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***PERFORMANCE OF A RURAL POULTRY DEVELOPMENT
PROJECT IN MYMENSINGH****

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ABSTRACT

The field performance of a rural poultry development project in Mymensingh has been examined through analysis of survey data collected from 124 poultry keepers. There has been marked improvement in both meat and egg production in the selected areas covered by the project. Such results have been obtained by crossing local hens with exotic cocks and reducing mortality by ensuring proper veterinary services. Some lapses in the functioning of the project in terms of feeding, and vaccination were recorded and remedial measures suggested.

I. INTRODUCTION

Protein of livestock origin is an essential element of daily human food. The estimated availability of protein of livestock origin in the country is as low as 4.0 gms per head per day as against the desirable requirement of about 20.0 gms (Bangladesh 1980). Thus it is evident that there is considerable shortage of animal protein supply in the country.

Poultry constitutes an important component of animal protein supply. Its importance is likely to increase further compared to that of other sources of protein like cattle which competes with cereal crops for grazing land and fish which requires adequate water resources for cultivation. Available data indicate that while per capita consumption of meat and fish is gradually decreasing, chicken consumption per capita shows some increasing trend (Jabber and Green 1983).

*This note has been derived from an evaluation report prepared for the World University Service. For details, see (Talukder and Miah 1982).

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Rearing of poultry still remains a scavenger husbandry practice in rural Bangladesh. It is believed that poultry production can be expanded further in the country by making use of surplus family labour, backyards of dwelling houses and household wastes including residues of grains. However, the major problems of the present pattern of poultry keeping are low genetic potential of local birds and high rate of mortality due to inadequate veterinary services. Attempts are now-a-days being made to improve poultry production by upgrading breed, feed and veterinary services. Besides government efforts, a number of aid agencies in collaboration with various local institutions and organizations are trying to promote poultry production by offering technical advisory services and financial aids. The World University Service (WUS) and UNICEF in collaboration with the Poultry Science Department of the Bangladesh Agricultural University (BAU), Mymensingh, have been engaged in promoting poultry production in some rural areas by distributing breeding cocks and ensuring proper veterinary services. In this note, an evaluation of performance of the WUS sponsored project is presented.

A brief description of the project along with its objectives is presented in section II. In section III, sources of data are described. Some observations on field performance of the project are presented in section IV. Summary of results and conclusions are given in section V.

II. DESCRIPTION OF THE PROJECT

The project started functioning in April 1976 in 70 villages covering an area of about 100 sq. Kilometers in Kotwali and Trishal thanas of Mymensingh district. These 70 villages were divided into 14 blocks each covering 5 to 6 villages. For each block a Field Assistant was appointed to perform field operations including regular vaccination of birds and giving necessary advice to the poultry keepers.

The overall supervision of the project is done by the local committee of the WUS. There is also a project committee consisting of staff members and students of the Department of Poultry science, BAU Mymensingh. The project is headed by a Project Director who is an Associate Professor of the Department of poultry science and works on part-time basis. The Poultry Extension Specialist of the Department of Poultry Science also works on part-time basis in the project. He supervises and ensures execution of field operations through the Field Assistants who reside in the villages.

The two broad and long term objectives of the project were (WUS 1979) :

- (1) To increase rural small scale poultry production in terms of both meat and eggs so that a steady source of additional income will be available to the marginal income families.

- (2) To ensure that more poultry meat and eggs will be available for consumption by the rural small poultry keepers, thus increasing the protein content of their daily diet.

The strategies adopted to accomplish the above objectives were :

- (i) Controlling poultry diseases by launching vaccination programme ;
- (ii) training of selected villagers in the simple diagnosis of poultry diseases and their treatment ;
- (iii) cross breeding of local birds with exotic breeds, and,
- (iv) replacing the existing flocks with cross-bred flocks.

III. SOURCES OF DATA

The poultry development project completed its 5 years of operation in 1981. In order to assess the performance of the project, an evaluation was done in early 1982. As a means of examining the performance on an empirical basis, a sample survey was conducted to collect relevant information from the participating households. A two stage purposive sampling procedure was adopted.

From the 70 villages covered by the project, 7 villages namely Maizbari, Kismat, Bhabakhali, Sutiakhali, Dulalbari, Pangbagra and Singrail were purposively selected on the basis of their easy accessibility and having concentration of breeding cocks which were given to the villagers. From each of these selected villages 30 percent of households which were given breeding cocks were selected at random. This gave a total of 124 households as a sample for the survey. A survey schedule was prepared on the basis of reconnaissance survey which was done earlier. The schedule consisted of items of information on certain socio-economic aspects of the cock recipient families, inventory of poultry birds by time profile, production and disposal of birds, incidence of poultry diseases, nature and extent of preventive measures taken against diseases, death and/or loss of birds and other aspects of poultry raising.

IV. MAJOR FINDINGS

Socio-economic Aspects of the Sample Households

Data were collected on two socio-economic attributes viz. size of farm and size of income. The size distribution of farms in terms of both owned and operated area is

presented in Table 1. Out of 124 farm households only 4 were landless. In terms of owned area, 52 farms representing 43.34 percent had less than 2.50 acres of land. If farms having land area between 2.50 to 5.00 acres and those having above 5.00 acres are considered as medium and large farms respectively, they together constituted about 57 percent of all farms. The size distribution of operated area was almost the same as that of owned area.

TABLE 1. DISTRIBUTION OF FARMS ACCORDING TO SIZE OF OWNED AND OPERATED AREA

Size groups (acres)	Owned			Operated		
	Average Size (acres)	No. of farms	Percent	Average size (acres)	No. of farms	Percent
Less than 2.50	1.34	52	43.34	1.55	54	43.55
2.50—5.00	3.65	48	40.00	3.60	50	40.32
Above 5.00	8.90	20	16.66	7.84	20	16.23
All sizes	3.46	120	100.00	3.29	124	100.00

Source : Field survey 1982.

Farm households were also classified according to size of income. It can be seen in Table 2 that only 12 percent of the farm families had their income below Tk. 5000 per annum. In addition to the fact that majority of farm households had income above Tk. 25,000, average income of all the sample farms was Taka 22,028 per annum which can be considered as a high income compared to the average incomes of the sample as a whole.

This might be indicative of the fact that in distributing breeding cocks low-income people were not given priority. This fact was acknowledged by the project personnel and the reasons they put forward were as follows :

While distributing cocks, it was to be ensured that the prospective recipients keep a reasonable number of hens, a condition which relatively low-income people could not

always satisfy. Furthermore, since the cocks were given at a very low price compared to the market price of a similar bird, the poor people who did not habitually keep enough birds, could not resist the temptation of selling the cocks in the local market and earning a margin which was about three times the purchase price of the bird,

TABLE 2. DISTRIBUTION OF FARMS BY SIZE OF INCOME

Size of income (Taka)	Average income (Taka)	No. of farms	Percent of farms
Below 5,000	2,644.33	15	12.09
5,000—10,000	6,635.42	19	15.32
10,001—15,000	12,598.55	17	13.72
15,001—20,000	17,622.38	21	16.93
20,001—25,000	22,503.46	23	18.55
Above 25,000	42,439.65	29	23.39
All sizes	22,028.11	124	100.00

Source : Field Survey 1982.

This may not, however, have constrained the overall objective of spreading cross birds in the area because the cocks, like other local birds, were allowed to scavenge or otherwise move around and as such they were available for mating with all the local hens.

Change in Size of Flock

Size of flock during a full year was taken as a flow variable and the gross flock size consisted of number of birds at the beginning of the year, number of birds born and bought during the year. Number of birds died and/or lost was deducted from gross flock size

to arrive at the net flock size. It will be evident from Table 3 that both gross and net flock sizes consistently increased from preproject to project years. Birds died and/or lost actually represented mortality of birds. It appears from Table 3 that mortality decreased from 40.29 per cent in the preproject year to 15.62 percent and 11.85 per cent in the project years 1980 and 1981 respectively.

TABLE 3. CHANGE IN FLOCK SIZE FROM PRE-PROJECT TO PROJECT YEARS

Years	Number of birds per household						Died as % of gross flock size $7 = \frac{5 \times 100}{4}$
	Opening stock	Born	Bought	Gross flock size $4 = 1 + 2 + 3$	Died	Net flock size $6 = 5 - 4$	
	1	2	3	4	5	6	
Pre-project	20.65	45.34	2.99	68.98	27.79	41.19	40.29
Project—1980	26.57	53.66	5.06	85.29	13.32	71.97	15.62
Project—1981	36.45	53.71	6.33	96.39	11.42	84.97	11.85

a. Includes birds lifted by predator and/or otherwise lost.

Source : Field survey 1982.

As regards percent of change in gross and net flock sizes from pre-project to project years, it can be seen from Table 4 that gross flock size increased by 23.64 and 39.75 percent in project years 1980 and 1981 respectively over pre-project year. The increase in the net flock size was still higher being 74.72 and 106 percent in project years 1980 and 1981 respectively over pre-project year. The larger increase in the net flock size may be attributed to reduction in mortality of birds from pre-project to project years.

Along with size, composition of the flock also changed. Cross birds as a proportion of the total flock size increased from 1.4 percent in the pre-project year to 89.7 percent in the project year 1980 and 94.4 percent in 1981 (Table 5). Thus there was a rapid replacement of local birds with cross birds in the area.

TABLE 4. INDICES OF CHANGE IN GROSS AND NET FLOCK SIZES FROM PRE-PROJECT TO PROJECT YEARS

Years	Gross flock size		Net flock size	
	Number	Index	Number	Index
Pre-project	68.98	100.00	41.19	100.00
Project-1980	85.29	123.64	71.97	174.72
Project-1981	96.39	139.75	84.97	206.28

Source : Field survey 1982

TABLE 5. CHANGES IN THE COMPOSITION OF FLOCK FROM PRE-PROJECT TO PROJECT YEARS

Years	Percent of birds		
	Local	Cross	Total
Pre-project	98.60	1.40	100.00
Project-1980	10.27	89.73	100.00
Project-1981	5.56	94.44	100.00

Source : Field survey 1982

Disposal of birds consisted of three elements namely birds sold, eaten and those remaining as closing stock. It appears from Table 6 that number of birds sold almost doubled from pre-project year to project year 1981. Number of birds eaten also increased by more than 60 per cent from pre-project to project year 1981. Thus the figures represented substantial increase in both consumption and sale of birds, the two major objectives of the project.

TABLE 6. DISPOSAL OF NET FLOCK SIZE DURING PRE-PROJECT AND PROJECT YEARS

Type of disposal	Pre-project year.		Project year 1980		Project year 1981	
	No. of birds	%	No. of birds	%	No. of birds	%
Sold	12.25	29.74	18.44	25.62	24.05	28.30
Eaten	11.32	27.48	17.08	23.73	18.58	21.87
Closing stock	17.62	42.78	36.45	50.65	42.34	49.83
Total	41.19	100.00	71.91	100.00	88.97	100.00

Source : Field Survey 1982

Death of Birds by Causes

Analysis on death of birds by causes revealed some interesting results. The major causes of death were identified as diseases like Ranikhet, Fowl Pox, Cholera, Coccidiosis and lifting of birds by wild animals. It may be mentioned that some of the diseases could not be identified by the respondents or the enumerators. However, the causes of death were recorded in terms of symptoms and the actual diagnoses were done by consulting the poultry experts. It would be evident from Table 7 that in the pre-project year, Ranikhet disease and lifting by wild animals were the two major causes of death and/or loss of birds accounting for 51.35 and 42.28 percent respectively of all birds died and/or lost during the year.

In addition to the fact that death or loss itself dropped sharply in the subsequent project years, proportion of birds dying from different causes also changed substantially. Ranikhet disease, which accounted for more than 50 percent death of birds in the pre-project year, caused only 3.45 and 1.58 percent death of birds in the project years 1980 and 1981 respectively. Lifting of birds by wild animals/birds emerged as the single major cause of death or loss of birds accounting for 74.92 and 82.83 percent loss of birds in the years 1980 and 1981 respectively (Table 7).

TABLE 7. DEATH OF BIRDS BY CAUSES

Causes of Death	Pre-project		Project			
	No.	%	1980		1981	
			No.	%	No.	%
Bankrot	14.27	51.35	0.46	3.45	0.18	1.58
Fowl Pox	0.58	2.08	1.07	8.03	0.67	5.87
Fowl Cholera	0.76	2.74	1.13	8.84	0.58	5.08
Coccidiosis	0.43	1.55	0.68	5.12	0.53	4.64
Lifting by predators	11.75	42.28	9.98	74.92	9.46	82.83
All causes	27.79	100.00	13.32	100.00	11.42	100.00

Sources : Field survey 1982

Egg and Meat Production of Local and Cross Birds

Information on comparative performance of local and cross birds in terms of egg and meat production were collected and analysed. Frequency of laying in a year was 4.13 for cross-bred birds compared to 2.85 for local birds (Table 8). In percentage term, this was 45 percent higher for cross over local birds. Number of eggs per laying was also 53 percent higher for the cross over local birds. Consequently, annual egg production rate of cross-bred birds was more than double than that of local birds. The average live-weight of a cross bird was also 60 percent more than that of a local bird (Table 8).

Attempts were made to determine the difference in size and weight of egg of local and cross birds ; but it could not be exactly done under field conditions. However, visual examination revealed that the egg size of cross birds was bigger than that of local birds. Such difference was reflected in the price farmers received for the two types of eggs. The average price of four eggs (a local unit called hali) of cross bird was Taka 3.50 compared to average price of Taka 3.00 for four eggs of local birds. There was little perceptible

TABLE 8. EGG AND MEAT PRODUCTION OF LOCAL AND CROSS BIRDS

Particulars	Average per bird		
	Local	Cross	Excess of of cross over local in %
Times of laying per year	2.85	4.85	44.91
Eggs per laying	15.92	24.38	53.14
Total annual eggs	45.37	100.69	121.93
Live-weight (Kg.)	1.25	1.00	60.00

difference in the level and practice of feeding between the local and cross birds and as such any increment in the egg and meat production may not be attributed to improved feeding of the cross birds.

However, feed was reported to be a problem for almost all farmers. Most farmers fully depended on home supplied feed while others purchased some feed as supplement to what they supplied from home. No farmer was found to raise poultry based on commercial feed. However, the farmers expressed their willingness to purchase commercial poultry feed if available at reasonably low price.

Some Shortcomings

A number of shortcomings in the functioning of the project were noticed. Although the field assistants were supposed to contact the farmers on regular and periodic basis for vaccination and other advisory service, in some cases farmers reported lesser availability of their services than what was expected from them. In most cases it was the farmers who informed the field assistants about the time of vaccination. On some occasions, vaccinations were delayed or could not be done at all due to untimely or non-availability of vaccines. The field assistants' views were also taken into consideration. A field assistant had to cover 5-6 villages scattered over wider distances and as such it was difficult to render proper services to the poultry growers particularly in absence of any vehicle. Moreover, they considered that the remuneration given to them were not sufficient to give adequate incentive to work hard. Occasional non-availability of vaccines and other medicines were also responsible for their relatively poor performance.

Another shortcoming relates to the planning of the project itself. Improved feeding of birds was not considered as means of achieving the desired objectives. In most cases birds collected their feed by scavenging and only rice and/or wheat bran was given as a supplement. This is sure to have resulted in lower output of birds than what could otherwise be. Moreover, the relatively higher genetic potential for production of the cross birds is likely to degenerate in future in the absence of proper feeding. Such apprehension was reflected in the poor health conditions of the breeding cocks which were initially distributed by the project authority.

One aspect of functioning of the project was stated to be maintenance of "family card" for recording data on various aspects of poultry keeping. The investigation revealed that farmers were not in possession of any such card. The project personnel explained that the need for maintaining family card ceased to exist and as such those were withdrawn. This could not, however, be taken as a valid explanation. It is essential that some kind of record book, be it the family card or others, should be maintained for recording data by or on behalf of the farmers. Such practice of record keeping, in addition to providing better control of the current activities, will help improve planning for future operations in respect of poultry keeping.

The results of the study should be interpreted with some degree of caution. As has been mentioned in the data source, the villages were selected purposively on the basis of their easy accessibility and having concentration of the distributed breeding cocks. Thus there might have been chances of the villages having relatively better performance being included in the sample. Moreover, any valid generalization will depend on the performance of the birds of the subsequent generations.

V. SUMMARY AND CONCLUSIONS

The level of performance of the Rural Poultry Development Project Mymensingh was evaluated by making a sample survey in early 1982. Some socio-economic aspects of the cock recipient families indicated that more than 50 percent families had 2.50 or more acres of land. The average income of the sample families was more than Taka 20,000 per annum. This might be indicative of the fact that in distributing breeding cocks low income people were not given priority.

As regards change in flock size, it was observed that both gross and net flock sizes consistently increased from preproject to project years. Disposal patterns of birds indicated that both consumption and sale of birds increased substantially from preproject to project years. Mortality of birds decreased substantially from 40.29 percent in the pre-project year to 11.83 percent in the project year 1981. As regards comparative

performance of local and cross birds in respect of meat and egg production, it was observed that both frequency of laying and number of eggs per laying were substantially higher for cross over local birds. Annual egg production of a cross bird was more than double than that of a local bird. However, a number of shortcomings in the functioning of the project were noticed. The farmers reported lesser availability of the services of field assistants. The field assistants, on the other hand, reported some physical and financial constraints in rendering their services. Although the local flocks were rapidly being replaced by cross bred birds, little progress has been made to develop improved feeding practices which would increase egg and meat production to still higher levels. One aspect of the functioning of the project was stated to be maintenance of "family card" for recording data on various aspects of poultry keeping. Actual observation, however, revealed that no such card was being maintained.

In spite of all these limitations, the overall impact of the project in the area can be considered as encouraging. Due to the availability of vaccination services and consequent reduction in mortality rates, many poor and landless families who did not hitherto keep any poultry birds, have been encouraged to keep a sizeable number of birds. Since a cross-bred bird fetches higher price than a local bird of the same age and also the egg price of a cross bird is higher than that of a local bird, farmers are increasingly replacing their local birds with cross birds. Thus the project seems to be attaining its two-fold objectives of increasing egg and meat production in the areas and ensuring supplementary income to the farmers to a considerable extent. Similar projects may be undertaken covering more geographical areas of the country with special emphasis on ensuring adoption of poultry keeping as a supplementary enterprise by the poor and landless farmers.

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