

MINISTRY OF STATE FARMS DEVELOPMENT  
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MINISTRY OF STATE FARMS DEVELOPMENT

RESEARCH AND ADVISORY DEPARTMENT

PRODUCTIVE PERFORMANCE OF POULTRY

ON STATE FARMS - 1983 - 1986

by

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## A C K N O W L E D G E M E N T S

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## S U M M A R Y

Analysis was carried out on productive performance for poultry maintained for egg and meat production. Data covered the period of 1983 to 1986 and the birds were kept at different state poultry farms namely Addis Ababa & Debre Zeit.

Overall at state poultry farms, percent infertile eggs ranged from 9.79 to 11.04, percentage hatchability out of fertile eggs from 70.72 to 86.14, percentage hatchability on total eggs set basis from 62.92 to 77.71, percent embryonic death from 13.86 to 29.28, percent day-old chick mortality from 3.23 to 3.69, baby - chick production per year from 327,988 to 495,182, table-egg production per year from 299,625 dozen to 328,862 dozen at Dembi and from 662,362 dozen to 757.626 dozen at shola, feed consumption per commercial layer / day and broiler/day from 83.3 gm to 85.5 gm at Dembi, from 85.2 gm to 105.2 gm at shola and from 31.0 gm to 43.0 gm at Lemlem respectively, market-egg production per bird/year from 138 to 147 at Dembi and from 190 to 199 at shola, percent breakage of eggs from 1.2 to 2.2 at Dembi and from 1.5 to 2.0 at shola, percent commercial layer mortality from 14.2 to 18.4 at Dembi and from 16.0 to 22.4 at shola, percentage culling of commercial layer from 27.8 to 40.6 at Dembi, and from 12.8 to 95.8 at shola, age at first egg from 6.1 to 6.5 at Dembi and from 6.1

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to 6.5 at shola, broiler meat production per year from 61,593 kg to 78,538 kg, sale of live broilers from 1942 to 13,703, percent broiler mortality from 27.0 to 33.6, percent pullet (egg type) mortality from 1 to 13.8, percent pullet (meat type) mortality from 7.1 to 32.2, meat type hatching egg production per year from 200,312 to 340,578, feed consumption per breeder (meat type)/year from 87 gm to 146 gm. egg production per breeder (meat type)/year from 54 to 102, percent layer (meat type) mortality per year from 26.4 to 46.8, egg type hatching egg production per year from 456,370 to 996,910, feed consumption per breeder (Egg type)/year from 105 gm to 144 gm, egg production per breeder (Egg type)/year from 147 to 153, percent layer (Egg type) mortality per year from 41.9 to 94.6, male to female ratio of meat & egg types from 1:9 and 1:9 to 1:15 and 1:9 respectively.

## INTRODUCTION

The poultry population in Ethiopia is estimated to be approximately 53.5 million of which only 0.6% comprise improved modern breeds (1). The greater number of the improved chickens (90%) are maintained by the Poultry Development & Feed Processing Enterprise (PDFPE) of the Ministry of State Farms Development (MSFD).

Poultry keeping is an under developed industry in our country. The birds are still kept in small units under primitive conditions of housing, feeding and management. The birds are poor producers of meat and egg. The low productivity of these birds is due to their low genetic potential.

To improve their genetic make-up poultry up-grading work had been undertaken in the country since 1950 (G.C.) by Ambo and Jimma Agricultural High Schools, Alemaya College of Agriculture, Shola Poultry Farm, Arsi Rural Development Unit (ARDU), formerly known as Cehilalo Agricultural Development Unit (CADU), Wolaita Agricultural Development Unit (WADU) and Debre Zeit Agricultural Research Station.

The poultry industry of the Ministry of State Farms Development render services to the residents of Addis Abeba and its environs by converting cereal grains and other products into eggs and poultry meat.

The poultry and poultry products produced by Shola, Dembi and Lemlem farms which are run by Poultry Development & Feed Processing Enterprise is playing a role in small measure in providing nutritional benefit for growing children, housewives, industrial workers, etc. It provides consumers with food products of superior quality at a reasonable cost.

The objective of this report is to highlight on the productive performance of exotic breed of egg and meat types maintained at the Shola, Dembi & Lemlem farms.

### MATERIALS

#### Data

The data were obtained from production records, hatchability records and annual reports of Poultry Development & Feed Processing Enterprise.

The data covered the period of 1983 to 1986.

The farms are as follows:

1. Shola Poultry Farm -

Table-egg production is undertaken.



2. Dembi Poultry Farm - Laying - pullet replacement production, baby - chicks (egg type & broiler) production and market-egg production are undertaken.

3. Lemlem Poultry Farm -

Broiler production is carried out.

Location:

The poultry farms are located in the Shoa Administrative Region of the country. Shola farm is situated at Shola in Addis Ababa. Whereas Dembi and Lemlem farms are located at Debre Zeit 43 km away from the capital city and adjacent to the main road.

Climate:

The poultry farms have an elevation ranging from 1932 to 2408 meters above sea level with an annual rainfall ranging from 850.7 to 1185.8 mm per annum. The mean annual temperatures of the three farms with their mean minimum and mean maximum are given in Table 1.

Table 1: Altitude and Climatological Data for Poultry Farms - 1983 to 1986.

Location	Altitude (m) <sup>a/</sup>	Mean Annual Temperature(°C)		Mean Annual Rainfall <sup>b/</sup> (mm)
		Mean	Mean	
		Minimum	Maximum	
Addis Ababa	2408	11.1	23.0	1185.8
Debre Zeit	1932	11.4	26.2	850.7

Breed:

Poultry breeds introduced in the country for egg and meat purposes before the revolution of 1974/75 were white Leghorn, Rhode Island Red, New Hampshire, Cornish, Australorp, Brown Leghorn and Light Sussex (2). Due to improper follow-up most of the above-mentioned imported breeds are not existing and there is practically no data on productive and reproductive performances of these birds and their offsprings and crosses. However, their strains might exist in the length and breadth of the country.

Source:

- 1/ Ethiopian Mapping Agency
- 2/ National Meteorological Service Agency

The birds maintained to date at Shola and Debre Zeit poultry farms are Yarkon, Starcross or Shaver 288 and shaver 585 (Egg type) and Starbro (Meat type) which have been imported from abroad. The former is imported from Israel and the latter two from England. They are a White Leghorn strains evolved through rigorous selections and breeding techniques.

Feeding:

Poultry maintained on the farms during the period of 1983 to 1986 were fed concentrate feeds containing mainly maize, oilseed meals, meat meal, bone meal and various milling by-products.

The mixed feeds which were processed by Poultry Development and Feed Processing Enterprise were not usually correctly formulated due to discontinuities in supplies and variations in the composition of ingredients.

The feeding rates practised at the three farms during the period of 1983 to 1986 according to the set parameters were 110 gm/day, 120 gm and 150 gm/day and 160 gm/day per commercial layer, breeder of egg and meat types and broiler respectively. Chicks of all types and pullets (egg type) were provided on an average 48 gm/day and 74 gm/day respectively (3).

Table 2: Ingredients of Concentrate Mixture Offered to Poultry as Ration from 1983 to 1986.

Ingredients	Growers			
	Starter	(Pullets & cockerels)	Layers	Broilers
	Parts	Parts	Parts	Parts
Corn	35	35	30	30
Corn feed mill	-	-	5	-
Wheat middling Coarse	12.5	22.5	14.5	12.5
Wheat screening	25	30	20	25
Noug cake	15	15	15.5	20
Meat & bone meal	10	5	7	10
Bone meal	1.5	-	1.197	1.5
Limestone	-	1.5	6.	-
Salt	0.75	0.75	0.70	0.75
Vitamin/mineral premix	0.25	0.25	0.10	0.25
Carophyl red	-	-	0.001	-
Carophyl orange	-	-	0.002	-
Total	100	100	100	100
DCP %	15.87	15.13	14.60	16.74
TDN %	72.68	72.93	68.37	71.88

N.B. Ration for breeders is not processed at PDFPE.

## RESULTS AND DISCUSSION

The performance of the hatchery unit at Dembi farm is shown in Table 3. The number of eggs set from 1983 to 1986 were 541,234 to 660,336. An increase of 22% was observed during the last three years.

Percent infertile eggs out of the total eggs set were 11.04, 10.43 and 9.79 in 1984, 1985 and 1986 respectively.

Percentage hatchability on total eggs set basis were 62.92 in 1984, 70.40 in 1985 and 77.71 in 1986. An increase of 15% was observed from 1983 to 1986. Percentage hatchability out of fertile eggs were 70.72, 78.59 and 86.14 in 1984, 1985 and 1986 respectively.

Rate of embryonic death were 29.28% in 1984, 21.41% in 1985 and 13.86% in 1986.

A hatchability of 85% of all eggs set and embryo mortality of 15% are regarded as very satisfactory (4). But the performance of the unit regarding hatchability on total eggs set basis and embryo mortality were low and high respectively. The embryonic death of 13.86% achieved in 1986 was below the norm and indeed satisfactory.

Percent day-old chick mortality at the Unit were 3.69, 3.23 and 3.50 in 1984, 1985 and 1986 respectively.

Factors responsible for the above chick mortality at the unit were due to lack of special chick boxes, chicks being transported on tractor trailer (3) and low chick viability. For profitable poultry farming it is important that not only a high percentage of fertile eggs hatch, but also that the chicks hatched survive and thrive. The capacity of chicks to live and thrive after they are hatched which is hereditary ought to be given due consideration. It is, therefore, necessary to discard from the breeding stock any male or female which shows low viability.

Factors responsible for high percent infertile eggs were among others due to unbalanced or improper breeder's diet, diseases, age of parents (male and female birds) and external characteristics of egg such as size, shape, colour and texture.

It is generally agreed that the best results are obtained by setting only eggs of medium size, each weighing from 50 to 56 gms (4).

Whereas factors responsible to low percentage hatchability and high embryonic death were among others due to low genetic potential of the poultry seed stocks, diseases, low male to

female ratio, keeping breeders of advanced age, absence of vitamin/mineral supplement in breeder's ration and storage conditions of eggs.

Total day-old chicks produced were 327,988 in 1984, 379,192 in 1985 and 495,182 in 1986 (Table 4). Out of these baby-chicks produced 182,696 in 1984, 190,287 in 1985 and 278,698 in 1986 were egg type and 145,292 in 1984, 188,905 in 1985 and 216,484 in 1986 were meat type (Table 4).

The total egg type and broiler chicks distributed to the state farms were 117,113 and 144,871 in 1984, 91,739 and 178,896 in 1985 and 215,278 and 204,135 in 1986 respectively (Table 4). Whereas the total egg type and broiler chicks distributed to private poultrymen were 65,583 and 421 in 1984, 98,548 and 10,009 in 1985 and 63,420 and 12,349 in 1986 respectively.

Total egg type and broiler chicks distributed to the state farms and private producers during the period of 1983 to 1986 were 651,681 and 550,681 respectively. Grand total baby-chicks produced from 1983 to 1986 were 1,202,362.

Table 3: Number of Eggs set, Hatchability Percentages Out of Fertile Eggs and on Total Eggs Set Basis.

Description	1983/84	1984/85	1985/86
No. of eggs set	541,234	556,648	660,336
Percent infertile eggs	11.04	10.43	9.79
Percent hatchability out of fertile eggs	70.72	78.59	86.14
Percent hatchability on total eggs set basis	62.92	70.40	77.71
Percent embryonic death	29.28	21.41	13.86
Percent chick mortality	3.69	3.23	3.50

Table 4: Number of Baby-Chicks Distributed to Enterprise and Private Poultrymen - 1983 to 1986.

Year	No. of Baby-Chicks Distributed to Enterprise		No. of Baby-Chicks Distributed to Private Producers		Total Baby-Chicks Hatched
	Egg type	Meat type	Egg type	Meat type	
1983/84	117,113	144,871	65,583	421	327,988
1984/85	91,739	178,896	98,548	10,009	379,192
1985/86	215,278	204,135	63,420	12,349	495,182
Total	424,130	527,902	227,551	22,779	1,202,362



The performance of the Dembi Poultry farm is shown in Table 5. Total table-eggs produced from an average of 28,517 birds in 1984, 25,488 birds in 1985 and 25,061 birds in 1986 were 3,946,355 (328,862 dozen), 3,760,848 (313,404 dozen) and 3,595,510 (299,625 dozen) respectively.

Total feed consumed by the birds per year were 30.4 kg in 1984, 31.1 kg in 1985 and 31.2 kg in 1986. Likewise, average feed consumed per bird/day were 83.3 gm in 1984, 85.2 gm in 1985 and 85.5 gm in 1986. Each bird was given ration below the parameter of 110 gm per day set by the enterprise during the period of 1983 to 1986.

Average egg production per bird/year was 138 in 1984, 147 in 1985 and 143 in 1986 which was indeed below the norm. Egg production of 250 and above is the standard to the type of breeds maintained at the state farms.

Percent breakage of eggs were 2.2, 1.2 and 1.8 in 1984, 1985 and 1986 respectively.

Percent mortality were 18.4 in 1984, 14.5 in 1985 and 14.2 in 1986.

Culling & selection are often regarded as synonymous terms although in practice they have little in common. Culling means weeding out the uneconomical birds and the non-

producers. Culling is, therefore, an essential part of efficient management of any poultry enterprise and has a direct influence on profits. Culling percentages were 27.8, 29.4 and 40.6 in 1984, 1985 and 1986 respectively. Those culled birds were in fact sold to consumers either dressed or live.

Average age at first egg was 6.1 months in 1984, 6.5 months in 1985 and 6.3 months in 1986.

Average weight of bird at first egg and average weight of egg from 1983 to 1986 were not available since weighing was and is not common on the farms.

The performance of the shola poultry farm is given in Table 6. Total market-eggs produced from an average of 46,649 birds in 1984, 43,280 birds in 1985 and 39,787 birds in 1986 were 9,091,518 (757,626 dozen), 8,239,883 (686,656 dozen) and 7,948,347 (662,362 dozen) respectively. Total feed consumed by those birds were 14,498.5 quintals in 1984, 15,728.5 quintals in 1985 and 15,284.5 quintals in 1986.

Average feed consumed per bird/year were 31.1 kg in 1984, 36.3 kg in 1985 and 38.4 kg in 1986. Likewise, average feed consumed per bird/day were 85.2 gm in 1984, 99.4 gm in 1985 and 105.2 gm in 1986. Each bird was offered ration below the enterprise set parameter of 110 gm per day in 1984 and in 1985 the exception being the year 1986 which was nearly equal to the parameter.

Average egg production per bird/year was 194 in 1984, 190 in 1985 and 199 in 1986.

Percent breakage of eggs were 1.5 in 1984 2.0 in 1985 and 1.6 in 1986.

Mortality & culling percentages were 21.4 and 55.7, 16.0 and 95.8 and 22.4 and 12.8 in 1984, 1985 and 1986 respectively. The culled birds were sold to consumers either dressed or live.

Average age at first egg was 6.1 months in 1984, 6.5 months in 1985 and 6.3 months in 1986.

Average weight of bird at first egg and average weight of egg from 1983 to 1986 were not available since weighing was and is not common on the farms.

Mortality rate of layers under sound management must and should not exceed 10% (4). But the performance of layers at shola and Dembi poultry farms in Tables 5 and 6 indicate that the mortality rate was very high.

The main factors that contributed to high layers mortality were among others due to bad environmental conditions, poor ventilation, poor lighting and sanitary control, inadequate veterinary supervision and poor management.

Mortality rate of chicks (day-old to 8 weeks of age) from shola and Dembi poultry farms during the period of 1983 to 1986 were not available. However, the mortality rate of chicks at the state poultry farms is confirmed to be very high in the report of State Farms Sub-sector Review.

The contributing factors to high chick mortality were reported to be among others due to poor quality feed, overcrowding, lack of water and poor management (3).

A fall in egg production on State poultry farms during the period of 1983 to 1986 were primarily caused by low feed consumption, unfavourable environmental conditions, poor management, low protein ration, inadequate or irregular water supply, poor ventilation, diseases and parasites, rough handling of birds and change of care takers or poultry attendants.

The performance of the Lemlem poultry farm is shown in Table 7. Total broiler meat produced from an average of 219,932 birds in 1984, 228,007 birds in 1985 and 252,203 birds in 1986 were 61,593 kg, 75,476 kg and 78,538 kg respectively. Total live broilers sold to consumers were 12,969, 13,703 and 1942 in 1984, 1985 and 1986 respectively.

Total feed consumed by the average number of birds from day-old to market age were 12,010 quintals in 1984, 10,073.5 quintals in 1985 and 9,965 quintals in 1986.

Average feed consumed per bird/126 days were 5.5 kg, 4.4 kg and 4.0 kg in 1984, 1985 and 1986 respectively. Likewise, average feed consumed per bird/day were 43.0 gm in 1984, 35.0 gm in 1985 and 31.0 gm in 1986.

Percent mortality at the farm were 28.4, 33.6 and 27.0 in 1984, 1985 and 1986 respectively.

Mortality rate of 10% from day-old to market age is regarded as satisfactory (4). The figures reported, however, deviated significantly from the norm.

The major factors that contributed to high broiler mortality were among others due to poor quality feed, rearing birds of varying age groups together, inadequate veterinary supervision and poor management (3).

Culling percentages were nil during the period of 1983 to 1986.

Average age of bird at marketing was 126 days during the last three years (3).

Average weight of birds at marketing from 1983 to 1986 were not available since weighing was and is not common on the farm.

The performance of egg type replacement stock at Dembi farm from 1983 to 1986 is given in Table 8. Average number of birds were 11,782 pullets in 1984, 4,735 pullets and 395 cockerels in 1985.

Total feed consumed by the birds were 767.5 quintals in 1984 and 119.5 quintals in 1985.

Percent mortality were 13.8 and nil in 1984 and 1.0 and 1.8 in 1985 for pullets and cockerels respectively.

Culling percentage for pullets was 1.5 in 1984 and none in 1985. Those culled birds were sold to consumers as dressed.

The performance of meat type replacement stock at Dembi farm from 1983 to 1986 is shown in Table 9.

Average number of flock were 7,276 pullets and cockerels nil in 1984, 4,317 pullets and 524 cockerels in 1985 and 7,485 pullets and 894 cockerels in 1986.

Total feed consumed by the birds were 577.25 quintals in 1984, 338 quintals in 1985 and 625 quintals in 1986.

Percent mortality were 32.2 for pullets in 1984, 7.1 and 8.8 for pullets and cockerels in 1985 and 13.4 and 6.7 for pullets and cockerels in 1986.

Culling percentages for pullets and cockerels combined were 41.2, 8.2 and 5.3 in 1984, 1985 and 1986 respectively. Those culled birds were also sold to consumers as dressed.

Table 5. Performance of Commercial Layers Maintained at Dembi Farm - 1983 to 1986.

Description	1983/84	1984/85	1985/86
Average No. of birds	28,517	25,488	25,061
Total eggs produced	3,946,355	3,760,848	3,595,510
Total breakage	84,905	46,860	64,384
Total No. of birds died	7,636	7,607	8,710
Total No. of birds culled	11,547	15,421	24,801
Total feed consumption (quintals)	8,683	7,933.5	7,813.25
Average feed consumed per bird/year (kg)	30.4	31.1	31.2
Average feed consumed per bird/day (gm)	83.3	85.2	85.5
Average egg production per bird/year	138	147	143
% breakage	2.2	1.2	1.8
% mortality	18.4	14.5	14.2
* culling percentage	27.8	29.4	40.6
Average age at first egg (months)	6.1	6.5	6.3
Average weight of bird at first egg (kg)	n.a.	n.a.	n.a.
Average weight of egg (gm)	n.a.	n.a.	n.a.

\* Those culled birds have been sold to consumers either dressed or live.

n.a. = not available

Table 6. Performance of Commercial Layers Maintained at Shola Farm - 1983 to 1986.

Description	1983/84	1984/85	1985/86
Average No. of birds	46,649	43,280	39,787
Total eggs produced	9,091, 518	8,239,883	7,948,347
Total breakage	134,324	165,807	129,791
Total No. of birds died	10,360	7,409	7,801
Total No. of birds culled	25,979	41,480	5,088
Total feed consumption (quintals)	14,498.5	15,728.5	15,284.5
Average feed consumed per bird/year (kg)	31.1	36.3	38.4
Average feed consumed per bird/day (gm)	85.2	99.4	105.2
Average egg production per bird/year	194	190	199
% breakage	1.5	2.0	1.6
% mortality	21.4	16.0	22.4
* culling percentage	55.7	95.8	12.8
Average age at first egg (months)	6.1	6.5	6.3
Average weight of bird at first egg (kg)	n.a.	n.a.	n.a.
Average weight of egg (gm)	n.a.	n.a.	n.a.

\* Those culled birds have been sold to consumers either dressed or live.

n.a. = not available.



Table 7. Performance of Broilers at Lemlem Farm-1983 - 1986.

Description	1983/84	1984/85	1985/86
Average No. of birds/ batch	219,932	228,007	252,203
Total No. of birds died	62,427	76,596	68,053
Total No. of birds culled	-	-	-
Total weight of dressed broilers (kg)	61,593	75,476	78,538
Total No. of live broilers sold	12,969.0	13,703	1,942
Total feed consumption (quintals)	12,010	10,073.5	9,965
Average feed consumed per broiler/126 days (kg)	5.5	4.4	4.0
Average feed consumed per broiler/day (gm)	43.0	35.0	31.0
Percent mortality	28.4	33.6	27.0
Culling percentage	-	-	-
* Average age of bird at marketing (days)	126	126	126
Average weight of bird at marketing (kg)	n.a.	n.a.	n.a.

(-) = None

n.a. = not available

\* State Farms Sub-Sector Review, 1986 Vol. III  
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The performance of meat type parent stock at Dembi farm from 1983 to 1986 is given in Table 10. Average number of birds were 3687 females and 382 males in 1984, 1956 females and 190 males in 1985 and 6,247 females and 399 males in 1986.

Total feed consumed by the layers in one laying season were 1854.75 quintals in 1984, 1045.75 quintals in 1985 and 1989.15 quintals in 1986. Average feed consumed per bird/year were 50.3 kg in 1984, 53.5 kg in 1985 and 31.8 kg in 1986.

Whereas the average feed consumed per bird/day were 138gm, 146 gm and 87 gm in 1984, 1985 and 1986 respectively. The parameters set by the enterprise for egg and meat type breeders are 120 & 150 gms respectively. But the daily feed ration offered to the meat type breeders deviated significantly from the norm in 1984 and in 1986.

Total hatching eggs produced from an average of 3687, 1956 and 6247 parent stocks were 227,756, 200,312 and 340,578 in 1984, 1985 and 1986 respectively.

Average egg production per bird/year was 61 in 1984, 102 in 1985 and 54 in 1986.

The contributing factors to a fall in egg production were among others due to low feed consumption, unfavourable environmental conditions, unbalanced ration, diseases and parasites and poor management.

Percent breakage of hatching eggs from 1983 to 1986 were not available.

Mortality rate were 46.8% and 56.0%, 42.9% and 76.3% and 26.4% and 74.7% for females and males in 1984, 1985 and 1986 respectively. Combined number of females and males culled were 4441, 2963 and 2571 in 1984, 1985 and 1986 respectively. Those culled birds were sold to consumers as dressed.

Male to female ratio of the parent stock were 1:9 in 1984, 1:10 in 1985 and 1:15 in 1986. The recommended male to female ratio are 1:12 and 1:10 for egg and meat lines.

The performance of egg type parent stock at Dembi farm from 1983 to 1986 is shown in Table 11. Average number of birds were 6753 and 701, 4689 and 503 and 2982 and 306 females & males in 1984, 1985 and 1986 respectively.

Total feed consumed by the layers in one year were 3539 quintals in 1984, 2064 quintals in 1985 and 1140.75 quintals in 1986.

Average feed consumed per bird/year were 52.4 kg in 1984, 44.0 kg in 1985 and 38.2 kg in 1986. Whereas the average feed consumed per bird/day were 144 gm, 120 gm and 105 gm in 1984, 1985 and 1986 respectively.

Total hatching eggs produced from an average of 6,753 4689 and 2,982 parent stocks were 996,910, 702,699 and 456,370 in 1984, 1985 and 1986 respectively.

Average egg production per bird/year was 147 in 1984 149 in 1985 and 153 in 1986.

Percent breakage of hatching eggs from 1983 to 1986 were not available.

Mortality rate were 74.6% and 63.2% , 94.6% and 42.5% and 41.9% and 22.5% for females and males in 1984, 1985 and 1986 respectively. Combined number of females & males culled were 6614, 2369 and 5449 in 1984, 1985 and 1986 respectively.

Those culled birds were sold to consumers as dressed. Male to female ratio of the parent stock were 1:9 in 1984, 1:9 in 1985 and 1:9 in 1986.

Sum total of market - eggs and hatching eggs produced by the State poultry farms were 13,037,873 (1,086,489 dozen) 12,000,731 (1,000,060 dozen) and 11,543,857 (961,988 dozen) and 1,224,666, 903,011 and 796,948 in 1984, 1985 and 1986 respectively (Table 12).

Total day-old chicks produced were 327,988, 379,192 and 495,182 in 1984, 1985 and 1986 respectively.

Total broiler meat produced were 110,513 kg, 85,946 kg and 92,253.3 kg in 1984, 1985 and 1986 respectively. Total live broilers sold to consumers were 19,526, 27,082 and 50,622 in 1984, 1985 and 1986 respectively.

Table 8. Performance of Egg Type Replacement Stock at Dembi Farm - 1983 to 1986.

Year	Average No. of birds		No. of birds died		Culled birds dressed & sold		Total feed consumption (quintals)				
	Pullets	Cockerels	Pullets % Mortality	Cockerels % Mortality	Pullets	Cockerels	Pullets % Culling	Chicks Pullets Layers Total			
1983/84	11,782	-	1,624	13.8	-	180	1.5	268	499.5	-	767.5
1984/85	4,735	395	49	1.0	7	-	-	-	119.5	-	119.5
1985/86	-	-	-	-	-	-	-	-	-	-	-

(-) = None

Table 9. Performance of Meat Type Replacement stock at Dembi Farm - 1983 to 1986.

Year	Average No. of birds		No. of birds died		Culled birds dressed & sold		Total feed consumption (quintals)				
	Pullets	Cockerels	Pullets % Mortality	Cockerels % Mortality	Pullets	Cockerels	Pullets % Culling	Chicks Pullets Layers Total			
1983/84	7,276	-	2,343	32.2	-	3,000	41.2	239	338.25	-	557.25
1984/85	4,317	524	308	7.1	46	337	8.2	18	310	10	338
1985/86	7,485	894	1,005	13.4	60	382	5.3	52.5	317.75	254.75	625

(-) = None

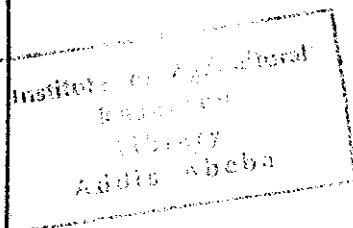


Table 10. Performance of Neat Type Parent Stock at Dembi - 1983 to 1986.

Year	Average No. of birds		No. of birds died		No. of culled bird dressed & sold		Total eggs produced	Average egg production per layer / year	Total feed consumption of layers / year (quintals)	Average feed consumption per layer / year (kg)	Average feed consumption per layer / day (gm)	Male to Female ratio
	Female	Male	Female	Male	Female	Male						
1983/84	3,687	382	1,724	46.8	214	56.0	4060	61	1,854.75	50.3	138	1:9
1984/85	1,956	190	840	42.9	145	76.3	2718	102	1,045.75	53.5	146	1:10
1985/86	6,247	399	1,651	26.4	298	74.7	2314	54	1,989.15	31.8	87	1:15

Table 11. Performance of Egg Type Parent Stock at Dembi - 1983 to 1986.

Year	Average No. of birds		No. of birds died		No. of culled birds dressed & sold		Total eggs produced	Average egg production per layer / year	Total feed consumption of layers / year (quintals)	Average feed consumption per layer / year (kg)	Average feed consumption per layer / day (gm)	Male to Female ratio
	Female	Male	Female	Male	Female	Male						
1983/84	6,753	701	5,040	74.6	443	63.2	6,507	147	3,539	52.4	144	1:9
1984/85	4,689	503	4,438	94.6	214	42.5	1,736	149	2,064	44.0	120	1:9
1985/86	2,982	306	1,250	41.9	69	22.5	4,850	153	1,140.75	38.2	105	1:9

Table 12. Sum Total of Poultry & Poultry Products Produced by Shola, Dembi and Lemlem Farms - 1983 - 1986.

Poultry and Poultry Products	Unit	1983/84	1984/85	1985/86
Table - eggs	No.	13,037,873	12,000,731	11,543,857
Hatching eggs	"	1,224,666	903,011	796,948
Day-old chicks	"	327,988	379,192	495,182
Dressed broiler	Kg.	110,513	85,946	92,253.3
Live broilers	No.	19,526	27,082	50,622

## CONCLUSIONS

- The inadequate feed supply and low feed quality which are the major constraints in the poultry industry could be markedly solved by wisely utilizing the agro-industrial by-products which are in abundant in the country.
- Proper breeder's ration ought to be prepared since diet which the breeding stock receive at the farms to date does not ensure good fertility & hatchability.
- Fresh vitamin/mineral supplement whose due date have not expired ought to be incorporated in the breeder's diet so as to decrease embryo mortality and increase fertility and hatchability.
- Proper management to the breeding stock is important in order to secure maximum fertility. Hence, the management to these birds ought to be geared to the maximum.
- Age of breeders has a bearing on fertility and hence decline in fertility with advancing age ought to be avoided.
- Genetic constitution of the breeding stock is an important factor in relations to embryo mortality and chick viability among the eggs they produce. Hence, poultry seed stock ought to be purchased from reputed foreign breeders company.
- Male to female ratio ought to be optimal on the farm where breeding stock are reared.



- Hatchability and viability are inherited and therefore it can be improved by selection and breeding. The operations ought to be practised on the farm where breeding stock are maintained.
- It is necessary to discard any male or female from the breeding stock which showed low hatchability and/or low viability.
- The microclimate in the poultry houses should be carefully regulated in order that comfortable and correct conditions are prevailing at all times since stressed chickens usually lay fewer eggs and gain poor rate of growth and breast fleshing.
- Control of the lighting in the poultry houses both in duration, frequency and intensity ought to be strictly followed.
- Layers and breeders are maintained virtually throughout the year on accumulation of their own droppings. Therefore, litter management ought to be given due consideration.
- When afraid, chickens behave as if temporarily paralysed as a result their physiological state will be disturbed. Hence, frightening birds ought to be avoided.
- Birds exposed to stress are more vulnerable to disease because they have fewer lymphocytes (white blood cells that fight disease) in their blood. Hence, chickens must be free from all forms of stresses be it environment or feed.
- Disease prevention and effective administration of protective vaccination and therapy ought to be scrupulously carried out regularly at the farms.

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