

**HUNTING TECHNICAL SERVICES**

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(595)

THE GOVERNMENTS OF MALAYSIA AND THE STATE OF JOHOR

W.P. POULTRY

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# WORKING PAPER

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## POULTRY

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## 1. MARKET

### 1.1 The National Demand for Poultry Products

Statistics on poultry production in West Malaysia are extremely scanty. The Veterinary Department estimated that per caput consumption in 1967 was 13 pounds of meat and 112 eggs. It has been assumed earlier by F.A.O. 1967 that the income elasticity of demand for poultry meat and eggs is in the region of 1.0. Results of the survey carried out by this Project in South Johor were broadly in line with this assumption. Assuming a 2.5 percent rate of growth of per capita income Table 1 shows the growth of per capita consumption of these products to 1990. Total consumption growth is shown in Table 2, assuming a population increase of 3 percent per annum.

TABLE 1 PROJECTION OF PER CAPITA CONSUMPTION OF POULTRY MEAT AND EGGS

Year	Poultry meat (pounds)	Eggs (number)
1970	14.0	121
1975	15.8	136
1980	17.9	154
1985	20.3	175
1990	22.9	198

TABLE 2 PROJECTION OF TOTAL CONSUMPTION OF POULTRY MEAT AND EGGS

Year	Poultry meat (Million pounds)	Eggs (Million)
1970	134.9	1,146
1975	176.3	1,465
1980	231.2	1,883
1985	303.4	2,425
1990	397.8	3,130

## 1.2 Johor Production

A survey of "commercial" poultry farms was carried out in 1966 by the Ministry of Agriculture. This showed that Johor is one of the major centres of commercial poultry production in the country, see Table 3. Its specialisation is clearly in table bird production. In 1966 42.7 percent of all table birds on all commercial farms were in Johor, but only 10.4 percent of layer type birds. The actual concentration of table birds is even more pronounced as shown in Table 4, as almost all of the State's table birds are kept in Pontian and Johor Baharu districts. If the 1966 proportions are maintained the poultry industry in Johor in 1990 could be as follows:

Layer type - 1.939 million  
 Table birds slaughtered - 61.529 million

TABLE 3 NUMBER OF COMMERCIAL POULTRY FARMS - FARMS AND BIRDS BY STATE - WEST MALAYSIA 1967

State	Number of Birds					
	All Farms		Table Birds		Layer Type Birds	
	Number reporting	Total Birds	Number reporting	Total birds	Number reporting	Total birds
Johor	271	1,572,206	148	1,336,438	165	235,766
Malacca	102	203,130	56	38,410	90	164,720
Nelang & P.W.	838	1,500,735	704	1,340,190	173	160,545
Perak	222	547,882	88	135,107	166	412,775
Perlangor	478	1,202,658	159	160,795	429	1,041,863
Others	415	351,866	137	118,330	359	233,536
Total	2,326	5,378,475	1,292	3,129,270	1,382	2,249,205

## 1.3 Poultry Marketing

### 1.3.1 Table birds

Chicken meat is the most widely eaten type of meat in West Malaysia. The expenditure survey carried out by this Project showed that 35 percent of Malays, 79 percent of Chinese and 75 percent of Indian households bought chickens. In addition many households keep a few chickens and kill one occasionally for eating. Details of results of this survey are given in the Appendix. Table 5 indicates the proportion

TABLE 4 - POULTRY FARMS (ALL TYPES OF FARMS) IN JOHOR STATE BY DISTRICTS

Districts	Number of Farms and Birds						Types of Farms							
	All Farms		Table Birds		Layer Type Birds		Table Birds Only		Layer Type Only		Table Birds & Layer Type Birds			
	Farms reporting	Total birds	Farms reporting	Table birds	Farms reporting	Layer type birds	Farms reporting	Birds	Farms reporting	Birds	Farms reporting	Birds		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	Total birds	Table birds	Layer type birds
JOHOR	271	1,572,204	148	1,336,438	165	235,766	106	1,256,308	123	170,276	42	145,820	80,130	65,490
Batu Pahat	73	70,450	17	33,200	65	37,250	8	26,000	56	28,450	9	16,000	7,200	8,800
Johor Baharu	43	322,746	20	243,800	31	78,946	12	198,800	23	66,646	8	57,500	45,000	12,300
Kluang	20	91,900	14	61,400	10	30,500	10	56,200	6	8,800	4	26,000	5,200	21,700
Segamat	21	43,900	4	3,100	21	40,800	-	-	17	30,400	4	13,500	3,100	10,400
Kota Tinggi	21	25,970	21	20,850	9	3,120	12	10,150	-	-	9	13,820	10,700	3,120
Mersing	6	3,768	1	100	6	3,668	-	-	5	3,298	1	470	100	370
Muar	25	42,970	7	3,488	22	39,482	1	658	16	32,682	6	9,530	2,830	6,800
Pontian	64	972,500	64	970,500	1	2,000	63	964,500	-	-	1	8,000	6,000	2,000

of households in the different racial and income groups purchasing chicken and those who keep chicken of their own for meat. Since these two are not mutually exclusive, their total need not necessarily add to 100. In fact in some cases the two percentages add up to more than 100 indicating that some households both rear some chickens of their own and purchase them from time to time. What is clear from the table is that virtually every household eats some chickens.

TABLE 5 PROPORTION OF HOUSEHOLDS PURCHASING CHICKEN AND KEEPING CHICKENS FOR OWN CONSUMPTION BY RACE AND INCOME GROUP

Income Group	Malays		Chinese		Indians	
	Pur- chasing	Rear- ing	Pur- chasing	Rear- ing	Pur- chasing	Rear- ing
Less than \$100	12	82	57	48	100	0
\$100 - 199	31	61	77	40	73	25
\$200 - 299	42	50	74	42	64	36
\$300 - 499	44	50	88	42	75	40
\$500 & over	65	36	85	25	92	21

There is a marked increase in the proportion of households purchasing chickens and a reduction in home production as incomes rise. This may be because higher income groups live in neighbourhoods where chickens are rather frowned upon.

This wide sale of poultry meat is however not entirely an unmixed blessing. Chickens are sold live in Malaysia and the average bird weighs about 3lb and retails for about \$1.00-\$1.20 per lb. This means that an average chicken will cost \$3 to \$4. This is a relatively large sum for a household with an income of \$100 to \$200 per month. Thus chicken tends to be a speciality item only purchased on rare occasions. Table 6 shows the frequency with which respondents to the Project's survey reported buying chicken. The majority of Malays in all income groups only bought chickens occasionally; higher income Chinese and Indian households however did show a tendency to more regular consumption.

This factor has resulted in a marked seasonality of demand for table chickens with peaks at such festivals as Hari Raya, Deepavali, Christmas and Chinese New Year. Producers therefore adjust their production schedules to attempt to meet these peaks but overproduction and resulting low prices can occur.

TABLE 6 NUMBERS OF HOUSEHOLDS BY FREQUENCY OF PURCHASE  
OF CHICKEN AND INCOME GROUP

Frequency	Income Group				
	Less than \$100	\$100-199	\$200-299	\$300-499	\$500 & over
<b>MALAYS:</b>					
Everyday	1	1	-	1	-
Twice or thrice per week	-	-	-	2	4
Weekly	1	3	4	3	13
Fortnightly	1	5	12	5	11
Monthly	5	40	23	19	17
Occasionally	22	101	43	55	32
None	204	330	112	107	40
<b>CHINESE:</b>					
Everyday	-	-	-	-	-
Twice or thrice per week	-	3	7	8	13
Weekly	-	4	11	22	20
Fortnightly	-	7	27	31	11
Monthly	1	26	16	13	2
Occasionally	11	82	60	31	11
None	9	36	42	15	10
<b>INDIANS:</b>					
Everyday	-	-	-	-	-
Twice or thrice per week	-	-	-	-	3
Weekly	-	3	3	5	12
Fortnightly	1	4	3	1	4
Monthly	-	14	4	5	1
Occasionally	2	16	4	4	2
None	-	14	8	5	2

Since no slaughter takes place birds move more or less directly from farm to market. Most producers with a medium sized crop sell to wholesalers. A number of farmers obtain feed on credit from millers and sell their birds through the feed supplier. As was noted earlier Johor is a major producer of table birds and a large number of these are sent to markets further north through wholesalers.

Published price information is scanty. In 1970 FAMA began to collect and publish wholesale and retail poultry and egg prices for selected towns in West Malaysia. The average monthly prices for spring chicken reported during 1970 are given in Table 7, but are unfortunately incomplete. They do indicate higher prices in Kuala Lumpur than elsewhere and lower wholesale prices in the main producing areas. Ex-farm prices are not given; in the financial analysis presented later in this paper ex-farm prices of \$0.90 and \$1.00 per kati have been taken.

TABLE 7 MONTHLY AVERAGE WHOLESALE AND RETAIL PRICES FOR SPRING CHICKENS, SELECTED TOWNS, 1970 BY MONTH

	Town						
	Kuala Lumpur		Ipoh		Penang		Johor Baharu
	Wholesale	Retail	Whole-sale	Retail	Whole-sale	Retail	Retail
January	n.a.	1.62	n.a.	1.30	n.a.	n.a.	1.55
February	n.a.	1.65	n.a.	1.30	n.a.	n.a.	1.50
March	n.a.	1.30	n.a.	1.30	n.a.	n.a.	1.50
April	n.a.	1.60	n.a.	1.30	n.a.	n.a.	1.50
May	n.a.	1.60	n.a.	1.30	n.a.	n.a.	1.50
June	n.a.	1.60	n.a.	1.23	n.a.	n.a.	1.50
July	1.50	1.60	1.10	1.20	1.15	1.30	n.a.
August	1.50	1.60	1.20	1.30	1.15	1.30	n.a.
September	1.50	1.65	1.20	1.30	1.14	1.30	n.a.
October	1.31	1.61	1.04	1.14	1.10	1.30	n.a.
November	1.33	1.60	1.05	1.15	1.10	1.30	n.a.
December	1.33	1.60	1.21	1.31	1.10	1.30	n.a.

Source: F.A.M.A. Commodity Bulletins

The major marketing problem appears to be that of the seasonality of demand. The general consumer resistance to frozen meat restricts the possibility of overcoming this by storage and also the possibility of selling chicken pieces, which could broaden the market by reducing the outlay required to buy some chicken meat for a curry or other dish. However one possibility which might be explored, e.g. by FAMA, is that of freezing or chilling birds for sale to institutions such as hospitals, colleges and the Army. These could perhaps give contracts providing a reasonably steady outlet to a local packing station. This might help overcome local resistance to chilled or frozen chicken and enable an industry to become established.

### 1.3.2 Eggs

Egg prices also fluctuate somewhat from month to month, although probably more as a result of variations, in supply rather than demand. Small producers often sell direct to consumers, larger producers operate through wholesalers. Table 8 shows average monthly farm-gate, wholesale and retail prices for 1970 in the Kuala Lumpur area for grade B eggs (i.e. those weighing from  $1\frac{7}{8}$  to 2 ounces).

TABLE 8 AVERAGE MONTHLY GRADE B EGG PRICES KUALA LUMPUR AREA, 1970, BY MONTH

Month	Ex-farm	Price Cents	
		Wholesale	Retail
January	9.5	11.0	11.5
February	8.5	10.5	11.0
March	7.5	9.5	10.0
April	6.75	9.0	9.5
May	7.67	9.0	9.5
June	8.2	9.0	9.5
July	8.0	9.0	9.5
August	8.67	9.33	9.8
September	8.5	9.25	9.87
October	8.4	10.0	10.5
November	10.4	11.2	11.7
December	9.6	9.7	10.2
Average	8.47	9.71	10.21

The average ex-farm-wholesale spread was 1.25 cents per egg for this grade, and the wholesale-retail spread 0.5 cents. These margins appear to be very reasonable. The wholesales in this system will collect the eggs, grade them and distribute to retailers.

Price differentials by grade and between the major towns in West Malaysia for December 1970, as reported by FAMA, are given in Table 9.

TABLE 9 AVERAGE WHOLESALE AND RETAIL EGG PRICES FOR DECEMBER 1970 BY GRADE AND TOWN (CENTS PER EGG)

Grade	Town			
	Kuala Lumpur	Malacca	Ipoh	Penang
Wholesale				
A (2 oz and above)	10.25	11	11	11.25
B ( $1\frac{7}{8}$ to 2 oz)	9.75	10	10.5	10.75
C ( $1\frac{3}{4}$ to $1\frac{7}{8}$ oz)	9.25	9	10	10.25
D ( $1\frac{1}{2}$ to $1\frac{3}{4}$ oz)	8.75	8	9.5	9.75
Retail				
A	10.75	12	11.5	12.25
B	10.25	11	11	11.75
C	9.75	10	10.5	11.25
D	9.25	9	10	10.75

Except in Malacca there was a spread of 1.5 cents per egg between the largest and smallest grades, and a tendency for prices to be slightly lower in Kuala Lumpur, which is the major centre for egg production, (Table 3), than elsewhere. Johor Baharu prices were not given.

## 2. PRODUCTION

### 2.1 Table Birds

Broiler producers customarily purchase day-old chicks from specialised hatcheries and rear them to sell at 3-4 lb ( $2\frac{1}{2}$ -3 katis) liveweight at twelve weeks of age.

In the following sections an analysis is made of a one-man-unit, producing three 5000 bird crops per annum. Theoretically four crops per year can be obtained. However at present local production is geared towards sales at festive seasons, because refrigeration facilities are lacking and because a steady year round market for chicken pieces has not yet been developed.

### 2.1.1 Housing

Because of climatic conditions housing requirements are relatively simple. Some artificial heat is necessary for the first two weeks to maintain uniform conditions for the chicks, but fully insulated houses are not necessary. Costs of housing, including water and feed troughs are normally about \$3 per bird, assuming about 1 square foot of space per bird. Maintenance is assumed at  $7\frac{1}{2}$  percent per annum.

### 2.1.2 Feed

Properly formulated feeds are required for high quality broilers. Two types of feed are necessary. 'Starter', a high protein feed, for about the first 6 weeks, and a lower protein 'Finisher' for the remaining 6 weeks. Prices are taken as follows:-

'Starter' 22 cents/kati (bulk) 24 cents small orders.

'Finisher' 18 cents/kati (bulk) 20 cents small orders.

### 2.1.3 Chicks

The most commonly used crosses at present are Red Cornish x White Rock and Red Cornish x Hampshire. These are sold at one day old for 35 cents to 40 cents each. The lower price will be assumed here as prices are likely to trend down as competition increases.

### 2.1.4 Vaccinations

Vaccinations and medications normally cost about 6 cents per bird.

### 2.1.5 Labour

No hired labour is required. The operator's labour has been charged at \$150 per month.

### 2.1.6 Sales

Prices fluctuate considerably between seasons. An average sales price is \$1.00 per kati liveweight. This may be expected to fall slightly as the industry expands and margins narrow.

### 2.1.7 Mortality

This is taken at 5 per cent.

### 2.1.8 Evaluation

Table 10 sets out the total costs, sales and net cash flow resulting from a production unit based on the assumptions set out in the previous sections. The higher feed cost level and a lower sale price (90 cents per kati liveweight) has been assumed. The internal rate of return is 19 percent

To test the sensitivity of the enterprise to changes in cost of feed and labour and in price of the product, it was evaluated using alternative assumption in different combinations. The following variations were examined:-

#### Type of enterprise:

- (a) three crops per year, reflecting present market conditions of seasonal fluctuation.
- (b) four crops a year, giving better labour utilisation and output spread over the year, but requiring more buildings. This system could be appropriate where a steady demand existed eg. in the vicinity of a packing station.

#### Feed:

- (a) high cost level (section 2.1.2)
- (b) low cost level (section 2.1.2)
- (c) high cost level falling at 0.5 percent per annum
- (d) **extra** high cost (10 percent more) assuming a poor food conversion rate or delay in marketing.

#### Labour:

- (a) \$150 per month constant
- (b) \$150 per month initially, rising 3 percent per annum.

#### Sale price:

- (a) \$1.00 per kati liveweight
- (b) \$0.90 per kati liveweight
- (c) \$1.00 per kati liveweight, falling at 1 percent per annum
- (d) \$0.90 per kati liveweight, falling at 0.5 percent per annum.
- (e) \$0.80 per kati liveweight.

The results of this analysis are summarised in Table 11. Run number one represents the outcome under the conditions shown in Table 10.

TABLE 10 5,000 TABLE BIRD ENTERPRISE HIGH FEED COST, LOWER SALE PRICE COST SALES AND NET CASH FLOW

Year	Land	House	Buildings	Stock	Feed	Medic	Labour	Water	Other	Total costs	Total sales	N.C.F.
1	500	2,000	15,500	3,500	14,740	600	1,800	50	250	38,940	23,084	-15,856
2	-	30	1,162	5,250	22,110	900	1,800	50	250	31,532	34,626	3,074
3	-	30	1,162	5,250	22,110	900	1,800	50	250	31,532	34,626	3,074
4	-	30	1,162	5,250	22,110	900	1,800	50	250	31,532	34,626	3,074
5	-	30	1,162	5,250	22,110	900	1,800	50	250	31,532	34,626	3,074
6	-	30	1,162	5,250	22,110	900	1,800	50	250	31,532	34,626	3,074
7	-	30	1,162	5,250	22,110	900	1,800	50	250	31,532	34,626	3,074
8	-	30	1,162	5,250	22,110	900	1,800	50	250	31,532	34,626	3,074
9	-	30	1,162	5,250	22,110	900	1,800	50	250	31,532	34,626	3,074
10	-	30	1,162	5,250	22,110	900	1,800	50	250	31,532	34,626	3,074
11	-	30	1,162	5,250	22,110	900	1,800	50	250	31,532	34,626	3,074
12	-	30	1,162	5,250	22,110	900	1,800	50	250	31,532	34,626	3,074
13	-	30	1,162	5,250	22,110	900	1,800	50	250	31,532	34,626	3,074
14	-	30	1,162	5,250	22,110	900	1,800	50	250	31,532	34,626	3,074
15	-	30	1,162	5,250	22,110	900	1,800	50	250	31,532	34,626	3,074
16	-	30	1,162	5,250	22,110	900	1,800	50	250	31,532	34,626	3,074
17	-	30	1,162	5,250	22,110	900	1,800	50	250	31,532	34,626	3,074
18	-	30	1,162	5,250	22,110	900	1,800	50	250	31,532	34,626	3,074
19	-	30	1,162	5,250	22,110	900	1,800	50	250	31,532	34,626	3,074
20	-	30	1,162	5,250	22,110	900	1,800	50	250	31,532	34,626	3,074
N.P.V. at 15%	500	2,186	22,702	36,041	151,783	6,178	12,957	360	1,800	234,566	237,703	3,137
% of total costs	0.21	0.93	9.68	15.37	64.72	2.63	5.53	0.15	0.77	100		

Run number	Crops/yr.	Feed cost	Labour	Sale price	N.P.V. at 15% (\$)	I.R.R. Percent
1	3	High Const.	\$150/mth. constant	\$0.90/kati	5,200	19
2	3	"	"	\$1.00/kati	29,620	>50
3	3	"	"	" falling at 1%	17,650	45
4	3	High - falling at 0.5%	rising at 3%	"	18,770	46
5	3	"	"	0.90 falling at 0.5%	1,180	13
6.	3	"	constant	"	1,210	17
7	4	High	"	\$0.90	10,080	24
8	4	"	"	\$0.80	-25,120	< 0
9	4	Low	"	"	- 6,730	9
10	4	"	rising at 3%	"	- 9,120	5
11	4	"	"	\$0.90 falling at 0.5%	18,750	37
12	4	High, Poor Feed Conv.	"	"	-19,870	< 0

As would be expected profitability is extremely sensitive to changes in feed price and product price. Thus comparing runs 8 and 9 at 10 percent fall in feed costs improves the N.P.V. at 15 percent from  $-\$25,120$  to  $-\$6,730$ . Similarly a rise in sale price from 90 cents to  $\$1.00$  as in cases 1 & 2 results in a sharp increase in N.P.V.

Comparing cases 1 and 7 it can be seen that increasing the number of crops of birds handled from 3 to 4 raises the I.R.R. from 19 percent to 24 percent. At 80 cents per lb. however even with 4 crops per year and low feed costs profitability is low. Thus evening out fluctuations in demand might not substantially lower production cost.

The probable future picture is somewhere between cases 4 and 5. This indicates that given good management -- since the performance criteria assumed here are very fair -- broiler production should continue to be relatively profitable yielding returns of 20 percent or more.

## 2.2 Eggs

Egg producers usually rear hybrids, purchased as day old sexed chicks from local commercial hatcheries. These birds come into lay at between 24 and 26 weeks old. Few point-of-lay pullets are sold. Most producers keep their layers in production for one laying year and then cull them; a few keep the birds for a second year.

One man (with perhaps a little assistance from his wife) could be expected to handle a unit rearing 3000 birds per year, and keeping them for one laying year. In the enterprise evaluated below it is assumed that chicks will be purchased in two batches of 1500 per year.

### 2.2.1 Housing and equipment

Housing and equipment will be required for 1500 chicks and 3000 layers. Housing can be relatively simple; producers have not yet tried to produce the completely controlled environment which is now commonly done in cooler climates. Cages are assumed to be used for laying birds. Housing for layers, with cages and with manual feeding and watering, will cost about  $\$1.60$  per bird, and for chicks  $\$3$  per bird.

## 2.2.2 Feed

Proprietary rations are assumed to cost 16 cents/kati for both growers and layers mash in bulk lots. For small orders the price is taken at 2 cents per kati more. Low feed costs are taken in this basic example.

## 2.2.3 Stock

Day-old sexed hybrids are assumed to remain at their present price of 70 cents each.

## 2.2.4 Vaccinations

Vaccination and medication has been taken at 30 cents per chick during rearing and at 10 cents per layer in the production period.

## 2.2.5 Labour

No hired labour is required. Operator's labour is valued at \$150 per annum.

## 2.2.6 Sales

Egg production has been taken at 220 per bird in this initial enterprise. The price for eggs depends upon their size. An average price of 6.5 cents each has been used in the basic evaluation. Old birds are assumed to fetch a price of \$2.00 each.

## 2.2.7 Mortality

Mortality has assumed to be 5 percent from day-old to point-of-lay and  $12\frac{1}{2}$  percent during the laying period.

## 2.2.8 Phasing of costs and sales

This will be as follows:--

<u>Year 1</u>	<u>Year 2</u>	<u>Year 3 and on</u>
Purchase 3000 chicks	Purchase 3000 chicks	Purchase 3000 chicks
Rear 3000 chicks	Rear 3000 chicks	Rear 3000 chicks
Maintain 1425 layers	Maintain 2850 layers	Maintain 2850 layers
Sell 1425 x 110 eggs	Sell 2850 x 220 eggs	Sell 2850 x 220 eggs
	Sell 1233 old hens	Sell 2466 old hens

The costs, sales and net cash flow are shown in Table 12.

The Internal Ratio of Return is 15 percent.

TABLE 12 3,000 BIRD LAYING UNIT - LOW FEED COST, LOW SALE PRICE COSTS, SALES AND NET CASH FLOW

Year	Land	House	Buildings	Stock	Growers	Feed		Other	Labour	Total costs	Eggs	Sales		N.C.F.
						Layers						Hens	Total	
1	500	2,000	10,500	2,100	6,750	7,456		1,275	1,800	32,381	10,188	10,188		-22,193
2	-	30	787	2,100	6,750	28,860		1,485	1,800	41,812	40,755	2,466	43,221	1,409
3	-	30	787	2,100	6,750	28,860		1,485	1,800	41,812	40,755	4,932	45,687	3,875
4	-	30	787	2,100	6,750	28,860		1,485	1,800	41,812	40,755	4,932	45,687	3,875
5	-	30	787	2,100	6,750	28,860		1,485	1,800	41,812	40,755	4,932	45,687	3,875
6	-	30	787	2,100	6,750	28,860		1,485	1,800	41,812	40,755	4,932	45,687	3,875
7	-	30	787	2,100	6,750	28,860		1,485	1,800	41,812	40,755	4,932	45,687	3,875
8	-	30	787	2,100	6,750	28,860		1,485	1,800	41,812	40,755	4,932	45,687	3,875
9	-	30	787	2,100	6,750	28,860		1,485	1,800	41,812	40,755	4,932	45,687	3,875
10	-	30	787	2,100	6,750	28,860		1,485	1,800	41,812	40,755	4,932	45,687	3,875
11	-	30	787	2,100	6,750	28,860		1,485	1,800	41,812	40,755	4,932	45,687	3,875
12	-	30	787	2,100	6,750	28,860		1,485	1,800	41,812	40,755	4,932	45,687	3,875
13	-	30	787	2,100	6,750	28,860		1,485	1,800	41,812	40,755	4,932	45,687	3,875
14	-	30	787	2,100	6,750	28,860		1,485	1,800	41,812	40,755	4,932	45,687	3,875
15	-	30	787	2,100	6,750	28,860		1,485	1,800	41,812	40,755	4,932	45,687	3,875
16	-	30	787	2,100	6,750	28,860		1,485	1,800	41,812	40,755	4,932	45,687	3,875
17	-	30	787	2,100	6,750	28,860		1,485	1,800	41,812	40,755	4,932	45,687	3,875
18	-	30	787	2,100	6,750	28,860		1,485	1,800	41,812	40,755	4,932	45,687	3,875
19	-	30	787	2,100	6,750	28,860		1,485	1,800	41,812	40,755	4,932	45,687	3,875
20	-	30	787	2,100	6,750	28,860		1,485	1,800	41,812	40,755	4,932	45,687	3,875
N.P.V. at 15%	500	2,186	15,378	15,116		234,925		10,478	12,957	291,538	262,798	28,425	291,223	- 315
% of total costs	0.17	0.75	5.27	5.18		80.58		3.59	4.45					

### 2.2.9 Evaluation

The following series of different assumptions were made on feed and labour costs, production per bird and product price to test the sensitivity of returns to these factors.

#### Feed:

- (a) Low cost as shown earlier (section 2.2.2)
- (b) High cost (section 2.2.2)
- (c) High cost falling by 0.5 percent per annum.

#### Labour:

- (a) \$150 per month throughout
- (b) \$150 per month rising at 3 percent per annum

#### Production:

- (a) 220 eggs per hen housed
- (b) 200 eggs per hen housed
- (c) 200 eggs per hen housed increasing at 0.5 percent
- (d) 200 eggs per hen housed increasing at 1.0 percent
- (e) 220 eggs per hen housed increasing at 0.5 percent

#### Prices:

- (a) 6.5 cents/egg
- (b) 7.25 cents/egg
- (c) 8.0 cents/egg
- (d) 8.0 cents/egg falling at 1 percent per annum

The results of the analyses are summarised in Table 13.

Run number one represents the results of the example commercial in Table 12.

Examples 1 and 2 illustrate the importance of feed costs as a  $12\frac{1}{2}$  percent rise in costs has eliminated at 15 percent rate of return entirely.

Again examples 3 and 4 illustrate the importance of maintaining a high level of production. A fall in the hen-housed average from 220 to 200 reduces the I.R.R. from 15 percent to less than zero. It should be remembered that the hen-housed average depends both on output per bird and mortality during the laying year.

Example 10 probably comes closest to the sort of result to be expected in future. It shows labour costs and production rising and feed costs and product price falling. The rate of return, 17 percent is reasonable but not outstanding and

TABLE 13 RESULTS OF FINANCIAL ANALYSIS - LAYERS

Run No.	Feed Cost	Labour Cost	Production per bird	Price per egg	N.P.V. @ 15% (\$)	I.R.R. Percent
1	Low	\$150/mth.	220/hen housed	6.5 cts.	-320	15%
2	High		220/hen housed	6.5 cts.	--29,680	< 0%
3	High		220/hen housed	7.25 cts.	640	16%
4	High		200/hen housed	7.25 cts.	-26,000	< 0%
5	High		200/hen housed	8.0 cts.	1,560	17%
6	High		200 rising @ 0.5%	7.25 cts.	-19,160	2%
7	High		220 rising @ 0.5%	7.25 cts.	8,170	20%
8	High		200 rising @ 1.0%	7.25 cts.	-12,030	9%
9	High falling @ 1%		200 rising @ 1.0%	8.0 falling @ 1%	4,950	18%
10	High falling @ 1%	\$150/mth-rising @ 3% p.a.	200 rising @ 1.0%	8.0 falling @ 1%	2,560	17%
11	High falling @ 1%	\$150/mth-rising @ 3% p.a.	220 rising @ 0.5%	6.25	-18,970	4%

does not leave a lot of room for mistakes. Those producers who are now obtaining 220 eggs per bird are obviously making a useful profit on their enterprises.

### 3. CONCLUSIONS

A noticeable feature of both forms of poultry production is the high ratio of annual output to initial capital cost (low capital-output ratio). Annual output is two or more times the initial investment. Thus potentially the rate of return on investment is high. However, based on the figures obtained and used in the analyses, margins are very fine and high standards have to be maintained in order to achieve a reasonable income and return on capital. The picture then is of a competitive industry with easy access, (because of low capital-output ratio), which can be expected to continue to expand as demand for its product increases.

Another point which might be re-emphasised is the sensitivity of profitability and ultimately product price to feed cost. This applies also to the pig enterprise. Thus encouraging home production of feed grains such as maize and sorghum by means of tariffs will have a marked effect on meat and egg prices, probably greatly out of proportion to the value of the support given to grain producers. It might be better to offer a relatively high guaranteed price to local producers and resell at world price to millers, or operate a deficiency payment system as in U.K.

Appendix Household Expenditure Survey - Poultry Products

1. INTRODUCTION

A survey was carried out in South Johor during April 1970 aimed at providing background information on expenditure of Malaysian consumers on food items, particularly meats, fish and dairy products which were being investigated as possible production activities in the project area. A total of 1,863 households were interviewed, 1,214 Malays, 529 Chinese and 120 Indians.

The results of this survey with respect to poultry products have been summarised where appropriate in the main paper. This appendix tabulates the detailed results indicating expenditure on poultry products and frequency of purchase and home rearing by each racial group. Both hens and ducks are included.

1.1 Chicken Meat

Chicken is the most widely accepted of all the meats, being purchased by 35 percent of Malays, 79 percent of Chinese and 76 percent of Indians. In addition many households rear their own birds. Table A1 indicates the proportion of households in the different racial and income groups purchasing chicken and those who keep chickens of their own for meat purposes. Since these two are not mutually exclusive their total need not be 100. In fact in some cases the two percentages add up to more than 100 indicating that some households both rear some chickens of their own and purchase them from time to time. What is clear from the table is that virtually every household eats some chicken.

TABLE A1 PERCENTAGE OF HOUSEHOLDS PURCHASING CHICKEN AND KEEPING CHICKENS FOR OWN CONSUMPTION BY RACE AND INCOME GROUP

Income Group	Malays		Chinese		Indians Purchasing	Re- in
	Purchasing	Rear- ing	Purchasing	Rear- ing		
Less than \$100	12	82	57	48	100	0
\$100-199	31	61	77	40	73	25
\$200-299	42	50	74	42	64	36
\$300-499	44	50	88	42	75	40
\$500 & over	65	36	85	25	92	21

Details of chicken purchases and rearing for the three racial groups are given in Tables A7-A18.

Among Malays chicken is mainly purchased only occasionally and the majority of those rearing their own said that they only killed a bird for eating occasionally. About 10 percent of the population reported eating one of their own chickens once per month or more. Purchases tend to become more frequent but not markedly so. Table A2 showing median expenditure per consumer unit by households which reported

**TABLE A2** **MEDIAN MONTHLY EXPENDITURE ON CHICKEN PER CONSUMPTION UNIT<sup>(1)</sup> BY PURCHASING FAMILIES BY RACE AND INCOME GROUP**

Income Group	Malay \$	Chinese \$	Indian \$
Less than \$100	0.42	0.30	-
\$100-199	0.41	0.30	0.65
\$200-299	0.58	0.71	1.07
\$300-499	0.44	1.11	1.12
\$500 & over	0.67	3.14	3.66

(1) Consumption Unit = Adult Male Equivalent

purchases reflects this, indicating only a moderate increase in expenditure in higher income households. At present chicken still appears to be regarded as a speciality food among higher income Malays.

In contrast higher income Chinese are spending significantly higher amounts on chicken and it appears to be a fairly regular part of the diet. Consumption in higher income households is generally a weekly or fortnightly event. A majority even of low income households report buying chicken, but only occasionally, presumably for special festivals such as New Year. It is interesting to note (Table A1) that even up to the \$500 per month income level there is very little change in the proportion of households rearing some chickens, but it does drop off after that, presumably because the higher income group live in neighbourhoods where keeping chickens might be frowned upon.

Indians also are relatively large purchasers of chicken, but somewhat less likely than the other races to rear their own, perhaps a reflection of their housing situation. At higher income levels chicken has (like with the Chinese) become a regular feature of the diet.

### 1.2 Duck Meat

Duck is much less widely consumed than chicken (Table A3). The market is mainly confined to Chinese. Results of the survey indicate little increase of consumption at higher income levels and the majority of buyers at all income levels are occasional. Scope for expansion of production appears limited.

TABLE A3 PERCENTAGE OF HOUSEHOLDS PURCHASING DUCK AND MEDIAN MONTHLY EXPENDITURE BY CONSUMERS PER UNIT BY RACE AND INCOME GROUP

Income Group	Malay		Chinese		Indians Proportion Consuming Percent
	Proportion Consuming Percent	Median Expenditure \$ per month	Proportion Consuming Percent	Median Expenditure \$ per month	
Less than \$100	1	0.20	38	0.20	-
\$100-199	2	0.50	45	0.26	6
\$200-299	3	0.30	41	0.25	9
\$300-499	-	-	38	0.24	-
\$500 & over	-	-	33	0.90	4

### 1.3 Eggs (Hen)

Eggs have been described as "nature's own prepacked food". They are very convenient to cook, fairly nutritious and very easily digestible. Table A4 indicates that they are almost universally consumed in Malaysia by all races and in all income groups.

TABLE A4 PERCENTAGE OF HOUSEHOLDS PURCHASING AND PRODUCING THEIR OWN HEN EGGS BY RACE AND INCOME GROUP

Income Group	Malays		Chinese		Indians Purchasing Pro
	Purchasing	Producing	Purchasing	Producing	
Less than \$100	38	78	81	48	100
\$100-199	67	36	83	39	86
\$200-299	81	45	84	40	86
\$300-499	88	46	92	43	90
\$500 & over	95	42	94	24	100

Median monthly expenditures per consumption unit by purchasing households for the different racial and income groups are given in Table A5. Full details of hen eggs consumption are given in Tables A19-A27. The frequency of purchase is not given here, since eggs can be stored, at least for a few days, and most women thought in terms of "so many eggs per month". Therefore expenditure levels only have been recorded.

TABLE A5 MEDIAN EXPENDITURE PER CONSUMPTION UNIT ON HEN EGGS BY RACE AND INCOME GROUP

Income Group	Malays	Chinese	Indians
Less than \$100	0.30	0.95	-
\$100-199	0.55	0.88	0.64
\$200-299	0.67	1.04	1.08
\$300-499	0.96	1.23	2.08
\$500 & over	1.23	1.85	1.83

Table A5 indicates that at each income level Malays spend less on eggs than the other racial groups and also as seen in Table A4 less of them buy eggs. There is a fairly marked increase in the proportion buying eggs as incomes rise and also in expenditure per purchasing consumer. Among Chinese a high proportion of the lower income groups buy eggs as well as keeping a few hens of their own. This suggests that in terms of commercial egg sales the Malays represent the section of the market with greatest growth potential. The detailed tables indicate that domestic hens are very spasmodic in production and probably do not constitute a very substantial food source.

#### 1.4 Eggs (Duck)

Duck eggs are, like duck meat, rather a speciality market. The proportion of the population buying them is low and those that do buy relatively little. There also appears to be no tendency to increased purchase at higher income levels

TABLE A6 PERCENTAGE OF HOUSEHOLDS PURCHASING DUCK EGGS AND MEDIAN EXPENDITURE PER CONSUMPTION UNIT, BY RACE AND INCOME GROUP

Income Group	Malays		Chinese		Indian Proportion buying
	Proportion buying	Median Expenditure	Proportion buying	Median Expenditure	
Less than \$100	12	0.10	14	0.15	0
\$100-199	12	0.37	13	0.35	4
\$200-299	11	0.08	15	0.33	0
\$300-499	7	0.35	7	0.15	5
\$500 & over	15	0.13	16	0.17	0

TABLE A7 NUMBERS OF HOUSEHOLDS BY FREQUENCY OF PURCHASE OF CHICKEN AND INCOME GROUP -- MALAYS

Frequency	Income Group			
	Less than \$100	\$100-199	\$200-299	\$300-499
Everyday	1	1	-	1
Twice or Thrice per week	-	-	-	2
Weekly	1	3	4	3
Fortnightly	1	5	12	5
Monthly	5	40	23	19
Occasionally	22	101	43	55
None	204	330	112	107

TABLE A8 NUMBER OF HOUSEHOLDS BY FREQUENCY OF CONSUMPTION OF OWN CHICKEN AND INCOME GROUP -- MALAYS

Frequency	Income Group			
	Less than \$100	\$100-199	\$200-299	\$300-499
Everyday				
Twice or Thrice per week		6	2	2
Weekly		3	1	
Fortnightly	9	24	13	14
Monthly	12	44	18	15
Occasionally	171	214	63	65
None				

TABLE A9 NUMBER OF HOUSEHOLDS BY EXPENDITURE PER MONTH ON CHICKEN AND INCOME GROUP - MALAYS

Expenditure	Income Group				
	Less than \$100	\$100-199	\$200-299	\$300-499	\$500 & over
\$ 1.00- 1.99	15	60	26	33	16
\$ 2.00- 2.99	2	13	8	15	6
\$ 3.00- 3.99	4	15	9	7	10
\$ 4.00- 5.99	-	25	12	13	9
\$ 6.00- 7.99	1	3	9	6	2
\$ 8.00- 9.99	-	2	4	1	9
\$10.00-14.99	1	3	4	3	4
\$15.00-19.99		2	1	-	2
\$20.00 or over	7	27	9	7	19
None	204	330	112	107	40

TABLE A10 NUMBER OF HOUSEHOLDS BY EXPENDITURE PER CONSUMPTION UNIT PER MONTH ON CHICKEN AND INCOME GROUP - MALAYS

	Income Group				
	Less than \$100	\$100-199	\$200-299	\$300-499	\$500 & over
\$0.30-0.39	5	33	20	24	10
\$0.40-0.59	4	26	10	16	11
\$0.60-0.79	3	12	7	4	11
\$0.80-0.99	-	7	5	6	3
\$1.00-1.24	2	9	3	6	5
\$1.25-1.49	-	6	7	2	-
\$1.50-1.99	-	7	5	5	4
\$2.00-3.99	5	7	8	4	8
Over \$4.00	11	43	17	18	33
None	204	330	112	107	40

TABLE A11 NUMBER OF HOUSEHOLDS BY FREQUENCY OF PURCHASE  
OF CHICKEN AND INCOME GROUP - CHINESE

Frequency	Income Group				
	Less than \$100	\$100-199	\$200-299	\$300-499	\$500 & over
Everyday	-	-	-	-	-
Twice or Thrice per week	-	3	7	8	13
Weekly	-	4	11	22	20
Fortnightly	-	7	27	31	11
Monthly	1	26	16	13	2
Occasionally	11	82	60	31	11
None	9	36	42	15	10

TABLE A12 NUMBER OF HOUSEHOLDS BY FREQUENCY OF CONSUMPTION  
OF OWN CHICKEN AND INCOME GROUP - CHINESE

Frequency	Income Group				
	Less than \$100	\$100-199	\$200-299	\$300-499	\$500 & over
Everyday			1		
Twice or Thrice per week		2	7	6	1
Weekly			1	1	6
Fortnightly		3	14	10	2
Monthly	2	13	7	10	2
Occasionally	8	45	38	23	3
None					

TABLE A13 NUMBER OF HOUSEHOLDS BY EXPENDITURE PER MONTH  
ON CHICKEN AND INCOME GROUP - CHINESE

Expenditure	Income Group				
	Less than \$100	\$100-199	\$200-299	\$300-499	\$500 & over
\$ 1.00- 1.99	6	44	26	18	5
\$ 2.00- 2.99	1	3	6	1	-
\$ 3.00- 3.99	1	11	6	1	1
\$ 4.00- 5.99		12	13	13	4
\$ 6.00- 7.99	-	7	5	8	2
\$ 8.00- 9.99	1	1	11	18	4
\$10.00-14.99	-	5	13	7	5
\$15.00-19.99	-	2	9	13	14
\$20.00 or over	3	37	32	26	22
None	9	36	42	15	10

TABLE A14 NUMBER OF HOUSEHOLDS BY EXPENDITURE PER MONTH  
PER CONSUMPTION UNIT ON CHICKEN AND INCOME  
GROUP - CHINESE

Expenditure	Income Group				
	Less than \$100	\$100-199	\$200-299	\$300-499	\$500 & over
\$0.30-0.39	2	36	25	10	2
\$0.40-0.59	4	15	4	1	3
\$0.60-0.79	-	4	7	14	2
\$0.80-0.99	-	8	6	6	3
\$1.00-1.24	-	6	6	7	1
\$1.25-1.49	-	2	8	7	2
\$1.50-1.99	-	8	9	9	3
\$2.00-3.99	1	9	18	19	14
Over \$4.00	5	34	38	32	27
None	9	36	42	15	10

TABLE A15 NUMBERS OF HOUSEHOLDS BY FREQUENCY OF PURCHASE  
OF CHICKEN AND INCOME GROUP - INDIANS

Frequency	Income Group				
	Less than \$100	\$100-199	\$200-299	\$300-499	\$500 & over
Everyday	-	-	-	-	-
Twice or Thrice per week	-	-	-	-	3
Weekly	-	3	3	5	12
Fortnightly	1	4	3	1	4
Monthly	-	14	4	5	1
Occasionally	2	16	4	4	2
None	-	14	8	5	2

TABLE A16 NUMBER OF HOUSEHOLDS BY FREQUENCY OF CONSUMPTION  
OF OWN CHICKEN AND INCOME GROUP - INDIANS

Frequency	Income Group				
	Less than \$100	\$100-199	\$200-299	\$300-499	\$500 & over
Everyday					
Twice or Thrice per week				3	2
Weekly					1
Fortnightly				1	
Monthly		1	3		1
Occasionally		2	2	2	
None		9	2	3	

TABLE A17 NUMBER OF HOUSEHOLDS BY EXPENDITURE PER MONTH  
ON CHICKEN AND INCOME GROUP -- INDIANS

Expenditure	Income Group				
	Less than \$100	\$100-199	\$200-299	\$300-499	\$500 & over
\$ 1.00- 1.99	1	12	2	2	2
\$ 2.00- 2.99	1	1	1	1	-
\$ 3.00- 3.99	-	5	1	2	1
\$ 4.00- 5.99	-	10	3	3	3
\$ 6.00- 7.99	-	-	3	-	2
\$ 8.00- 9.99	-	3	1	-	-
\$10.00-14.99	1	3	-	4	1
\$15.00-19.99	-	1	2	-	5
\$20.00 or over	-	2	1	3	8
None	-	14	8	5	2

TABLE A18 NUMBER OF HOUSEHOLDS BY EXPENDITURE PER MONTH  
ON CHICKEN PER CONSUMPTION UNIT AND INCOME  
GROUP -- INDIANS

Expenditure	Income Group				
	Less than \$100	\$100-199	\$200-299	\$300-499	\$500 & over
\$0.30-0.39	2	9	2	2	1
\$0.40-0.59	-	6	1	1	2
\$0.60-0.79	-	2	-	3	-
\$0.80-0.99	-	3	1	-	2
\$1.00-1.24	-	3	2	1	-
\$1.25-1.49	-	1	-	1	-
\$1.50-1.99	1	4	2	-	3
\$2.00-3.99	-	2	3	4	3
Over \$4.00	-	7	3	3	11
None	-	14	8	5	2

TABLE A19 NUMBER OF HOUSEHOLDS BY FREQUENCY OF CONSUMPTION OF HOME PRODUCED EGGS AND INCOME GROUP - MALAYS

Frequency	Income Group				
	Less than \$100	\$100-199	\$200-299	\$300-499	\$500 & over
Everyday	20	40	17	7	4
Twice or Thrice per week	26	24	6	6	1
Weekly	-	3	1	-	-
Fortnightly	22	37	9	13	5
Monthly	9	32	16	13	6
Occasionally	105	39	39	50	22

TABLE A20 NUMBER OF HOUSEHOLDS BY MONTHLY EXPENDITURE ON CHICKEN EGGS AND INCOME GROUP - MALAYS

Expenditure	Income Group				
	Less than \$100	\$100-199	\$200-299	\$300-499	\$500 & over
\$ 1.00- 1.99	24	59	12	9	5
\$ 2.00- 3.99	19	128	56	48	12
\$ 4.00- 5.99	6	46	38	30	16
\$ 6.00- 8.99	7	29	20	23	28
\$ 9.00-11.99	2	8	9	17	7
\$12.00-14.99	1	4	5	13	19
\$15.00-19.99	2	5	5	10	4
\$20.00-29.99		1	2	4	7
\$30.00 or over	28	43	11	14	8
None	145	157	36	24	8

TABLE A21 NUMBER OF HOUSEHOLDS BY MONTHLY EXPENDITURE PER CONSUMPTION UNIT ON CHICKEN EGGS AND INCOME GROUP - MALAYS

Expenditure	Income Group				
	Less than \$100	\$100-199	\$200-299	\$300-499	\$500 & over
\$0.10-0.19	13	32	8	10	2
\$0.20-0.39	18	63	28	22	7
\$0.40-0.69	12	72	36	33	17
\$0.70-0.97	8	42	18	17	16
\$1.00-1.49	9	44	30	29	15
\$1.50-1.99	1	17	11	18	14
\$2.00-2.49	4	6	4	7	12
\$2.50-2.99	1	7	5	10	7
\$3.00 or over	23	40	18	28	16
None	145	157	36	24	8

TABLE A22 NUMBER OF HOUSEHOLDS BY FREQUENCY OF CONSUMPTION OF HOME PRODUCED EGGS AND INCOME GROUP - CHINESE

Frequency	Income Group				
	Less than \$100	\$100-199	\$200-299	\$300-499	\$500 & over
Everyday	3	20	10	17	1
Twice or Thrice per week	-	4	10	2	-
Weekly	1	-	1	2	5
Fortnightly	-	2	11	8	2
Monthly	2	11	5	7	2
Occasionally	4	24	28	16	6

TABLE A23 NUMBER OF HOUSEHOLDS BY MONTHLY EXPENDITURE ON CHICKEN EGGS AND INCOME GROUP - CHINESE

Expenditure	Income Group				
	Less than \$100	\$100-199	\$200-299	\$300-499	\$500 & over
\$ 1.00- 1.99	2	10	8	1	3
\$ 2.00- 3.99	1	26	22	11	5
\$ 4.00- 5.99	10	45	41	24	7
\$ 6.00- 8.99	2	25	38	30	14
\$ 9.00-11.99	-	2	5	2	5
\$12.00-14.99	1	11	5	20	13
\$15.00-19.99	-	4	8	6	10
\$20.00-29.99	-	1	4	4	2
\$30.00 or over	1	7	6	12	4
None	4	27	26	10	4

TABLE A24 NUMBER OF HOUSEHOLDS BY MONTHLY EXPENDITURE PER CONSUMPTION UNIT ON CHICKEN EGGS AND INCOME GROUP - CHINESE

Expenditure	Income Group				
	Less than \$100	\$100-199	\$200-299	\$300-499	\$500 & over
\$0.10-0.19	1	2	1	2	1
\$0.20-0.39	3	12	13	10	1
\$0.40-0.69	3	30	24	15	6
\$0.70-0.97	3	29	23	10	3
\$1.00-1.49	5	27	34	26	14
\$1.50-1.99	1	9	10	10	8
\$2.00-2.49	1	7	7	11	8
\$2.50-2.99	-	5	8	10	5
\$3.00 or over	-	10	17	16	17
None	4	27	26	10	4

TABLE A25 NUMBER OF HOUSEHOLDS BY FREQUENCY OF CONSUMPTION  
OF HOME PRODUCED EGGS AND INCOME GROUP - INDIANS

Frequency	Income Group				
	Less than \$100	\$100-199	\$200-299	\$300-499	\$500 & over
Everyday	-	-	-	3	2
Twice or Thrice per week	-	-	-	-	1
Weekly	-	-	-	1	-
Fortnightly	-	1	3	-	1
Monthly	-	2	2	2	-
Occasionally	-	9	2	3	-

TABLE A26 NUMBER OF HOUSEHOLDS BY MONTHLY EXPENDITURE ON  
CHICKEN EGGS AND INCOME GROUP - INDIANS

Expenditure	Income Group				
	Less than \$100	\$100-199	\$200-299	\$300-499	\$500 & over
\$ 1.00- 1.99	-	10	7	2	1
\$ 2.00- 3.99	1	3	1	2	-
\$ 4.00- 5.99	-	5	3	1	1
\$ 6.00- 8.99	-	14	2	5	4
\$ 9.00-11.99	-	8	6	2	3
\$12.00-14.99	1	2	1	3	1
\$15.00-19.99	-	2	-	3	7
\$20.00-29.99	-	1	1	-	3
\$30.00 or over	-	-	-	2	4
None	1	6	1	-	-

TABLE A27 NUMBER OF HOUSEHOLDS BY MONTHLY EXPENDITURE PER CONSUMPTION UNIT ON CHICKEN EGGS AND INCOME GROUP - INDIANS

Expenditure	Income Group				
	Less than \$100	\$100-199	\$200-299	\$300-499	\$500 & over
\$0.10-0.19	1	7	3	1	2
\$0.20-0.39	-	6	5	2	1
\$0.40-0.69	-	4	1	3	1
\$0.70-0.97	1	4	1	3	1
\$1.00-1.49	-	6	4	2	3
\$1.50-1.99	-	5	3	-	3
\$2.00-2.49	-	3	1	5	3
\$2.50-2.99	-	2	-	1	7
\$3.00 or over	-	-	2	3	3
None	1	6	1	-	-

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