Extension contact:

Three categories on the basis of frequency of extension contact were made:

(i) Weak extension contact = 0-1 meet/month
(ii) Average extension contact = 2-3 meet/month
(iii) Strong extension contact = More than 4 meets/month

3.4.1.8 Experience:

Three categories were formed in the basis of number of years of engagement in poultry farming:

(i) Mild experience = <2 years
(ii) Optimum experience = 2-5 years
(iii) Rich experience = >5 years

3.4.1.9 Socio-economic status:

To measure the socio-economic status of the respondents, modified scale of Trivedi (used by Kothari, 1989) was used. Based on the mean socio-economic status and standard deviation of the respondents, they were stratified as:

(i) Low socio-economic status = <69.23 score
(ii) Medium socio-economic status = Between 69.23-102.42 score
(iii) High Socio-economic status = > 102.42 score

3.4.2 Measurement of dependent variables:

Dependent variables are those which for their values depend upon the values of independent variables i.e., these are the presumed effect of the cause. Dependent
variables in the present study are information input behaviour, information processing behaviour, entrepreneurial behaviour, knowledge adoption, attitude and constraints. These were measured as:

3.4.2.1 Measurement of information input behaviour:

To assess the information input behaviour of the poultry farmers, a location specific tool containing various sources that could be used for availing information was developed and standardized. (Appendix –II). The items of the tool were supplemented by assigning marks. The quantification was done on the basis of given responses i.e., Always, Sometimes and Never. The scores of 2, 1 and 0 were given to Always Sometimes and Never responses respectively. The information Input Behavior Index was calculated using the formula.

\[ IIB = \frac{\text{Obtained score for a source}}{\text{Maximum obtainable score}} \times 100 \]

Where IIB = Information Input Behaviour Index

3.4.2.2 Measurement of information processing behaviour:

To find out information processing behaviour of the poultry farmers, a particular tool for the study area was developed and later standardized (Appendix–III). The particular modes of processing information and responses there from were supplemented by assigning numerals. On the basis of given responses quantification was done. The scores 2, 1 and 0 were given to Always Sometimes and Never responses. Then information processing index was calculated using formula:

\[ IPI = \frac{\text{Obtained Information Processing score}}{\text{Maximum obtainable score}} \times 100 \]

Where IPI = Information Processing Index

3.4.2.3 Measurement of entrepreneurial behaviour:

In order to measure entrepreneurial behaviour of the poultry farmers, a suitable scale was developed consisting of 18 components of entrepreneurship. The overall scale was quantified for the responses Always, Sometimes and Never by 2, 1 and 0 scores respectively. Entrepreneurial Behaviour Index was calculated using formula:

\[ EBI = \frac{\text{Obtained score for dimension of entrepreneurship}}{\text{Maximum obtainable score}} \times 100 \]

Where EBI = Entrepreneurial Behaviour Index
3.4.2.4 Measurement of knowledge:

To determine extent of existing knowledge of the poultry farmers, a suitable knowledge test was developed and standardized particularly for the present study. The items under each knowledge category were assigned marks. One mark was assigned for each correct reply and zero to wrong reply or no reply. Therefore, possible knowledge score one could obtain was 89.

The knowledge index for each respondent was calculated using formula:

\[
K.I = \frac{K}{P} \times 100
\]

Where K.I = Knowledge Index.
K = Knowledge score obtained.
P = Maximum obtainable knowledge score.

3.4.2.5 Measurement of adoption:

To measure the extent of adoption, an index was specifically prepared containing 10 important major practices of poultry production. To convert responses of the respondents into numerical data, the adoption index so formulated was quantified. This quantification was done keeping in view responses i.e., Fully adopted, Partially adopted and Not adopted at all and; scores of 2, 1 and 0 were assigned to these responses respectively. The adoption index was calculated as:

\[
A.I. = \frac{A_o}{A_{MO}}
\]

Where A.I. = Adoption Index
A_o = Adoption score obtained
A_{MO} = Maximum obtainable adoption score

3.4.2.6 Measurement of attitude:

One of the objectives of the present study was to assess the attitude of the poultry farmers towards poultry enterprise. In this regard, an attitude scale using Likert technique of summated rating was constructed. The responses obtained were assigned scores as 5,4,3,2 and 1 to Strongly agree, Agree, Undecided, Disagree and Strongly disagree in case of positive statements. However, for negative items, pattern was scoring was reversed. Total score obtained by each respondent as well as for each statement was calculated. Mean Percent Score and frequency for each statement was calculated. To find out significance of difference between the attitude
of peripheral and distant farmers, Z-value was calculated.

3.4.2.8 Measurement of constraints:

To express the severity of bottlenecks perceived by the poultry farmers in quantitative manner, the instrument so framed was assigned score on a three point continuum on the basis of seriousness of response. Accordingly, scores 2, 1 and 0 were given to the most important, important and least important responses made to the constraint statements respectively by the respondents.

3.5 ANALYSIS OF DATA

The qualitative data gathered after conducting personal interviews with the respondents were converted into quantitative form. For this purpose, responses were transferred on telesheets, given scores assigned and converted into numerical form. Prior to applying statistical tests, their sum totals were made and tables were framed.

3.6 STATISTICAL MEASURES USED:

Application of various statistical measures is the very first necessity to arrive at specific conclusions. The statistical measures used in the present study are:

3.6.1 Percentage:

Simple comparisons were made on the basis of percentage.

3.6.2 Mean Score:

It was obtained from total score of each statement divided by total number of respondents.

3.6.3 Mean Percent Score (MPS):

Mean Percent Score was obtained by dividing total obtained score by maximum obtained score and multiplying it by 100.

\[
\text{MPS} = \frac{\text{Total obtained score}}{\text{Maximum obtainable score}} \times 100
\]

3.6.4 Arithmetic Mean:

It was obtained by dividing sum of values of observations by total number of observations.
\[ X = \frac{\sum X}{n} \]

Where, \( X \) = Arithmetic mean

\[ \sum X = X_1 + X_2 + X_3 + \ldots + X_n \]

\( n \) = Total number of observations

### 3.6.5 Z - Test:

This test was applied to find out significance of difference between information input behaviour, information processing behaviour, entrepreneurial behaviour, knowledge and adoption levels of peripheral and distant poultry farmers with respect to advocated poultry keeping practices. Formula used is as:

\[
Z = \frac{X_1 - X_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}} 
\]

where

\( X_1 \) = Mean of first sample

\( X_2 \) = Mean of second sample

\( S_1 \) = Standard deviation of first sample

\( S_2 \) = Standard deviation of second sample

\( n_1 \) = Size of first sample

\( n_2 \) = Size of second sample

Formula used for calculating standard deviation is:

\[
\text{S.D} = \sqrt{\frac{\sum X^2}{n} - \left(\frac{\sum X}{n}\right)^2}
\]

Where, \( \text{S.D} \) = Standard Deviation.

\( \sum X^2 \) = Sum of squares of observations.

\( (\sum X)^2 \) = Squares of sum of observations.

\( n \) = Number of observations

### 3.6.6 Analysis of variance:

Analysis of variance was used to test the significance of difference in attitude of the farmers between and within different blocks. Formula used for calculating F-value.
Where, $S_1 =$ Between column variance
$S_2 =$ Within column variance

$S_1 = \frac{SSC}{V_1}$

Where $SSC =$ Sum of squares between samples
$V_1 =$ Degree of freedom $= C - 1$

(C is the no. of samples in columns)

$S_2 = \frac{SSE}{V_2}$

Where $SSE =$ Sum of squares within samples
$V_2 =$ Degree of freedom

$= n - c$

$n =$ Number of samples

The level of significance at 1% was used.

3.6.7 Spearman rank order Correlation:

Through this method, individuals in a group can be arranged in order thereby assigning each individual a number which indicates its rank in the group. In the present investigation, it was used to find out degree of relationship between constraints of the two categories of the respondents, i.e., peripheral and distant poultry farmers. The formula used is:

$r_s = \frac{6 \sum D^2}{n (n^2 - 1)}$

Where $r_s =$ Rank coefficient of correlation
$D =$ Difference of ranks between paired items in two series
$N =$ Number of items

3.6.8 Karl Pearson Coefficient of Correlation:
In order to find out inter-relationship among various dimensions of entrepreneurship, between dimensions of the entrepreneurship and personal antecedents of the respondents, Karl Pearson Correlation Coefficient was calculated. It was calculated using the formula as:

\[
r = \frac{\sum XY - (\sum X)(\sum Y)}{\sqrt{\left(\sum X^2 - (\sum X)^2\right)/n} \cdot \sqrt{\left(\sum Y^2 - (\sum Y)^2\right)/n}}
\]

where \( r \) = Karl Pearson Correlation Coefficient

\( \sum X \) = Sum of observations of first sample

\( \sum Y \) = Sum of observations of second sample

\( \sum XY \) = Sum of products of observations of both the samples

\( \sum X^2 \) = Sum of squares of observations of first sample

\( \sum Y^2 \) = Sum of squares of observation of second sample

\( (\sum X)^2 \) = Square of sum of observations of first sample

\( (\sum Y)^2 \) = Square of sum of observations of second sample

\( n \) = Number of observations

3.6.9 Regression analysis:

It was used to find out the impact of distance of location of poultry farm from poultry demonstration center on the variables under study.

3.7 COMPUTER ANALYSIS

The results of statistical analysis were obtained by running the data on computer in Microsoft Excel Software.
CHAPTER - V
SUMMARY AND CONCLUSION

The inferences of the study so brought out pertaining to the objectives have been presented in summarized from and concluded in this chapter.

5.1 INTRODUCTION

Indian poultry industry has made a tremendous growth during the last 4-decades. In the world market, India ranks 5th in egg and 20th in meat production. During 1981-90, the developing countries have shown increased share in the world market from 32.9 percent to 64 percent against 54 percent by the developed nations. Almost similar trend was observed during 1991-2000. The growth of egg production from the first five years of the new millennium i.e. up to 2005 was estimated @3.1 percent in view of FAO projection trend.

The ability of poultry to adapt to various areas with varied agro-climatic conditions, low investment per unit along with rapid growth rate and short gestation period, has made poultry farming an ideal starting point. Poultry farming has proved that it can ensure economic and social rehabilitation of weaker sections of the society. This has been identified as a tool to fight three evils of our modern society, namely malnutrition, unemployment and supplementary income.

A considerable progress in manufacturing of wide range of housing, incubation, watering and vaccination equipments has been made in the recent years. The automation innovation on poultry shed ventilation and; environmentally controlled houses has widely demonstrated and revolutionized the poultry sector. In view of the development of industry, few automated processing plants have developed in the country. This is essential as the future might not tolerate the open-air dressed chicken for sale on roadside under contaminated conditions.

For various cultural reasons, the demand for eggs and poultry meat under goes fluctuation both seasonal and regional. The demand falls considerably during summer and festival seasons and sometimes price falls below the cost of production. The perishable nature of the product further compounds the problem and farmers are left with no alternative but to sell the product at a distress price.

Presently, the poultry scenario is witnessing the decade of processing, automation and integration with far ward and backward linkages. So far as marketing is concerned, two distinct market system easiest. An urban market
comprising people who demands and are willing to pay; and the suburban and rural market which fetches an affordable low price for the wholesome product marketing and pricing of poultry is in the hands of unorganized sector. There are wide variations in the production and consumption pattern of poultry in various regions. Under rural conditions, the consumption is still less. India’s earning from seaport of poultry production is very low. The major share of broiler export is in favor of USA, China and Holland. China has emerged as a potential exporter country from Asia along with Thailand. India poultry industry has no search itself about facilities for producing safe products for human consumption.

The reality is that more than 80 percent of the Indian population has not begun to derive the benefits from the poultry industry. Now the problem lies as how to approach the major virgin sector in the new ear. The extension works were in operation since early 1955 but with the little research support. In a planned manner to fill the required input gap, there is a need to judge the effectiveness of the existing practices and need for change in the approach. It is now gradually acknowledged that the main component needs to be addressed is to improve the existing efficiency and productivity to a desirable level.

As regards scientific achievements, considerable research work and development work has been done. But still a huge gap lies in the field potential and productivity level.

Indeed poultry industry of Jammu and Kashmir has also witnessed many ups and downs even since it began to transform itself onto a highly vibrant business from merely a backyard activity. Layer farming gained momentum up to early nineties but after that, most of the layer farmers winded up their profession of layer keeping and boiler farming began to spread its wings. Right from the time of its set up, broiler industry also suffered several jolts owing to increased cost of feed, frequent incidence of diseases and shrinking margins.

Kathua district has emerged as one of the prime poultry producing district of the state and holds a wide potential for increasing the worth of poultry products. Considerably, a significant number of registered and unregistered poultry farms are in operation in the said district. Despite all this production and productivity standards are not so encouraging, with all these factors and background in vision, the present investigation was undertaken with the following specific objectives:

5.2 METHODOLOGY

The present study was conducted in Kathua district of Jammu and Kashmir. The basis for selecting the district is that it had maximum poultry farms in operation.
Kathua district consists of eight blocks, of which four blocks viz; Kathua, Barnoti, Hiranagar and Ghagwal were selected based on maximum number of poultry farms functioning in these blocks. From each selected block, 30 distant and 30 peripheral poultry farmers were selected following simple random sampling technique there by constituting a sample of 240 poultry farmers (120 peripheral and 120 distant poultry farms)

5.3 CONSTRUCTION OF INSTRUMENT

An interview schedule was developed by researcher after thought scanning of the relevant literature and in consultation with the personal of department of animal husbandry, Jammu and Kashmir Govt., poultry experts private dealers and qua-fait poultry farmers of the study area. The schedule so developed was standardized by following proper standardization techniques and then quantified. Its validity and reliability were comprehensively judged for measuring the parameters under study accurately. In light of the initial responses, necessary modifications were made. The finally farmed schedule consisted of eight sections as mentioned below.

Section I:
This section of schedule dealt with background information and socio-economic state of the respondents.

Section II:
This section of schedule was developed to assess the information input behaviour of the poultry farmers.

Section III:
This section was utilized for assessing information processing behaviour of the poultry farmers.

Section IV:
This section of schedule dealt with measuring the entrepreneurial behaviour of the poultry farmers.

Section V:
This section of schedule had questions for assessing knowledge of recommended broiler keeping practices possessed by the respondents.
Section VI:
This section of schedule was used for measuring extent of adoption of broiler keeping practices by the poultry farmers.

Section VII:
This section had attitude scale for assessing attitude of the poultry farmers towards poultry enterprise.

Section VIII:
This section of schedule was designed to identify major constraints encountered by the respondents in poultry production.

5.4 DATA COLLECTION AND STATISTICAL ANALYSIS:
Data for the study were collected from the selected poultry farmers by employing face-to-face interview technique. Thereafter hypotheses were formulated and appropriate statistical tests were used to arrive at specific conclusions. The statistical measures used were percentage, Mean Percent Score, Mean, Standard Deviation, Z-test, Karl-Pearson Correlation Coefficient, Rank order Correlation Coefficient, Analysis of Variance, Regression analysis etc.

5.5 MAJOR FINDINGS
The main findings of the study are as follow:

5.5.1 Personal characteristics of the respondents:

5.5.1.1 Findings reveal that more than half of the respondents were of middle age followed by young and old age (Table 6).

5.5.1.2 Nearly one-fourth of the poultry farmers had education up to matric standard followed by one-fifth having education up to middle standard (Table 7).

5.5.1.3 Nearly one-fourth of the poultry farmers were graduates and post graduates. However, only 2 poultry farmers were illiterate (Table 7).

5.5.1.4 Majority of the poultry farmers belonged to the General Castes (52.50%) followed by Scheduled Castes (20.84%), Other Backward Castes (18.75%) and Scheduled Tribes (Table 8).
5.5.1.5 Majority of the poultry farmers had nuclear families (Table 9).

5.5.1.6 It was found that majority of the poultry farmers had small families followed by medium and large families (Table 10).

5.5.1.7 Half of the poultry farmers owned medium sized farms (50.42%) followed by small and large (Table 11).

5.5.1.8 It was found that majority of the respondents had weak extension contacts followed by average and strong contacts (Table 12).

5.5.1.9 Majority of the respondents had optimum experience in poultry farming followed by mild and rich experiences. (Table 13).

5.5.1.10 Majority of the respondents had medium level of social participation. However, one-fourth of them had low and just more than one-tenth had higher level of social participation (Table 14).

5.5.1.11 It was found that a fair majority of the respondents had high socio-economic status. Nearly, equal number of them had medium and low socio-economic status (Table 15).

5.5.2 Information input behaviour of the poultry farmers:

5.5.2.1 It has been found that Poultry Extension Officer was the prime source of availing information by majority of the poultry farmers from among the category of personal cosmopolite sources (Table 16).

5.5.2.2 Poultry feed supply agents and poultry pharmaceutical dealers were the major personal localite sources used by most of the poultry farmers (Table 16).

5.5.2.3 Newspaper came to be the main impersonal cosmopolite source being exploited by the poultry farmers for availing relevant information (Table 16).

5.5.2.4 It was found that there had been a significant difference between peripheral and distant poultry farmers with respect to use of personal cosmopolite
sources of information. Whereas, there was no such difference as regards the use of personal localite and impersonal cosmopolite sources of information was concerned (Table 17).

5.5.2.5 On overall basis, there was also a significant difference between peripheral and distant poultry farmers so far as their information input behaviour was concerned (Table 17).

5.5.3 Information processing behaviour of the poultry farmers:

5.5.3.1 Nearly one-fourth of the respondents had high degree of information processing followed by almost equal number of them (nearly one-fifth) having medium, low and very low level of information processing. Just more than 1/10th of the respondents had very high degree of information processing behaviour (Table 18).

5.5.3.2 It was found that the prime mode for processing information was the judgment based on economic feasibility of the information received. However, least followed mode was assessment of the received information by checking practical applicability taking trial (Table 19).

5.5.3.3 There was no difference between peripheral and distant poultry farmers with respect to their information processing pattern (Table 19).

5.5.4 Entrepreneurial behaviour of the poultry farmers:

5.5.4.1 It was found that majority of the poultry farmers had low level of entrepreneurship. It was followed by the poultry farmers possessing medium and high level of entrepreneurship (Table 20).

5.5.4.2 It is quite discouraging that only 16.67 percent of the poultry farmers had high degree of entrepreneurship (Table 20).

5.5.4.3 Majority of the respondents had a very degree of regularity and dedication towards poultry venture. However, the least possessed component was management ability (Table 21).
5.5.4.4 There was a significant difference in peripheral and distant poultry farmers with respect to their entrepreneurial behaviour (Table 21).

5.5.5 Interrelationship among various components of entrepreneurial behaviour and; between personal antecedents of the respondents and components of entrepreneurial behaviour:

5.5.5.1 There was a significant relationship among almost all major components of entrepreneurial behaviour (Table 22).

5.5.5.2 There was a significant relationship between most of the antecedent variables and components of entrepreneurial behaviour. However, only in few cases, the relationship was not found significant (Table 23).

5.5.6 Extent of knowledge of recommended poultry keeping practices possessed by the farmers:

5.5.6.1 Findings reveal that most of the poultry farmers had medium level of knowledge of recommended poultry keeping practices. This was followed by nearly 30 percent of the respondents with low and 20 percent of them with high level of knowledge (Table 24).

5.5.6.2 The respondents possessed high knowledge of reasons for gentle and quick unloading of chicks, ratio of dextrose and water to be offered to the brooding chicks, effect of dry litter on birds, temperature of poultry house during 1st week, ratio of poultry concentrate and ground maize, precautions while serving water to the chicks, floor space per bird required during first week, symptoms of Ranikhet, age at which broilers are vaccinated against Ranikhet and proper cleaning of shed before starting a lot (Table 25-34).

5.5.6.3 However, the poultry farmers possessed poor knowledge of optimum weight of day old chicks, time for removal of chick guards, percentage of moisture to be maintained in litter, height from the litter at which thermometer is fixed on wall, percentage of protein in poultry feed, distance at which chick drinkers are placed, distance at which chick drinkers are placed, feeder space per bird required during 1-4 days of age, symptoms of gumboro, mode of
administration of fowl-pox vaccine, and knowledge regarding spreading layer of lime or foot-pad soaked in phenyl at the door of the shed (Table 25-34).

5.5.6.4 Out of ten aspects of poultry keeping selected for assessing their knowledge level, the respondents were found possessing highest knowledge of watering practices followed by chick procurement and litter management. Whereas, the respondents possessed least knowledge regarding temperature regulation (Table 35).

5.5.6.5 On an average, there was more that 50 percent knowledge gap regarding the scientific rearing and management of poultry in the study area (Table 35).

5.5.6.6 There had not been found any difference in the peripheral and distant poultry farmers with regards their knowledge about poultry keeping practices (Table 35).

5.5.7 **Extent of adoption of poultry keeping practices by the respondents:**

5.5.7.1 Findings reveal that nearly equal number of respondents had medium and low levels of adoption. Whereas, nearly one-fifth of the poultry farmers had high level of adoption of advocated poultry keeping practices (Table 36).

5.5.7.2 The respondents were found having high level of adoption of the practices of releasing chicks from the boxes at the earliest, preparation of brooder house before the arrival of chicks, use of good quality litter material, maintaining the required temperature during 1st week of age, recommended number of chick feeders, taking proper precautions while serving water to the chicks, feeders of required height, vaccination of chicks at right time, proper disinfection of house before starting a lot, and keeping their-selves aware of prices of poultry products (Table 37-46).

5.5.7.3 However, the poultry farmers were found poorly adopting practices viz.; ensuring optimum weight of chicks during purchase, removing chick guard after prescribed days, slight hoeing of litter material at regular intervals, use of automatic temperature regulation devices, filling feeders to half level, proper cleaning the water before serving to birds, required floor space to the birds at different ages, sending dead birds for postmortem, layer of lime or phenyl
soaked footpad at the door of shed and keeping record of bird mortality (Table 37-46).

5.5.7.4 Out of ten aspects of poultry keeping selected for finding out their level of adoption, maximum adoption was found in case of watering practices followed by record keeping and marketing, brooding practices and chick procurement practices. However, least adoption was reported with respect to temperature regulation practices (Table 47).

5.5.7.5 There had not been found any difference in the peripheral and distant poultry farmers with regards to the adoption of advocated poultry keeping practices (Table 47).

5.5.7.6 About 50 percent technological gap in adoption of the recommended practices was observed (Table 47).

5.5.8 **Attitude of the farmers towards poultry enterprise:**

5.5.8.1 It was found that majority of the poultry farmers had the most favourable attitude towards poultry enterprise. It was followed by favourable and least favourable attitude of the poultry farmers towards the enterprise (Table 48).

5.5.8.2 There was a significant difference between and with blocks among the poultry farmers regarding their attitude towards poultry enterprise (Table 50).

5.5.9 **Constraints encountered by the respondents:**

5.5.9.1 It was been found that majority of the poultry farmers had faced high level of constraints. It was followed by medium and low level of constraints being faced by the poultry farmers in the study area (Table 51).

5.5.9.2 The major constraints perceived by the respondents in poultry farming were frequent incidence of disease, shortage of floor space, high cost of transportation, involvement of middlemen, consideration of poultry as a low grade vocation in the society, non-availability of chicks from local areas, long hours of power cuts and high degree of risk involved in the vocation (Table 52-59).
5.5.9.3 It was unveiled that major category of constraints perceived by the respondents was economic constraints followed by marketing and technical constraints. However, the least perceived constraints were social constraints (Table 60).

5.5.9.4 There was a significant correlation between constraints perceived by both the peripheral and distant poultry farmers (Table 60).

5.5.9.5 While analyzing overall constraints, 50 percent of the poultry farmers on an average were found confronted with constraints (Table 60).

5.5.10 Effect of distance of location of shed from poultry demonstration centers on variables under study:

5.5.10.1 It has been found that information input behaviour, entrepreneurial behaviour, attitude and constraints were significantly influenced by the distance of location of shed/farm from poultry demonstration centers (Table 61).

5.5.10.2 Whereas, information processing behaviour, knowledge and adoption were found free from the influence of distance (Table 61).

5.5.10.3 It has been found that all the variables under study put together were affected to an extent of 64 percent by the distance (Table 61).

5.5.10.4 There were rich and wide prospects of poultry in the future in study area.

5.6 SUGGESTIONS AND RECOMMENDATIONS:
Based on the findings of study, interaction with poultry farmers and department personnel during data collection, following recommendations are suggested for efficient management of poultry enterprise and promoting higher adoption of recommended poultry keeping practices by the poultry farmers with similar conditions:

5.6.1 Efforts should be made to increase the frequency of extension contacts of the farmers with the field level functionaries and middle level personnel of
department of poultry development or Animal Husbandry which would provide a platform for exchange of ideas and constraints; and solutions thereof between them.

5.6.2 Method demonstrations and on station trainings by department of Animal Husbandry should be conducted more frequently on the scientific housing and management of broilers.

5.6.3 Frequent fresher course modules for poultry feed suppliers, poultry pharmaceutical dealers and progressive poultry farmers should be developed and frequent trainings based on those modules should be conducted for them. This assumes great importance for development of poultry enterprise in the study area as these sources have emerged as prime personal localite sources being used to a great extend by the poultry farmers and thus they need to be properly strengthened thereby making full use of “principle of local leadership.”

5.6.4 Printed material on poultry farming practices should be prepared in simple language and preferably in local dialect so as to circulate them among the poultry farmers for their easy reference as and when needed.

5.6.5 Proper coverage to the poultry keeping practices and related technology should be given through local print media on weekly basis or twice a week as majority of the poultry farmers complained that local media does not or very rarely provide information about poultry production technology. Scientists of State Agriculture University should contribute the articles/write ups for the periodic columns.

5.6.6 Besides, special programmes/documentaries on brooding, health care, litter management, thermal requirement of poultry and other technological aspects of poultry keeping should be prepared and; telecasted and broadcasted through T.V. and Radio respectively. Scientists of State Agriculture University and experts of poultry from Department of Animal Husbandry should be invited by the concerned units of Doordarshan and Prasar Bharti to have live discussions on poultry farming practices.
5.6.7 Poultry farmers should be encouraged to assess the usefulness of the information received by checking practical applicability taking trial.

5.6.8 Proper training programmes for the poultry farmers should be organized at regular intervals on the application of management skills in poultry so that they could consider poultry as an enterprise and get inspirations to inculcate in them the needed attributes of an ideal entrepreneur.

5.6.9 Training programmes should also be aimed to improving the personal antecedents of the poultry farmers as these have great relevance with the entrepreneurship.

5.6.10 Poultry farmers should be properly made aware of the required weight of the day old chicks which are to be kept for a healthy stock. On the absence of knowledge of this practice, it is equally possible that farmers may procure below standard chicks which in turn may result is diseases etc.

5.6.11 Poultry farmers should be made aware of concept, purpose and use of chick guards and types of brooding systems.

5.6.12 Proper attention should be given to the aspect of temperature regulation while devising training programmes for them.

5.6.13 Poultry farmers should be trained in poultry feed preparation by themselves giving them proper knowledge of proportion of different feed ingredients.

5.6.14 Feed requirement of birds at different age group should be prepared in the form of charts or tables and these be distributed among the poultry farmers so that they can refer and use it when required.

5.6.15 Floor and feeder space required for different age group of birds should be regularly brought to the attention of poultry farmers.

5.6.16 Poultry farmers should be made aware of the control of internal as well as external practices of poultry birds and control thereof.
5.6.17 A hatchery should be established in the study area so that farmers could get the day old chicks directly without involving any middleman. This will also reduce cost of day old chicks thereby reducing the cost of production.

5.6.18 Poultry farmers should be encouraged to bring the dead birds for post-mortem so that outbreak of diseases may be prevented.

5.6.19 Poultry farmers should be made aware of modes of spread of different diseases and ways to prevent them including restrictions to the visits of outsiders inside the farm.

5.6.20 Since diseases in poultry cause great losses to the farmers, a diagnostic team should be constituted at block level headed by Poultry Extension Officer of the concerned block. Such team will visit village to village on regular basis to identify the spread or outbreak of major diseases and suggest control thereof.

5.6.21 Proper scientific housing structures should be designed for the small and medium sized farms for maximizing productivity.

5.6.22 The basic reasons for poor and irregular poultry production should be continuously searched out and brought to the attention of farmers on regular basis so that they could avoid these reasons and save themselves from losses.

5.6.23 Transportation facilities for the poultry farmers for taking their product to the market should be arranged at the lowest possible freight rates.

5.6.24 A proper marketing network needs to be established giving more emphasis on direct marketing minimizing the role of middlemen.

5.6.25 Chicks, feed and other input should be provided to the small farmers at subsidized rates so that they could stabilize their economic setup.

5.6.26 Banks should be convinced by the related authorities to grant loans to the needy poultry farmers on subsidy as well as at minimum rates of interest. Insurance scheme for poultry farmers on pilot basis should be introduced in
the study area. Further, the procedure for getting loans should be simplified to avoid unnecessary delays.

5.6.27 It was observed that a large number of people in the society consider poultry as a low grade vocation and they do not have awareness about balanced diet. The misconceptions prevailing in the minds of people should be removed by launching awareness drives in the area.

5.6.28 Demonstrations on use of non-electric energy sources should be conducted and farmers be encouraged to use such sources during power cuts or at critical periods.

5.6.29 Visits of the new farmers in general and all interested farmers in particular should be organized and conducted to the units of progressive farmers or the scientifically managed farms of adjoining Punjab state.

5.6.30 Poultry processing units in the district should be set up for value addition to the broilers in case of declined market.

5.6.31 Concerned department should make proper arrangements for forecasting market conditions and pass on the information to the poultry farmers.

5.6.32 Factual data on demand and supply of the poultry products should be collected for making further improvements in the industry.

5.6.33 Proper linkages should be established between producing, input supply, transportation, marketing and consumer centers.

In general, since certain anomalies and uncertainties do exist in the areas of input supplies such as day old chick, feeds, veterinary aids and drugs, transportation and marketing, major focus should be directed towards addressing them. With the Indian Poultry Industry taking to sophistication, need was felt for demonstrating the use of specialized automatic systems like environment cooling and gas brooding in the study area.
5.7 IMPLICATIONS OF THE STUDY:

5.7.1 Findings of the study will provide immense help to the administrators, policy makers and researchers to assess the present status of poultry production in the district.

5.7.2 It will provide immense help to State Department of Animal Husbandry and several other concerned agencies for further refinement of the technology in the light of results.

5.7.3 It will be of immense benefit for various NGOs, government departments and other line organizations and agencies working for transfer of technological know-how relevant to poultry for planning their future course of action.

5.7.4 The study will be helpful to extension agencies in bridging the gulf between technology available and technology adopted by the poultry farmers of the district.

5.8 SUGGESTIONS FOR FUTURE RESEARCH:

5.8.1 As the present study was limited to the particular area of one district. So, similar studies should be conducted in other areas of Jammu and Kashmir to highlight overall picture of the present status of poultry production in the state.

5.8.2 Benchmark surveys should be conducted to identify potential areas for poultry production in the state.

5.8.3 Studies regarding other related parameters which have not been covered under the present study should be conducted.

5.8.4 There is a need to study the factors responsible for successful coordination of poultry farmers with different extension and veterinary officers so as to prepare a comprehensive programme for poultry development and its implementation.


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