

Economics of Layer Production on Commercial Layer Farms with Special Reference to District Chakwal

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Abstract: In developing countries like Pakistan where population is growing at faster rate, the gap in the production of food especially of animal origin is widening year after year. At present around 66 percent Pakistanis are deficient in protein. This food and nutrition dilemma demands a special attention to overcome the existing deficiencies in the food and nutritional needs of the population with particular reference to protein deficiency and its availability form. Out of various sources of protein meat, poultry meat seems to offer much better prospect in this respect. Therefore, this research article attempts to investigate the economic aspect of layer business. The study is based on the primary data. Problems hampering the expansion of this business have also been explored to suggest policy recommendation.

Key Words: Economics, Layer Production, Cost Analysis, Gross Income Analysis

Introduction

Every community in the world is responsible to provide its residents adequate food and guarantee them freedom from hunger and malnutrition. It becomes especially important when about 15-20 % of the world population is still unable to obtain sufficient food to meet the minimum nutritional requirements for a healthy and productive life (WFP, 1998). The poor nutritional status is prevalent due to lack of sufficient energy and protein in the food.

In developing countries like Pakistan, where population is growing at a faster rate, the gap in production of food especially of animal origin is widening year after year. In the wake of national health standards, the problem of an acute animal source protein shortage seems still grave and distressing especially when it is compared with the protein intake of various developed countries like U.S.A., Canada, Germany, Japan, France and U.K., where consumption of protein is 79-95 grams per capita per day in their daily diet and of which 46-65 grams are protein of vegetable origin and the rest of animal origin (FAO, 1998).

At present 66 % Pakistanis are deficient in protein. The requirement of protein is 102.7 grams per head per day while at present available protein is 69.61 grams per head per day. The gap in requirement and availability of protein is 33.09 grams per head per day. The main source of protein in Pakistan are beef, mutton, fish, milk, poultry meat and eggs and their production is 986, 649,590, 25566,428 thousand tons and 8463 millions eggs respectively. Per capita per year availability of milk, beef, mutton, poultry meat and eggs are 124.5 kg, 7.5 kg, 2.9 kg and 44 units respectively (Govt. of Pakistan, 1999-2000).

The food and nutrition dilemma demands a special attention to overcome the existing deficiencies in the food and nutritional needs of the population, with particular references to protein deficiency and its availability form and animal sources. Out of various sources to overcome the animal protein gap, poultry meat seems to offer much better prospect in this

respect. It is capable of providing protein in terms of quality and quantity and can narrow down the animal protein supply gap in less possible time as compared to other sources of animal protein. Moreover, it is the most efficient and economic converter of plant protein to animal protein. In addition, poultry production represents the lowest demand for land and other production resources as compared with dairy and other sources of animal protein. It can be raised on land of any quality. Poultry sector has progressed quite rapidly and investment to the tune of about Rs. 32 billion has so far been made in this sector. About 3000 thousand nationals sustain on poultry sector as direct source of their income and employment. A total of 280 hatcheries, 150 feed mills, and 16850 commercial poultry farms have been established and during the year 1998-99, 11.7 million layers, 220 million broilers and 2.5 million breeder stock was maintained on these farms. The commercial poultry sector had produced 2680 million Table eggs and 240,000 tons of poultry meat during 1998-99 and had played a vital role in bridging the gap between supply and demand of animal proteins and keeping the prices of beef and mutton at reasonable level (Khan, 1999). The production of commercial and rural poultry products for 1999-2000 and 2000-2001 is given in the Table 1 and 2. Keeping in view the growing importance of this source of protein and the problems faced by this business regarding breeding stock, feed and marketing etc., which are causing hindrance in the smooth working of the poultry farms of different sizes and categories, this research article attempts to have an account of these issues with the following specific objectives as under.

- 1 To analyze the economics of layer production of commercial poultry farms.
- 2 To study difficulties faced by the farmers in poultry farming.
- 3 To suggest remedies to improve the existing situation of the poultry business.

Material and Methods

Primary data used in this study were collected in July

2000 from district Chakwal of Rawalpindi division, which is considered as representative district in commercial poultry farming in the Punjab. A preliminary survey of the farms revealed that there were 55 commercial layer farms in the Chakwal district. These farms were then classified into small, medium and large farms based on number of birds to draw a sample of farms from each category for further investigation.

Sampling was done through random sampling technique. More than 50% farms of the three categories (small, medium and large farm) were studied.

A close ended and pre-tested questionnaire covering different aspects of production and cost component was used for data collection. The questionnaires were filled in by personal interview with the sampled respondents. Calculated data were analyzed for the calculation of total cost, total revenue and profit. The components included in the analysis as part of total cost, total revenue and profit were as under.

Calculation of Total Cost

Land Rent: In case of those farms where the land was taken on lease; the actual rent paid was taken into account and where the land was owned by the proprietor, the rent was assessed on prevailing land rent in the locality.

Cost of Building, Furniture and Equipment: where building, furniture and equipment were hired, the actual rent paid was taken into account. In case where these were owned by the proprietors, the depreciation was calculated at 5 percent per year. On equipment and furniture, the depreciation rate varied from 10 to 40 percent based on life expectation. Interest rate was worked out at the rate of 14 percent per annum on the invested money as the cost of owned building, furniture and equipment and was added into depreciation.

Cost on Feed: Cost on feed was calculated by taking into account the actual cost. It also included the cost of transportation of feed to the farm.

Cost of Labour: The labour component included personal labour rendered for different operations, family labour, hired labour, both skilled or unskilled labour acquired on permanent or temporary basis. For the sake of calculation, actual payment made to the hired labour was taken in to account. More over, owners invariably did the management themselves; their wages were calculated in accordance with proportion the size of business and their opportunity wages.

Cost of Day Old Chicks: It included purchase price of day old chick plus the transportation charges.

Health and Sanitation Cost: Value of actual payment made for purchase of medicine, fumigants etc. constituted the cost of this item.

Marketing Cost: This item included the cost of marketing of inputs and outputs i.e. in the form of octroi charges, commission paid and packaging cost etc.

Miscellaneous Cost: This item included the cost on electricity, litter and other miscellaneous cost item etc.

Calculation of Total Revenue: Amount received from the sale of eggs, culled birds, dungs and the stock value of different items at the end of the year constituted the total revenue.

Profit: Profit was estimated by deducting total cost from total revenue. Furthermore, the profit percentage on

investment was calculated as ratio of profit to total investment.

Result and Discussion

In this section an attempt has been made to analyse the total, average and marginal costs, and revenues and profit and profit percentage on investment. Besides this, their relationship with each other at different scales of production is determined on small (1000-5000 birds), medium (5000-10000 birds) and large farms (above 10000). The cost, revenue and profit in respect of the above three categories have been compared with a view to find out the optimum scale of production and on the basis of this, suggestions have been extended which may be helpful in improving the poultry production and policy formation regarding this sector.

Economic Analysis of Small Farms: The farms having 1000 to 5000 birds were considered as small farms. The behavior of total cost, total revenue, total profit and profit percentage, average marginal cost, average marginal revenue, average marginal profit, average cost, average revenue and average profit regarding small farms are presented in Table 4.

The Table 4 reveals that the cost, revenue, profit and profit percentage on investment have a direct relationship with scale of production. This may be due to access to better marketing opportunities and the effect of economies of scale with the increase in the scale of production. More over with the increase in scale of production total cost increased but at a declining rate which is evident from average marginal cost given in the Table 4.

The decrease in the average marginal cost was the result of decrease in various cost components with increase in scale of production. The total cost increased at decreasing rate due to which the average marginal cost decreased and as a consequence it decreased average cost. The relationship between total cost, average marginal cost and average cost is summarized in Table 4.

As the farm size increased the total revenue increased at slightly increasing rate due to which the average marginal revenue increased. The relationship between gross, average and average marginal revenue is depicted in Table 4.

It was found that with the increase in scale of production the total profit increased at slightly increasing rate. It is because the total revenue increased at slightly increasing rate while total cost increased at declining rate. It resulted in increase in average marginal as well as average profit. The relationship can even be more evident by examining that as average marginal revenue increased and average marginal cost decreased, average marginal profit increased in the same manner the average profit increased (Table 4).

Economic Analysis of Medium Farms: The farmers having 5001 to 10000 birds were considered as medium farms. The Table 5 reveals that the cost, revenue, profit and profit percentage have direct relationship with scale of production. As regards the increase in total cost it was found to have increased at almost constant declining rate, which resulted in decrease in average marginal cost as well as average cost. The relationship between total,

average marginal and average cost is presented in Table 5. The total revenue increased at slightly increasing rate otherwise it was constant which resulted in increase in average marginal revenue as well as average revenue. Relationship between total, average and average marginal revenue is given in Table 5.

The analysis indicated that with increase in the scale of production the total profit increased at slightly increasing rate. It is because the total cost increased at slightly decreasing rate while total revenue increased at slightly increasing rate. This resulted in increasing in average marginal as well as average profit. The relationship can even be more explanatory that as average marginal revenue and average marginal cost, the former showing an increasing while the latter a decreasing pattern and as a consequence the average marginal profit indicated a increasing trend.

Economic Analysis of Large Farms: The farms having above 10000 birds were termed as large farms. The result of the above analysis revealed that with increase in the farms size total revenue and total cost increased and same pattern was followed by total profit. The relationship between total cost, total revenue and total profit and profit percentage on investment for various sizes of farms is shown in Table 6. It was further found that with increase in farm size, total revenue increased at slightly increasing rate. However this increasing trend of total revenue was slightly lower at large farms than at small and medium farms.

With increase in the farm size the total cost increased but at a decreasing rate which is evident from the behavior of marginal cost presented in the Table 6 and followed the same trend which was observed in the analysis of total revenue. The decrease in cost is attributed to the spread of various cost components with the increase in the scale of production. As a consequence the profit percentage on investment presented the same trend.

With the increase in farm size, the average, the average marginal cost and average cost decreased. The relationship between total, average marginal and average cost with varying number of birds at large farms is shown in Table 6. As the farm size increased total revenue, average marginal revenue and average revenue increased. As is depicted by this Table, the difference average marginal revenue and average revenue was getting narrower with the increase in scale of production. The total profit, average marginal profit and average profit increased at slightly increasing rate. It is because the total revenue increased at slightly increasing rate while total cost increased at slightly decreasing rate. This resulted in increase in average marginal as well as average profit.

Overall Economic Analysis of Layer Production on Commercial Layer Farms: In Table 7, the results arrived at in the combined analysis have been summarized.

Overall analysis showed that with the increase in the scale of production, total cost increased but at a slightly decreasing rate. As regards the total revenue, it increased with the increase in scale of production but at a slightly increasing rate. It resulted in an increase in total profit and profit percentage on investment with

increase in farm size.

Analysis by Cost Components: The analysis of cost components revealed that with the increase in the scale of production, the total cost also increased but at a decreasing rate. It can also be looked at from different angle that with the increase in the farm size, marginal cost started decreasing. Which is the consequence of the spread of different cost components over large number of birds with the increase in scale of production and are presented in Table 8.

A perusal of Table 8 revealed that expenditure on shed constituted 3.72 percent and equipment 1.52 percent of the total cost while (Hatter, 1983) calculated 3.45 percent and 1.26 percent of total expenditure on shed and equipment respectively. Cost arrived at in this regard in the present study is some what higher than that in Hatter (1983) which can be attributed to the increase in rate of interest on capital and considerably higher increase in the prices of real estates and building materials overtime.

In the present study average labour cost constituted 3.65 percent of total cost while Hatter (1983) found out that 4.22 percent of the average cost was spent on labour. The results of the present study are lower which may be due to the reason that Hatter (1983) carried out his study in an industrial city where labour wages were higher.

Research in hand found out that 81.20 percent of the total expenditure in feed while Hatter (1983) reported 72.37 percent being shared by feed. In case of the present study 4.78 percent of the total cost was found to have been spent on the purchase of day old chicks, while Hatter (1983) calculated 4.16 percent. The relative increase in cost of chicks is imputable mainly due to increase in demand of chicks, inflation or due to input costs, which as a consequence seems to have brought about a proportionate increase in the cost of this item.

As for as the marketing cost is concerned, 1.27 percent of the total expenditure was spent on marketing. Health and sanitation constituted 1.62 percent of total cost while 2.24 percent of the total expenditure were incurred on miscellaneous cost items which are almost similar to the results reported by (Hatter, 1983) and were 1.22, 3.87 and 2.24 percent respectively of the total cost on marketing, health and sanitation and on miscellaneous items.

Physical feed intake in layers is estimated at 47.38 kg / per bird, while (Hatter, 1983) calculated it to be 50.23 kg per bird. This decline in feed intake may be the result of on going research due to which the new breeds of layers may have started consuming less feed as compared with the older breeds.

Gross Income Analysis: This analysis revealed that 92.34 percent of the total revenue was received from eggs and the remaining 7.66 percent from meat and by products. Average number of eggs laid per bird per season on sampled, small, medium and large farms were found to be 275, 276, and 276 respectively. (Table 9) This similarity on all the farms addresses to the fact that there was uniformity amongst the different sizes of farms with regard to breed selection and production practices. On the overall a layer was estimated to have laid 275.67 eggs per annum. The results of present

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study are higher than the results of Hatter (1983) who estimated 219.998 eggs per layer per annum, which may be due to the introduction of new high yielding breeds. The results of the present study are also higher than the results of Qureshi (1982) estimated 220.00 eggs per layer respectively.

Problems Faced by Flock Owners: The sampled respondents were facing problems regarding the provision of credit, availability of properly balanced feed rations, timely supply of chicks, health services, labour shortage and problems faced in the marketing of poultry products (Table 10).

As regards the marketing of poultry products 63.13 percent of the sampled farmers reported that this enterprise was highly unorganized and was in the hands of a few traders who normally exploited the situation to their advantage. Qureshi (1982) and Hatter (1983) also found out the same. The respondents were further unanimous in mentioning the consumer preferences to eat less eggs during summer causes vast price fluctuations which in turn seriously hamper the growth and stability of this business especially due to lack of storage facilities.

As for as the provision of credit is concerned 41.15 percent respondents reported this problem. They were of

the view that the extent of credit presently being extended by the govt. was not sufficient to cope with the ever-increasing demand of poultry products. More over they mentioned about the lengthy procedure for obtaining institutional credit.

As regards the availability of balanced feed rations, 59.71 percent of the flock owners reported that there existed a sheer lack of scientifically and hygienically prepared feed in the country. Moreover feed produced was not only costly but also of substandard and differed in the elements of quality and homogeneity and in turn resulted in the poor growth of birds and low egg production as compared to international standard.

The results are in close agreement to Qureshi (1982) As Appreciable magnitude of losses due to inadequate poultry disease diagnostic facilities were reported by 17.78 percent of respondents. Majority of the respondents were small farm owners. Due to the smaller size of their business they were not in a position to hire the services of the veterinary doctors and trained persons.

As regards the supply of chicks. 25.40 percent of the respondents reported the shortage of day old chicks and the hatcheries could not maintain their timely supply during the peak demand period.

Table 1: Production of Commercial Poultry Products

Production	Units	1999-2000	2000-2001
Day old chicks	Million No's	222.3	235.0
Layers	-----do-----	13.9	14.3
Broilers	-----do-----	184.7	192.9
Breeding stock	-----do-----	5.2	5.2
Poultry Meat	"000" Ton's	183.1	190.9
Eggs	Million No's	3261.0	3336.0

Source: Govt. of Pakistan 2000-2001

Table 2: Production of Rural Poultry

Production	Units	1999-2000	1999-2000
Day old chicks	Million No's	21.7	21.3
Cocks and Cockerills	-----do-----	6.7	7.0
Layers	-----do-----	71.2	73.0

Source: Govt. of Pakistan 2000-2001

Table 3: Sampled Farm Percentage on the Basis of Size

Class	No. of birds	No. of farms	Farms sampled	Sampled farms %
Small	1000-5000	16	9	56.25
Medium	5001-10000	19	10	52.63
Large	>10000	20	11	55.00
Total		55	30	54.54

Table 4: Behavior of Various Costs, Revenues, Profits and Profit Percentage on Investment with Varying Number of Birds on Small Farms

# of Birds	Total Cost	Av. Marg. Cost	Average Cost	Total Revenue	Marginal Revenue	Average Revenue	Total Profit	Average Profit	Profit %age on Investment
1000	453070	-----	453.07	573405	-----	573.40	120335	120.34	26.56
1500	674638	443.13	449.75	863402	579.99	575.60	188764	125.84	27.98
2000	896171	443.07	448.08	1153562	580.32	576.78	257391	128.70	28.70
2500	1117243	442.14	446.89	1444037	580.95	577.61	326794	130.72	29.26
3000	1337882	441.29	445.96	1734897	581.72	578.30	397011	132.34	29.67
3500	1557294	438.82	444.16	2026012	582.23	578.86	468719	133.92	30.10
4000	1776663	438.74	444.16	2317537	583.05	579.38	540874	135.22	30.44
4500	1995083	436.84	443.35	2609502	583.93	579.89	614419	136.53	30.80
5000	2213403	436.64	442.68	2901782	584.56	580.36	688379	137.68	31.10

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Table 5: Behavior of Various Costs, Revenues, Profits and Profit Percentages on Investment with Varying Number of Birds on Medium Farms

# of Birds	Total Cost	Av. Marg. Cost	Average Cost	Total Revenue	Marginal Revenue	Average Revenue	Total Profit	Average Profit	Profit %age on Investment
5500	2430463	-----	441.90	3194772	-----	580.87	764309	138.96	31.45
6000	2646873	432.82	441.14	3487762	585.98	581.29	840889	140.15	31.77
6500	2862943	432.14	440.45	3781197	586.87	581.72	918254	141.27	32.07
7000	3078658	431.43	439.80	4074902	587.41	582.13	996244	142.32	32.36
7500	3294047	430.78	439.21	4368965	588.13	582.53	1074920	143.32	32.63
8000	3509403	430.56	438.67	4663432	588.93	582.93	1154029	144.25	32.88
8500	3724509	430.21	438.18	4958247	589.63	583.32	1233738	145.14	33.12
9000	3939469	429.92	437.72	5253472	590.45	583.72	1314003	146.00	33.35
9500	4154249	429.56	437.29	5548997	591.05	584.10	1394748	146.82	33.57
10000	4368168	429.38	436.81	5844932	591.87	584.49	1476764	147.68	33.81

Table 6: Behavior of Various Costs, Revenues, Profits and Profit Percentage on Investment with Varying Number of Birds on Large Farms

# of Birds	Total Cost	Av. Marg. Cost	Average Cost	Total Revenue	Marginal Revenue	Average Revenue	Total Profit	Average Profit	Profit %age on Investment
12000	5221968	-----	435.16	7029612	-----	585.80	1807644	150.64	34.62
14000	6073548	425.79	433.82	8215712	593.05	586.84	2142164	153.01	35.84
16000	6922528	424.79	432.65	9403632	593.96	587.73	2481104	155.07	35.84
18000	7770928	424.20	431.71	10593072	594.72	588.50	2822144	156.78	36.32
20000	8618168	423.62	430.90	11784152	595.54	589.21	3165984	158.30	36.74
22000	9464328	422.62	430.19	12976412	596.13	589.84	3512084	159.64	37.11
24000	10309568	422.20	429.56	14170192	596.89	590.42	3860624	160.86	37.45
26000	11153968	421.74	428.99	15365112	597.46	590.96	4211144	161.97	37.75
28000	11997448	421.18	428.48	16561232	598.06	591.47	4563784	162.99	38.04
30000	12839808	420.62	427.99	17759112	598.94	591.97	4919304	163.98	38.31

Table 7: Behavior of Various Costs, Revenues, Profit and Profit Percentage on Investment with Varying Number of Birds in the Overall Economic Analysis.

# of Birds	Total Cost	Av. Marg. Cost	Average Cost	Total Revenue	Marginal Revenue	Average Revenue	Total Profit	Average Profit	Profit %age on Investment
1000	453070	-----	453.07	573405	-----	573.40	120335	120.34	26.56
1500	674638	443.13	449.75	863402	579.99	575.60	188764	125.84	27.98
2500	1117243	442.14	446.89	1444037	580.95	577.61	326794	130.72	29.26
4000	1776663	438.74	444.16	2317537	583.05	579.38	540874	135.22	30.44
6000	2646873	432.82	441.14	3487762	585.98	581.29	840889	140.15	31.77
8500	3724509	430.21	438.18	4958247	589.63	583.32	1233738	145.14	33.12
10000	4368168	429.38	436.81	5844932	591.87	584.49	1476764	147.68	33.81
16000	6922528	424.97	432.65	9403632	593.96	587.73	2481104	155.07	35.84
20000	8618168	423.62	430.90	11784152	595.54	589.21	3165984	158.30	36.74
24000	10309568	422.20	429.56	14170192	596.89	590.42	3860624	160.86	37.45
30000	12839808	420.62	427.99	17759112	598.94	591.97	4919304	163.98	38.31

Table 8: Composition of Various Cost Components in the Total Cost at Different Scales of Production

Birds No.	Shed Rs./bird	Equipment Rs./bird	Chicks Rs./bird	Feed Rs./bird	Medicine Rs./bird	Labour Rs./bird	Marketing Rs./bird	Misc Rs./bird	Total Rs./bird
1000	16.85	6.89	21.66	367.89	7.34	16.54	5.75	10.15	453.07
2000	16.67	6.81	21.41	363.84	7.26	16.35	5.69	10.04	448.08
5000	16.46	6.73	21.16	359.46	7.17	16.16	5.62	9.92	442.68
10000	16.24	6.64	20.97	354.69	7.08	15.94	5.55	9.78	436.81
16000	15.09	6.58	20.68	351.29	7.01	15.79	5.49	9.69	432.62
24000	15.98	6.53	20.53	348.8	6.96	15.68	5.46	9.62	429.56
30000	15.92	6.50	20.48	347.53	6.63	15.62	5.44	9.59	427.99
%	3.72	1.52	4.78	81.20	1.62	3.65	1.27	2.24	100

Table 9: Mortality Rate, Feed Intake, Eggs Production Revenue from Eggs and Revenue from Meat and Byproducts at Different Farms Sizes

	Small	Medium	Large	Average
Mortality (%)	5.49	5.48	5.46	5.477
Feed Intake (Kg / bird)	49.16	46.72	46.23	47.38
Eggs laid (No/ bird)	275	276	276	275.67
Revenue from eggs (%)	92.11	92.27	92.63	92.34
Revenue from meat & byproducts (%)	7.89	7.73	7.37	7.66

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Table 10: Problems Confronted by Flock Owners at Different Sizes of Farms

Farm Sizes	Financial	(%)Feed	(%)Non availability of Chicks	Marketing(%)	Inadequate Health Facilities
Small	38.59	62.09	25.35	65.54	22.32
Medium	41.24	60.31	26.43	62.34	16.56
Large	43.62	56.72	24.41	61.52	14.42
Average	41.15	59.71	25.40	63.13	17.78

Conclusion

The present research has provided ample evidence to the fact that the total cost increased at a decreasing rate where as the total revenue increased at an increasing rate while the profit increased with the increase in scale of production. It signifies that there exists scope of expansion of this enterprise. Encouragement of farm owners in respect of business along with the provision of credit facilities seems to be the urgent need of the time. Market uncertainty and wide price fluctuations are found to be posing the serious problems to the poultry farmers especially because of the perishable nature of the produce. Therefore marketing of poultry should be regulated, if poultry has at all to exist as a commercial enterprise in the country. Establishment of processing plants, cold storage facilities, customer education for the removal of prejudice regarding egg consumption during less cold season and practice of grading at producer's level should also be encouraged. Price information on the basis of grades and standards should also be collected and disseminated through electronic and print media.

The producers were found confronting the problem of shortage of balanced and economic rations. It is therefore suggested that for the purpose of maintaining proper supply level of scientific and economic rations in the country, the govt. research institute must lay intensified emphasis on research in this regard. Moreover as private agencies continue to produce poultry feeds, which are often substandard, strict quality control by the government thus needs to be exercised. Besides the encouragement of feed plants in private sector along with the facilities for local production of feed ingredients, import of duty free machinery and provision of credit can go a long way in developing the poultry on strong footings.

It was found that the hatcheries could not maintain the timely supply of day old chicks in the peak demand periods. The capacity of breeding farms to maintain grand parent stocks and production of day old chicks by hatcheries thus need to be expanded for meeting the ever increasing demand.

In view of economic losses due to mortality of birds, the poultry business remains exposed to the danger of various magnitudes of diseases, which sometimes amounts to the total failure to the business. It is therefore suggested that poultry disease diagnostic services, mobile clinics and local production of vaccines may also be brought under consideration in national development plans.

The sampled farmers were generally found lacking in technical knowledge regarding poultry production. It thus clearly necessitates organizing training programmes and strengthening of poultry extension through modern methods. In the long run high yielding breeds should be introduced and disseminated by government through poultry production departments at commercial poultry farm level.

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