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BULLETIN No. 290 JUNE 1954

COSTS *and* RETURNS *to* COMMERCIAL EGG PRODUCERS

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CONTENTS

Page

INTRODUCTION 3
- Purpose of study 3
- Method of study 4

FARM ORGANIZATION AND EXPERIENCE 4

GROSS RETURNS FROM COMMERCIAL EGG PRODUCTION 7

COST OF PRODUCING EGGS 8

FACTORS AFFECTING COSTS, RETURNS, PROFITS, AND LABOR INCOME 11
- Production factors 11
- Selected marketing factors 18
- Combined production and marketing factors 20
- Investment in buildings and equipment per layer 21

COMPARISON OF PROFIT AND LOSS PRODUCERS 22

SUMMARY AND CONCLUSIONS 24

RECOMMENDATIONS 27

APPENDIX 29

FIRST PRINTING 8M, JUNE 1954

COSTS *and* RETURNS *to* COMMERCIAL EGG PRODUCERS*

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INTRODUCTION

COMMERCIAL egg producers should know and analyze their production costs. Egg production often is hazardous, and is highly sensitive to many changing conditions. Cash expenses form an important part of the costs of producing eggs. To be most successful, egg producers must not only know how to handle their flocks, but they must also understand the business principles related to the industry and employ sound business procedures in general.

Successful egg producers must keep two things in mind. First, there are certain factors in production that effect the profitableness of the laying enterprise. These factors include size of flock, rate of lay, labor and feed efficiency, and mortality. A mistake on any one or a combination of these factors can cause the business to be unprofitable. Second, and of equal importance, are factors affecting efficiency in marketing eggs. Efficient marketing is of utmost importance, but it will not insure profits if production costs are too high. Some farmers produce eggs at a low cost per dozen, while neighbors produce at an excessively high cost. This indicates the need for studying the conditions underlying business success in egg production.

PURPOSE OF STUDY

The general purpose of this study was to describe the various methods used by commercial poultrymen in producing eggs, the types of facilities used, the size of operation, and the amount of

*This study was supported by Federal and State Research Funds.
**The authors acknowledge the assistance and cooperation given in this study from the 130 commercial egg producers surveyed, and from personnel of the Extension Service of the Alabama Polytechnic Institute. Acknowledgement is also due J. M. Jones for collecting most of the data; to E. E. Mansfield for supervising the tabulation of the data; and to staff members of the Poultry Husbandry and Agricultural Economics departments for helpful suggestions throughout the study.

labor required; and to determine costs of production. Only in recent years has a sizeable number of Alabama farmers become interested in egg production on a commercial basis. Consequently, few State data are available to these farmers to guide them in their operations.

Specific purposes of this study were:

(1) To describe the organization and operation of the poultry enterprise on commercial hatching egg and market egg farms in Alabama.

(2) To determine and evaluate the more important cost items on these farms, showing variations in these items, and indicating some of the factors associated with such variations.

(3) To analyze factors affecting efficiency.

(4) To compare the results of farm operators producing eggs at a profit with those producing at a loss, and to indicate factors associated with profit.

Method of Study

The period selected for study extended from September 1, 1951, through August 31, 1952. Data pertaining to this 12-month period were collected by a survey of poultry farms during the fall of 1952. Twenty-three counties were selected on the basis of location, general type of farming practiced in each area, and prevalence of commercial poultry farms. A total of 130 farmers were interviewed during the course of the survey. Of these, 49 were primarily hatching egg producers and 81 were market egg producers.

For purposes of this study, commercial egg producers were designated as those producers who had 400 or more layers on hand January 1, 1952. The average number of layers on hand during the year for any one producer may have dropped lower than this number where rigid culling was practiced or where other factors caused a large part of the flock to be disposed of after the first of the year.

FARM ORGANIZATION AND EXPERIENCE

Of the 130 commercial poultry farms studied, 70 were full-time market egg producers, 11 were part-time market egg producers, 32 were full-time hatching egg producers, and 17 were

part-time hatching egg producers. Of the total, 102 produced eggs throughout the year of the study, while 28 produced eggs only part of the year. However, the part-time producers sold eggs for some 9 to 11 months of the year.

The average size farm (total land area) of market egg producers was 88 acres and of hatching egg producers, 82 acres. According to the 1950 Census of Agriculture, the average farm in the State had 99 acres of land. The commercial egg producing farms studied varied in size from 1 to 500 acres. Fifteen per cent consisted of 10 acres or less.

Of the 86 acres of land in the average commercial egg producing farm, 34 were used for cultivated crops and 16 were in open pasture. The remaining 36 acres included woodland, farmstead, roads, and waste land. Approximately 28 per cent of the farms studied had no land in cultivation and 42 per cent had no land in open pasture. As a whole, the total land area of commercial egg producing farms was less than that of the average census farm in the State, and was used for less intensive crops.

Some 94 per cent of the commercial egg producing farms studied were operated by owners. Only 2 per cent were operated by part-owners. The remaining 4 per cent were operated by tenants. Ninety-nine per cent of all the commercial egg producing farms were managed by white operators and 1 per cent by colored operators.

The average age of operators of the 81 farms producing market eggs was 45 years, and of the 49 farmers producing hatching eggs, 47 years. The age range of operators was from 23 to 77 years. Some 24 per cent of all operators were less than 36 years of age; 56 per cent were from 36 to 59 years of age; and 20 per cent were 60 years or older.

Of the 130 farms studied, the size of family ranged from 1 to 11 people. Most families ranged from 2 to 4 people, with the average consisting of 3.6. Fifty-four per cent of the families consisted of 3 people or less. As a whole, the average commercial egg producing farm was smaller than the average census farm in the State, was operated by an older operator, and the operator's family was smaller than average size.

Eighty-eight per cent of the operators studied performed some work on their farms during year of the study. Family labor was used on 58 per cent of the farms; 37 per cent used some hired

labor. Some 22 per cent of the operators worked off-farm for all or a part of the year covered by the study. A slightly higher percentage of the hatching egg producers worked off the farm than did market egg producers.

Some 21 per cent of the commercial egg producing farms studied produced poultry products other than hen eggs. Eighteen per cent produced broilers, 2 per cent produced market turkeys, and 1 per cent produced turkey hatching eggs. Only 14 per cent of the market egg producers grew broilers, while 27 per cent of the hatching egg producers grew broilers.

The market egg producers included in this study had an average of 10 years' experience in commercial egg production. The hatching egg producers had an average of 6 years experience in producing hatching eggs. The number of years experience in commercial egg production varied from 1 to 40 years. Some 42 per cent of the market egg producers had less than 6 years' experience. On the other hand, 69 per cent of the hatching egg producers had less than 6 years experience in commercial egg production.

Approximately 42 per cent of all commercial poultrymen studied had plans to expand the size of their laying flock sometime in the near future. They reported that they planned to add between 100 and 5,000 birds per farm. As an average, 400 to 500 birds would be added to each flock for which expansion was planned. Of the 58 per cent of the poultrymen who had no plans for expanding, most of them planned to keep the same size flock as they had during year of the study. Only a small percentage were considering reducing the size of their flocks. Should only half of all producers in the State who had plans for expanding be able to do so, some 200,000 birds would be added to existing commercial flocks in the State.

Egg producers included in this study were asked the question: "Why did you start producing eggs commercially?" Most of the answers, as was expected, were "to secure extra income." However, a surprisingly high percentage gave retirement from former jobs as their answer. Some 20 per cent of all producers studied were 60 years old or older. Within this group were many who had moved to small farms and had gone into the egg producing business after retirement. Quite a number of the egg producers studied began producing eggs as a "hobby" and grew into a com-

mercial business. Replies to the question: "Who advised you to go into the poultry business?" indicated the following:

Who advised	*Per cent*
Feed dealers	5
Neighbors	4
Extension poultryman	3
County agent	2
Vocational agriculture teacher	2
Farmers Home Administration	2
No one or don't remember	82

Most commercial egg producers started out with relatively small laying flocks which they expanded over the years. The average egg producer included in this study began with an original commercial flock of 353 birds. During the year included in the study, the average producer had a flock of 784 layers. Thus, there was an average increase of 122 per cent over the original commercial flock. This increase occurred over a period of about 10 years. Market egg producers on the average had doubled their flock size from the time they began until the time of the study. However, hatching egg producers on the average had increased their original flock size by 165 per cent. This change had occurred over a period of about 6 years and corresponds with increased broiler production in the State. Some 63 per cent of the producers included in this study began with White Leghorn flocks. Since beginning commercial egg production, 51 per cent have changed breeds one or more times.

GROSS RETURNS FROM COMMERCIAL EGG PRODUCTION

Gross returns totaled $957.04 per 100 layers, or 61.6 cents per dozen eggs produced, Table 1. Almost 96 per cent of the gross returns per 100 birds, or 59.0 cents per dozen, was realized from

TABLE 1. GROSS RETURNS FROM EGG PRODUCTION, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951 - AUGUST 31, 1952

Source of receipts	Average returns		Percentage of total returns
	Per 100 layers	Per dozen eggs	
	Dollars	*Cents*	*Per cent*
Eggs sold	916.21	59.0	95.7
Eggs consumed	11.28	.7	1.2
Feed bags sold or used	11.40	.7	1.2
Manure credit	18.15	1.2	1.9
TOTAL	957.04	61.6	100.0

the sale of eggs. Eggs consumed on the farm accounted for 1.2 per cent of returns, or 0.7 cent per dozen eggs produced. About the same amount was realized from the sale of feed bags. The value of manure was estimated at $18.15 per 100 hens, or 1.2 cents per dozen eggs produced. The average returns included in this study covered some 102,000 layers and 1.6 million dozen eggs.

Gross returns per 100 layers for market egg producers averaged $865.90, or 53.6 cents per dozen eggs produced. Of these returns, 51.4 cents per dozen came from sales, 0.8 cent from home use of eggs, 0.7 cent from feed bags, and 0.7 cent from manure credits. Gross returns per 100 layers for hatching egg producers averaged $1,094.78, or 75.0 cents per dozen eggs produced. Of these returns, 71.6 cents per dozen came from sales, 0.7 cent from home use of eggs, 0.8 cent from feed bags, and 1.9 cents from manure credits, Appendix Table 1. Hatching egg producers received larger returns from manure credits partly from larger birds and partly from selling manure at prices higher than most farmers allowed as credit for that used on the farm. Hatching egg producers sold hatching eggs at an average price of 84.0 cents per dozen. The average sale price of 71.6 cents per dozen received by hatching egg producers included both hatching and non-hatching eggs.

COST OF PRODUCING EGGS

Records of varying detail were kept on the 130 farms included in this study. Where records of particular costs were not available, producers were asked to make estimates to the best of their ability. Since the survey was carried out during the fall of 1952, information concerning the preceding 12-month period was still fresh in most farmers' minds, and such estimates were used in the average data on costs.

Most commercial egg producers had records of commercial feed costs or they could be determined from cancelled feed bills. Home-grown grains were charged to the poultry enterprise at average market values. Family and operator labor were charged at hourly wage rates for which such labor could have been replaced with comparable hired labor. These rates averaged 64 cents per hour but varied slightly for various sections of the State. Hired labor was charged at the actual wage paid, includ-

ing an allowance for items furnished, such as house, eggs, etc. Labor included the time spent in caring for the flock, and in gathering, grading, packing, and delivering eggs.

Flock depreciation was calculated by taking the difference between the total estimated value of birds at the beginning of the year plus the value of birds added during the year, and the value of birds sold or eaten during the year or on hand at the end of the year.[1] Six per cent interest on average flock investment was added as a part of flock depreciation cost.

Depreciation on laying houses and other buildings used by the laying enterprise was based on the farmers estimated value of such buildings at the beginning of the year divided by the number of years of usefulness remaining. Six per cent interest was charged on the average investment in land, buildings, and equipment. This was added to house and equipment costs. Equipment depreciation was charged in the same manner as building depreciation. Miscellaneous charges included such items as cartons, crates, electricity, veterinary fees, medicines, hauling costs, and other similar items.

On the 130 farms studied, the most costly item in the production of eggs was feed. This item accounted for $532.73 per 100 birds, or 63.2 per cent of the total cost of producing eggs, Table 2. Labor costs accounted for 13.9 per cent of total production costs, and flock depreciation 13.3 per cent. These three items constituted 90 per cent of all costs. Total costs per dozen eggs for all farms averaged 54.2 cents.

[1] An example of how flock depreciation was computed for each flock is shown below:

	Number	*Price*	*Value*
Layers on hand, Sept. 1, 1951	1,343	$1.00	$1,343
Layers added (9/1/51-8/31/52)	2,000	1.75	3,500
TOTAL	3,343		$4,843
Layers on hand, Aug. 31, 1952	2,938	$1.50	4,407
Layers sold during year	37	1.00	37
Layers used in home during year	3	1.00	3
Layers died during year	365		0
TOTAL	3,343		$4,447
Loss in value during year			$ 396
Interest on average investment during year @ 6 per cent			172
TOTAL FLOCK DEPRECIATION COST			$ 568

Number dozen eggs produced — 20,035
FLOCK DEPRECIATION COST PER DOZEN EGGS: 2.8 cents

TABLE 2. ITEMIZED COSTS OF EGG PRODUCTION PER 100 LAYERS AND PER DOZEN EGGS, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951-AUGUST 31, 1952

Item	Average cost		Percentage of total cost
	Per 100 layers	Per dozen eggs	
	Dollars	*Cents*	*Per cent*
Feed	532.73	34.3	63.2
Labor	117.49	7.6	13.9
Flock depreciation	112.50	7.2	13.3
Laying houses	36.59	2.3	4.3
Miscellaneous	27.44	1.8	3.3
Taxes, insurance	2.99	.2	.4
Litter	2.31	.1	.3
Equipment	8.40	.5	1.0
Land	1.44	.1	.2
Other buildings	.92	.1	.1
TOTAL	842.81	54.2	100.0

Costs per dozen eggs for hatching egg flocks averaged 59.5 cents, as compared with total costs of 51.1 cents per dozen for market egg flocks, Table 3. On a per 100-layer basis, hatching flock costs totaled $868.20 and market flocks only $826.00. The market egg flocks as a whole used smaller birds and did not keep roosters in flocks; consequently, feed costs per dozen eggs were considerably less for this group. Some saving in labor was made by the hatching egg group, largely through marketing. The hatching egg group held flock depreciation costs slightly lower largely because of the higher return from heavier culls sold.

TABLE 3. ITEMIZED COSTS OF EGG PRODUCTION, 81 MARKET AND 49 HATCHING EGG FLOCKS, ALABAMA, SEPTEMBER 1, 1951-AUGUST 31, 1952

Item	Average cost				Percentage of total cost	
	Per 100 layers		Per dozen eggs			
	Market flocks	Hatching flocks	Market flocks	Hatching flocks	Market flocks	Hatching flocks
	Dollars	*Dollars*	*Cents*	*Cents*	*Per cent*	*Per cent*
Feed	503.95	576.23	31.2	39.5	61.0	66.4
Labor	123.68	108.12	7.6	7.4	15.0	12.5
Flock depreciation	117.63	104.75	7.3	7.2	14.3	12.1
Laying houses	36.33	36.97	2.2	2.5	4.4	4.3
Miscellaneous	30.65	22.60	1.9	1.5	3.7	2.6
Taxes, insurance	2.82	3.26	.2	.2	.3	.4
Litter	2.12	2.58	.1	.2	.3	.2
Equipment	6.58	11.16	.4	.7	.8	1.2
Land	1.12	1.91	.1	.2	.1	.2
Other buildings	1.12	.62	.1	.1	.1	.1
TOTAL	826.00	868.20	51.1	59.5	100.0	100.0

Housing costs were slightly higher for hatching egg flocks because of space requirements for larger birds and roosters. Miscellaneous costs were higher for the market egg group because of the relatively large number of producers who sold eggs in individual cartons to household consumers and retail stores. Also, delivery or hauling costs were higher for market egg producers. The difference in miscellaneous costs would have been much more in favor of the hatching egg group had they not had expense of vaccinations and of blood testing at yearly or semi-yearly intervals. Equipment costs ran higher for the hatching egg group because they were newer in the industry and had somewhat more modern and costly equipment than did the market egg group.

FACTORS AFFECTING COSTS, RETURNS, PROFITS, AND LABOR INCOME

There are two distinct groups of factors that permit or prevent the attainment of the desired profit margin on any poultry enterprise. One group can be classified as production factors and the other group as marketing factors and methods related thereto. The production group includes such variables as flock size, rate of lay, feed and labor efficiency, and mortality. These factors will be given major consideration in this report. Marketing factors will be covered in detail in a subsequent report.

Production Factors

Size of flock. Size of flock is an important factor in minimizing production costs and maximizing profits. Between flocks averaging about 300 layers and those averaging about 1,400 layers, there was a cost spread of almost 10 cents per dozen and a profit spread of almost 13 cents per dozen eggs produced, Table 4. The larger flocks returned a labor income of $1.12 per hour more than smaller flocks.

As size of flock increased, feed cost per dozen eggs tended to decline. Also labor costs and flock depreciation per dozen eggs decreased. Some savings were made by large flock groups in housing costs. Most of the other costs per dozen eggs were about the same regardless of flock size, Appendix Table 2. Rate of lay was slightly higher for the small flocks. However, the small flock group used more labor and feed to produce a dozen eggs. These inefficiencies, along with a higher mortality, resulted in costs of

TABLE 4. RELATION OF SIZE OF FLOCK TO GROSS RETURNS, TOTAL COSTS, AND NET PROFIT OR LOSS PER DOZEN EGGS, AND LABOR INCOME PER HOUR, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951-AUGUST 31, 1952

Item	Number of layers in flock			Average
	Under 400	400 - 699	700 or more	
Number of flocks	33	49	48	130
Average number of layers	307	498	1,404	784
	Cents	*Cents*	*Cents*	*Cents*
Returns per dozen eggs	59.1	61.0	62.2	61.6
Costs per dozen eggs	62.8	53.5	53.2	54.2
Profit or loss per dozen eggs	-3.7	7.5	9.0	7.4
Labor income per hour	43.4	116.5	155.0	125.9

production that were greater than returns. Flocks averaging about 300 layers gave a return of only 94 cents for each dollar of expenses, Appendix Table 3. Farmers with flocks under 400 layers used an average of 10.9 minutes of labor per dozen eggs produced, while those with 700 or more layers used only 6.0 minutes. This study indicates that flocks averaging 500 or more layers are needed in order to secure all-around efficiency for profitable egg production.

RATE OF LAY. A high rate of lay does not, in itself, guarantee a profit to the producer. However, the greater number of eggs produced per bird in any given flock the greater will be the prospects of profit. The group of flocks that produced an average of less than 150 eggs per layer produced at a loss, Table 5. The groups that produced an average of 179 eggs or more per year produced at a profit. This indicates that the minimum objective should be a 50 per cent rate of lay for the year. The profit spread between the low and high rate of lay groups amounted to 25 cents per dozen, and the cost spread to 35 cents per dozen.

TABLE 5. RELATION OF RATE OF LAY TO GROSS RETURNS, TOTAL COSTS, AND NET PROFIT OR LOSS PER DOZEN EGGS, AND LABOR INCOME PER HOUR, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951 - AUGUST 31, 1952

Item	Number of eggs laid per hen per year			Average
	Under 150	150 - 199	200 or more	
Number of flocks	23	53	54	130
Average number of layers	987	682	797	784
	Cents	*Cents*	*Cents*	*Cents*
Returns per dozen eggs	69.4	61.4	59.7	61.6
Costs per dozen eggs	80.1	57.5	45.4	54.2
Profit or loss per dozen eggs	-10.7	3.9	14.3	7.4
Labor income per hour	-.8	95.1	205.9	125.9

Combining hatching egg flocks and market egg flocks make it somewhat difficult to show the over-all effects of rate of lay on profit, costs, etc. Data in Table 5 indicate a high gross return per dozen eggs for flocks with low production and a low gross return for flocks with high production. However, the high rate of lay group was more profitable because costs were low. The high rate of lay was mostly that of market egg flocks, consequently the lower gross returns per dozen eggs. Market egg flocks produced an average of 194 eggs per bird. There was a profit spread per dozen of 27.5 cents between the market egg flocks that produced under 150 eggs and those that produced over 200 eggs per layer. Because of the lower selling price of market eggs, a higher rate of lay and the attendant lower cost was necessary for profitable production. Only those market egg flocks that were equal to the average (194 eggs) or higher in rate of lay were profitable.

The average rate of lay for the hatching egg flocks studied was 175 eggs. This included hatching flocks producing eggs for replacement stock and also for broiler chicks. Some 43 per cent of the hatching egg flocks studied produced an average of less than 160 eggs per layer. Due to the price of hatching eggs, flocks that produced an average of 159 eggs or more were profitable. Those that produced at a lower rate of lay were generally unprofitable.

In terms of the 130 flocks studied, feed costs per dozen eggs decreased as rate of lay increased, Appendix Table 4. This was also true of most other costs. Size of flock was not closely associated with rate of lay. However, feed and labor efficiency and mortality were closely associated with rate of lay, Appendix Table 5. As an average, flocks producing 200 or more eggs per layer gave a return of $1.31 per dollar of costs. Flocks producing under 150 eggs per layer gave a return of only 87 cents for each dollar of costs.

Feed efficiency. On farms where the average feed efficiency was highest, operators were able to produce eggs at a cost of 56.6 cents less per dozen than those whose flocks had the lowest feed efficiency, Table 6. Grain, mash, shell, etc., were all used to compute pounds of feed consumed. There was a profit spread of 36.7 cents a dozen between the group that used the least feed and the group that used the most feed to produce a dozen eggs. Variation in feed cost between the high and low group amounted to 43.2 cents per dozen eggs. The profit spread would have been much greater between the low and high feed efficiency groups had not

TABLE 6. RELATION OF FEED EFFICIENCY TO GROSS RETURNS, TOTAL COSTS, AND NET PROFIT OR LOSS PER DOZEN EGGS, AND LABOR INCOME PER HOUR, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951-AUGUST 31, 1952

Item	Pounds of feed consumed per dozen eggs[1]					Average
	Under 5	5.0 - 6.9	7.0 - 8.9	9.0 - 10.9	11.0 or more	
Number of flocks	25	36	39	21	9	130
Average number of layers	824	811	754	671	960	784
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
Returns per dozen eggs	53.8	59.7	65.8	68.2	73.7	61.6
Costs per dozen eggs	41.2	47.6	55.9	77.0	97.8	54.2
Profit or loss per dozen eggs	12.6	12.1	9.9	-8.8	-24.1	7.4
Labor income per hour	194.0	166.5	147.5	9.9	-83.8	125.9

[1] Includes grain, mash, shell, and grit.

many of the low group been selling hatching eggs and as a result received a greater average return per dozen eggs produced. As an average, market egg flocks that used 7.0 pounds or more of feed to produce a dozen eggs produced at a loss. Hatching egg producers that used 9.0 or more pounds of feed to produce a dozen eggs tended to produce at a loss. As an average, market egg producers used 6.4 pounds of feed and hatching egg producers 7.8 pounds to produce a dozen eggs.

As the pounds of feed used to produce a dozen eggs increased, the gross returns per dozen eggs increased. This was due to the hatching egg producers falling into the heavier feed consumption groups. The hatching egg group generally had heavier birds to feed and also maintained roosters. The feed consumed by roosters was charged to egg production. High feed consumption was not offset entirely by high egg prices. Since feed costs accounted for 63 per cent of the total cost of producing a dozen eggs on the farms studied, producers should work to hold this cost down. Poultrymen producing eggs should be as concerned about their feed conversion ratio as are broiler producers.

Producers that were inefficient in the use of feed also tended to have higher costs for most other items used in the production of eggs, Appendix Table 6. Flocks that used the most feed to produce a dozen eggs had a low rate of lay; they used more labor and had a higher layer mortality, Appendix Table 7. Producers who used under 5.0 pounds of feed to produce a dozen eggs had a return of $1.31 for each dollar of costs. Producers who used 11.0 pounds or more of feed to produce a dozen eggs had a return of only 75 cents for each dollar of costs.

LABOR EFFICIENCY. Operators who used the least labor to produce and market a dozen eggs made the largest profit, Table 7. There was a profit spread of almost 27 cents per dozen eggs produced between producers who used the least labor and those who used the most labor. Between the low labor and the high labor usage groups, there was an average difference of 12.0 minutes per dozen eggs in the time taken to handle the flock and market eggs. The cost spread between the two groups was the same as the profit spread.

Labor efficiency was closely related to size of flock. Producers with flocks of about 500 layers used more than four times as much labor to produce a dozen eggs as did producers with an average of 1,300 layers. Producers who were efficient in the use of labor also tended to be efficient in other respects. The group using the least labor also used 9.2 cents less feed to produce a dozen eggs than did the high labor group, Appendix Table 8. Labor efficiency was associated with rate of lay, feed consumption, and mortality, as well as size of flock, Appendix Table 9. Producers using the least labor had a labor income of $3.21 per hour, while those using the most labor to produce and market a dozen eggs had a labor income of only 16 cents per hour. While the producers with the largest flocks were in a better position to use labor-saving equipment, many other producers could make changes that would lower their labor requirements. All commercial egg producers should consider the possibility of making more effective use of their labor, particularly if they have other uses for the labor that could be saved or if they could use it to increase the size of flock.

TABLE 7. RELATION OF LABOR EFFICIENCY TO GROSS RETURNS, TOTAL COSTS, AND NET PROFIT OR LOSS PER DOZEN EGGS, AND LABOR INCOME PER HOUR, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951-AUGUST 31, 1952

Item	Minutes of labor required per doz. eggs				Average
	Under 5	5.0 - 7.9	8.0 - 10.9	11.0 or more	
Number of flocks	22	45	32	31	130
Average number of layers	1,326	860	535	520	784
	Cents	*Cents*	*Cents*	*Cents*	*Cents*
Returns per dozen eggs	65.2	57.9	60.7	65.3	61.6
Costs per dozen eggs	50.0	51.0	53.2	77.0	54.2
Profit or loss per dozen eggs	15.2	6.9	7.5	-11.7	7.4
Labor income per hour	320.9	130.4	110.4	16.5	125.9

MORTALITY. Mortality refers to the number of layers that died during the year expressed as a percentage of the average number of layers on hand during the year. Mortality appeared to have less influence on costs, profits, and labor income than did feed and labor efficiency, and rate of lay. However, it appeared to be more important than size of flock in determining costs and profits. The spread in costs per dozen eggs between the two groups of flocks with the lowest and highest mortality was 18 cents, the spread in profit was 21 cents, and the difference in labor income was $1.96 per hour, Table 8.

TABLE 8. RELATION OF MORTALITY TO GROSS RETURNS, TOTAL COSTS, NET PROFIT OR LOSS PER DOZEN EGGS, AND LABOR INCOME PER HOUR, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951-AUGUST 31, 1952

Item	Percentage of mortality				Average
	Under 10.0	10.0 - 19.9	20.0 - 29.9	30.0 or more	
Number of flocks	28	58	27	17	130
Average number of layers	992	708	852	596	784
	Cents	*Cents*	*Cents*	*Cents*	*Cents*
Returns per dozen eggs	63.2	61.3	60.5	60.3	61.6
Costs per dozen eggs	49.7	52.5	57.9	67.7	54.2
Profit or loss per dozen eggs	13.5	8.8	2.6	–7.4	7.4
Labor income per hour	203.1	133.8	88.3	7.0	125.9

About two-thirds of the operators were able to keep mortality losses below 20 per cent. The remaining one-third of the operators had mortality losses above 20 per cent. Thirteen per cent of the operators had mortality losses of 30 per cent or higher. In many cases, the most damaging effect of sickness was not the direct loss of the layers, but the indirect loss arising from reduced production.

As mortality increased, so did feed, labor, and flock costs per dozen eggs produced, Appendix Table 10. As mortality increased from less than 10 per cent to 30 per cent or more, feed costs increased by 8.0 cents per dozen eggs produced, labor costs increased 2.2 cents, and flock costs increased 5.6 cents per dozen. As mortality increased, rate of lay decreased, Appendix Table 11. The group with the lowest mortality had returns of $1.27 for each dollar of costs. The group with the highest mortality had returns of only 89 cents for each dollar of costs.

COMBINED EFFECT OF ALL PRODUCTION FACTORS. In order to determine the effect that the five main factors of production (size

of flock, rate of lay, feed efficiency, labor efficiency, and mortality) had on costs and profits per dozen eggs and labor income per hour, flock owners were classified according to the number of factors in which they rated as average or above average as determined for the 130 farms as a whole. Only eight flock owners, or 6 per cent, rated as average or above in all five factors. Because of the small number in this group, these were combined with the 20 flock owners who rated average or above on four factors. Combined, 28 flock owners or 22 per cent of all farms rated average or above on four or more factors.

Of the 130 farms studied, 13 rated below average on all five factors. Twenty-six operators rated average or above in only one factor; 33 in two factors; and 30 in three factors.

The 28 operators having the highest degree of managerial skill (rated average or above in four or five factors) realized a profit of 16.2 cents per dozen eggs and a labor income of $2.70 per hour. At the other end of the scale, profits and labor income were nonexistent for the 13 operators who were below average on all five factors, Table 9. Between the two groups there was a profit spread of 31 cents per dozen, a cost spread of 35 cents, and a labor income spread of $2.84 per hour in favor of the four-or-more factor group.

Operators who were below average efficiency in all five production factors had high total costs. They were especially high on feed, labor, and flock costs, Appendix Table 12. These farms had a total cost of 79.4 cents per dozen eggs produced. As the operators increased in rating from zero to four or more production factors, they increased in size of flock from an average of 426

TABLE 9. RELATION OF THE COMBINED EFFECT OF PRODUCTION FACTORS ON GROSS RETURNS, TOTAL COSTS, NET PROFIT OR LOSS PER DOZEN EGGS, AND LABOR INCOME PER HOUR, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951-AUGUST 31, 1952

Item	Number of production factors in which operator rated as average or above average					Average
	0	1	2	3	4 or more	
Number of flocks	13	26	33	30	28	130
Average number of layers	426	557	660	730	1,366	784
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
Returns per dozen eggs	64.5	64.9	64.6	58.4	60.8	61.6
Costs per dozen eggs	79.4	74.1	62.7	51.6	44.6	54.2
Profit or loss per dozen eggs	–14.9	–9.2	1.9	6.8	16.2	7.4
Labor income per hour	–14.5	16.0	75.2	118.5	269.9	125.9

layers to 1,366 layers, and in rate of lay from 131 eggs to 220 eggs. The pounds of feed used to produce a dozen eggs dropped from an average of 9.8 to 5.8, Appendix Table 13.

These data indicate the danger of neglecting even one of the production factors. For example, better than average gross returns were received by the groups rated zero-factor and one-factor. However, the effects of a good job of marketing and the selling of eggs at above average prices were lost through excessive costs. Size of flock may be a factor that cannot be improved on many farms for a number of reasons, but if any layers are kept on the farm, the closest possible attention should be given to production, feed consumption, labor-saving economies, and disease prevention. Unless the operator makes some attempt to control these factors, he cannot expect the poultry enterprise to be a money-making proposition.

Selected Marketing Factors

Method of sale. Market egg producers did not receive profits as large as those who produced hatching eggs. As an average, market egg producers received a profit of 2.5 cents per dozen eggs produced, while hatching egg producers received a profit of 15.5 cents per dozen eggs produced, Table 10. The labor income per hour of poultry work amounted to 83 cents for market egg producers and $2.03 for hatching egg producers.

The major difference in the cost of producing a dozen hatching eggs over that of a dozen market eggs was feed cost. This difference was due to heavier birds, keeping of roosters, and a lower rate of lay in hatching egg flocks. Detailed costs for the two

Table 10. Relation of Method of Sale to Gross Returns, Total Costs, Net Profit or Loss per Dozen Eggs, and Labor Income per Hour, 130 Commercial Egg Producing Farms, Alabama, September 1, 1951 - August 31, 1952

Item	Eggs sold as		Average
	Market eggs	Hatching eggs	
Number of flocks	81	49	130
Average number of layers	757	828	784
	Cents	*Cents*	*Cents*
Returns per dozen eggs	53.6	75.0	61.6
Costs per dozen eggs	51.1	59.5	54.2
Profit or loss per dozen eggs	2.5	15.5	7.4
Labor income per hour	83.1	203.4	125.9

TABLE 11. RELATION OF METHOD OF SALE TO SIZE OF FLOCK, RATE OF LAY, LABOR EFFICIENCY, FEED EFFICIENCY, MORTALITY, AND RETURNS PER DOLLAR OF EXPENDITURE, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951 - AUGUST 31, 1952

Method of sale	Number of flocks	Average size of flocks	Rate of lay	Minutes of labor per dozen eggs	Pounds of feed consumed per dozen eggs	Mortality	Returns per dollar of expenditure
	Number	*Number*	*Number*	*Number*	*Pounds*	*Per cent*	*Dollars*
Market	81	757	194	7.3	6.4	19	1.05
Hatching	49	828	175	6.8	7.8	17	1.26
TOTAL OR AV.	130	784	186	7.1	6.9	18	1.14

groups are given in Table 3. The market egg group used an average of 6.4 pounds of feed to produce a dozen eggs, while the hatching egg group used an average of 7.8 pounds, Table 11. Mortality was slightly higher for the market egg group.

Of the 130 operators studied, 62 per cent produced eggs at a profit and 38 per cent at a loss. Results indicate that high or low selling prices do not necessarily mean a high or low profit per dozen eggs produced. Obviously, the most profitable combination occurs when selling price is high and cost of production is low. More than a third of the operators studied did not obtain this favorable cost-price relationship. Of the 49 hatching egg producers, 73 per cent produced eggs at a profit and 27 per cent at a loss. Some 54 per cent of the market egg producers produced eggs at a profit and 46 per cent at a loss. Cost of production needs to be watched closely by both groups of producers. However, the hatching egg producer has a greater chance of profit because of the higher selling price for his product. Relatively speaking, the year of this study was one in which conditions were more favorable for hatching eggs than for market eggs. Expanded egg production is needed in Alabama both for hatching and consumption. The largest market, however, is for market eggs.

BREED OF LAYERS. The breed of layers is important in producing the kind of eggs desired by the consumer or the buying agency. Of the 49 hatching egg flocks studied, 41 were New Hampshires of one strain or another. With so few records of other breeds, it was not possible to make a comparison of the profitableness of the various breeds of layers used in hatching egg flocks. Of the 81 market egg flocks, 64 were White Leghorns, 12 were crosses and/or mixed, and 5 were heavy breeds. Again, there were too few records on breeds other than White Leghorn

for reliable comparative purposes. The White Leghorn group showed a profit of 2.6 cents per dozen eggs; the crosses and mixed, a profit of 2.2 cents per dozen; and the standard heavy breeds, a profit of 0.7 cent per dozen. These differences seem to have been due more to costs of production than to sales prices of eggs. Of the 64 White Leghorn flocks, 22 were of the Auburn strain and 42 were of other strains. The major difference between the two groups was in mortality. The Auburn strain White Leghorn had an average mortality rate of 17 per cent while the other group had an average mortality of 20 per cent.

RANK OF POULTRY ENTERPRISE IN FARM BUSINESS. Poultrymen who place more importance on egg production as an enterprise on their farm will likely do a better job of producing and marketing eggs. Operators who placed egg sales as number one or two in importance as a source of farm income produced eggs at a profit, while those who placed egg sales as third or lower as a source of farm income produced eggs at a loss, Table 12.

Operators who did not place major emphasis on egg production produced eggs at a loss so far as total costs were concerned; however, they were able to obtain about 35 cents per hour for the labor used on the poultry enterprise. The major differences in costs for the non-profit group were in higher feed, labor, flock, and housing costs. Rate of lay was low and mortality was high for the group that did not emphasize egg sales.

TABLE 12. RELATION OF RANK OF POULTRY ENTERPRISE TO GROSS RETURNS, TOTAL COSTS, AND NET PROFIT OR LOSS PER DOZEN EGGS, AND LABOR INCOME PER HOUR, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951 - AUGUST 31, 1952

Item	Rank of poultry enterprise as a source of farm income			Average
	1	2	3 or lower	
Number of flocks	83	30	17	130
Average number of layers	868	647	616	784
	Cents	*Cents*	*Cents*	*Cents*
Returns per dozen eggs	61.5	59.3	67.2	61.6
Costs per dozen eggs	53.3	50.0	71.5	54.2
Profit or loss per dozen eggs	8.2	9.3	–4.3	7.4
Labor income per hour	132.2	151.0	35.3	125.9

COMBINED PRODUCTION AND MARKETING FACTORS

RECEIPTS PER DOLLAR OF EXPENDITURE. Combining high receipts with low costs leads to a profitable enterprise. Only a

TABLE 13. RELATION OF RECEIPTS PER DOLLAR OF EXPENSES TO GROSS RETURNS, TOTAL COSTS, NET PROFIT OR LOSS PER DOZEN EGGS, AND LABOR INCOME PER HOUR, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951 - AUGUST 31, 1952

Item	Receipts per dollar of expenses					Average
	Under 80 cents	80 - 99 cents	$1.00 - 1.19	$1.20 - 1.39	$1.40 or more	
Number of flocks	20	30	34	27	19	130
Average number of layers	661	710	730	843	1,044	784
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
Returns per dozen eggs	58.0	60.6	57.1	59.7	71.4	61.6
Costs per dozen eggs	85.0	67.2	51.5	45.9	44.1	54.2
Profit or loss per dozen eggs	–27.0	–6.6	5.6	13.8	27.3	7.4
Labor income per hour	–71.5	14.3	111.0	193.0	401.7	125.9

limited number of poultrymen were able to reach this objective. There was a profit spread of 54.3 cents per dozen eggs between the group with lowest receipts per dollar of expenses and the group with highest receipts per dollar of expenses. Between these two groups the cost spread amounted to 40.9 cents per dozen eggs produced, and the labor income spread to $4.73 per hour, Table 13.

Since feed costs made up a high percentage of the total cost of producing eggs, it was expected that the major difference between the group with low receipts per dollar of expenses and the group with high receipts per dollar of expenses would be feed costs. The spread in feed costs between these two groups amounted to 24.2 cents per dozen eggs produced, Appendix Table 14. Size of flock and rate of lay tended to increase with receipts per dollar of expenses. On the other hand, smaller amounts of feed and labor were required to produce a dozen eggs as receipts per dollar of expenses increased. Percentage of mortality decreased with an increase in receipts per dollar of expenses, Appendix Table 15.

INVESTMENT IN BUILDINGS AND EQUIPMENT PER LAYER

Operators who were able to hold the average investment in buildings and equipment under $2.50 per layer produced eggs at a profit of 9.0 cents per dozen as compared with 6.0 cents per dozen for those operators with a higher investment, Table 14. The major difference in costs between these two groups was in the cost per dozen eggs for houses, equipment, and other buildings.

TABLE 14. RELATION OF INVESTMENT IN BUILDINGS AND EQUIPMENT TO COSTS AND RETURNS, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951 - AUGUST 31, 1952

Item	Unit	Building and equipment investment per layer		Average
		Under $2.50	$2.50 or more	
Returns per dozen eggs	Cents	62.2	61.0	61.6
Costs per dozen eggs	Cents	53.3	55.2	54.2
Profit per dozen eggs	Cents	8.9	5.8	7.4
Labor income per hour	Cents	137.6	114.0	125.9
Receipts per dollar of expenses	Dollars	1.17	1.10	1.14
Itemized costs per dozen eggs:				
Feed	Cents	34.6	33.9	34.3
Labor	Cents	7.3	7.8	7.6
Flock depreciation	Cents	7.4	7.1	7.2
Laying houses	Cents	1.7	3.0	2.3
Miscellaneous	Cents	1.5	2.0	1.8
Taxes, insurance	Cents	.1	.3	.2
Litter	Cents	.2	.2	.1
Equipment	Cents	.4	.7	.5
Land	Cents	.1	.1	.1
Other buildings	Cents	.0[1]	.1	.1
TOTAL	Cents	53.3	55.2	54.2
Number of flocks	Number	72	58	130
Average number of layers	Number	753	823	784
Rate of lay	Eggs	179	195	186
Minutes of labor per dozen eggs	Number	7.1	7.2	7.1
Pounds of feed per dozen eggs	Pounds	6.9	7.0	6.9
Percentage mortality	Per cent	15	21	18

[1] Less than 0.05 cent per dozen eggs.

COMPARISON OF PROFIT AND LOSS PRODUCERS

Some operators produce eggs at a profit, while others produce at a loss. Many reasons have been shown why this is true in the discussion of the relation of various production and marketing factors, such as rate of lay, pounds of feed used to produce a dozen eggs, method of sale, etc., to specific items. However, it is well to consider these factors as they relate to profit and loss producers. Of the 130 farms studied, 80 produced eggs at a profit and 50 at a loss. The profit farms had a profit above all costs, both cash and non-cash, of 15.0 cents per dozen eggs produced. The loss farms lacked 13.8 cents per dozen of covering all costs and received no return for their labor, Table 15. The profit group received a gross return of 2.6 cents per dozen greater for all eggs produced. Their costs were 26.2 cents per dozen less. The profit spread between the two groups amounted to 28.8 cents per dozen. Both market eggs and hatching eggs can be produced profitably in Alabama.

TABLE 15. COMPARISON OF PROFIT AND LOSS PRODUCERS BY METHOD OF SALE, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951 - AUGUST 31, 1952

Item	Market egg flocks		Hatching egg flocks		Average	
	Profit	Loss	Profit	Loss	Profit	Loss
Number of flocks	44	37	36	13	80	50
Average number of layers	823	679	867	722	843	690
Returns per dozen eggs, cents	53.3	54.1	74.3	78.5	62.3	59.7
Costs per dozen eggs, cents	43.5	66.7	52.3	96.2	47.3	73.5
Profit or loss per dozen eggs, cents	9.8	-12.6	22.0	-17.7	15.0	-13.8
Labor income per hour, cents	155.4	-23.7	294.0	-20.8	210.6	-22.9
Itemized costs per dozen eggs:	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
Feed	24.9	44.0	35.2	61.4	29.3	48.0
Labor	7.0	9.0	6.2	13.5	6.7	10.1
Flock depreciation	7.0	7.9	6.6	10.3	6.8	8.4
Laying houses	2.1	2.4	2.1	4.9	2.1	3.0
Miscellaneous	1.6	2.5	1.3	2.6	1.5	2.5
Taxes, insurance	.2	.2	.1	.8	.2	.3
Litter	.1	.1	.2	.1	.2	.2
Equipment	.4	.4	.5	2.0	.5	.7
Land	.1	.1	.1	.3	.0[1]	.2
Other buildings	.1	.1	.0[1]	.3	.0[1]	.1
TOTAL	43.5	66.7	52.3	96.2	47.3	73.5
Rate of lay, eggs	221	155	191	124	207	147
Labor per dozen eggs, minutes	6.5	9.0	5.8	11.9	6.2	9.7
Feed per dozen eggs, pounds	5.3	8.7	7.0	11.8	6.0	9.4
Percentage mortality, per cent	15	24	14	27	15	25
Receipts per dollar of expenses, dollars	1.22	0.81	1.42	0.82	1.32	0.81

[1] Less than 0.05 cent per dozen eggs.

Some 54 per cent of the market egg producers produced eggs at a profit, while 46 per cent produced at a loss. Of the hatching egg operators, 73 per cent produced eggs at a profit, while 27 per cent produced at a loss. In the case of non-profit producers, the loss was great enough that all expenses other than labor were not recovered, and in addition no pay was received for labor. The major difference between the profit or loss group of either market or hatching egg producers was costs. Operators who made a profit seemed to be efficient in holding down all costs, especially feed costs. Operators who produced at a loss seemed to be in-

efficient in terms of almost all cost items. In the case of both market eggs and hatching eggs, operators who produced at a loss had a low rate of lay, low feed and labor efficiency, high mortality, and small flocks.

SUMMARY AND CONCLUSIONS

This study included 130 commercial egg producing farms. A farm was included in the study as a commercial farm only if at least 400 layers were on the farm January 1, 1952. The average flock included in the study consisted of 784 layers. Of the 130 farms studied, 81 were primarily producing market eggs and 49 hatching eggs. The average farm included in this study consisted of 88 acres. As an average, the commercial egg producing farms found in the State were relatively small in acreage as compared to other types of farms. Little attention was devoted to production of crops, even grain for the layers. Most commercial egg producing farms were operated by white owners, and by men who were older than the average farmer. Some 20 per cent of all operators of commercial egg producing farms were 60 years old or older. Many of these had turned to commercial egg production after retirement from their former fields of work. The average family on commercial egg producing farms consisted of 3.6 people. Most of the work with poultry was performed by the operator and members of his family.

Some 21 per cent of the commercial egg producing farms studied were producing types of poultry or poultry products other than hen eggs. Eighteen per cent were producing broilers. Many egg producers had plans for expanding their commercial egg enterprises. If the expanded production planned by the farmers studied is followed by half of the total producers in the State, 200,000 to 300,000 birds will be added to increase commercial flock size. In addition, it is reasonable to expect that many additional farmers will become commercial egg producers in the State during the next 5 years.

The average returns shown in this study were based on 102,000 layers and 1.6 million dozen eggs. Gross returns totaled $957.04 per 100 layers, or 61.6 cents per dozen eggs produced. Almost 96 per cent of the gross returns was from the sale of eggs. The remaining returns were from home use of eggs, feed sack sales, and manure credits. The average returns per dozen eggs produced was 53.6 cents for market egg producers and 75.0 cents for hatching egg producers.

Total production costs, cash and non-cash, amounted to $842.81 per 100 layers, or 54.2 cents per dozen. Profit – the difference between total returns and total costs – averaged 7.4 cents per dozen eggs produced. Total costs (cash and non-cash) per dozen eggs produced were 51.1 cents for market egg producers and 59.5 cents for hatching egg producers. Profits to market egg producers amounted to 2.5 cents per dozen eggs produced and to hatching egg producers 15.5 cents per dozen.

Two distinct groups of factors permit or prevent attainment of the desired profit margin on any poultry enterprise. One group can be classified as production and the other as marketing. The production group would include such variables as flock size, rate of lay, feed and labor efficiency, and mortality. Reductions in production costs can be obtained mainly by improving the efficiency of any or all of these variables.

Operators with flocks under 500 layers realized less profit than did those with a larger number of layers. Flocks averaging 300 layers during the year produced at a loss of 3.7 cents per dozen eggs. Flocks averaging 1,400 layers returned a profit of 9.0 cents per dozen eggs produced. Flocks with an average rate of lay of less than 150 eggs produced at a loss of 10.7 cents per dozen eggs. On the other hand, flocks with an average rate of lay of 200 eggs or more, returned a profit of 14.3 cents per dozen eggs produced.

Grain, mash, shell, and grit were all used to compute pounds of feed consumed. There was a profit spread of 36.7 cents per dozen between the group that used the least feed and the one that used the most feed to produce a dozen eggs. Market egg flocks that used 7.0 pounds or more of feed to produce a dozen eggs produced at a loss. Hatching egg flocks that used 9.0 or more pounds of feed to produce a dozen eggs produced at a loss. As an average, market egg producers used 6.4 pounds of feed and hatching egg producers fed 7.8 pounds to produce a dozen eggs. Feed costs accounted for 63 per cent of all costs used for egg production. High feed consumption costs cannot be offset entirely by high egg prices. Poultrymen producing eggs should be as concerned about their feed conversion ratio as are broiler producers. Producers that were inefficient in the use of feed tended to be inefficient in the use of other production goods.

There was an average difference of 12.0 minutes per dozen eggs in the time taken to handle the flock and to market eggs between the low labor and the high labor usage group. Between

these two groups there was a profit spread of 26.9 cents per dozen eggs. High labor usage was closely related to small flocks. Producers using the least labor to produce and market a dozen eggs had a labor income of $3.21 per hour from poultry, while those using the most labor had a labor income of only 16 cents per hour.

Mortality refers to the number of layers that died during the year, expressed as a percentage of the average number of layers on hand during the year. There was a spread in profit of 21 cents per dozen eggs between the group of flocks with less than 10 per cent mortality and the group with 30 per cent or more mortality. Mortality affected feed and labor costs and flock depreciation.

Flock owners were classified according to the number of production factors in which they were average or above average of all 130 farms studied. Ten per cent of the farms rated below average on all five production factors, 20 per cent were given a one-factor rating, 25 per cent a two-factor rating, 23 per cent a three-factor rating, and 22 per cent a four-or-more factor rating. The operators who were average or above on four or more production factors, and thus revealed the highest degree of managerial skill, realized a profit of 16.2 cents per dozen eggs produced and a labor income of $2.70 per hour. At the other end of the scale, profits and labor income were non-existent for operators who were below average on all production factors.

Combining high receipts with low costs leads to a profitable poultry enterprise. However, only a limited number of poultrymen were able to reach this objective. There was a profit spread of 54.3 cents per dozen eggs between the group with the lowest receipts per dollar of expenses and the group with the highest receipts per dollar of expenses. The lowest group had average receipts of less than 80 cents per dollar of expenses and a labor income of minus 72 cents per hour. The high group had receipts of $1.40 or more per dollar of expenses and received $4.02 per hour for their work.

Some operators produced eggs at a profit while others produced at a loss. Of the 130 farms studied, 80 produced eggs at a profit and 50 at a loss. The profit group received a gross return of 2.6 cents more per dozen for all eggs produced and their costs were 26.2 cents per dozen less. Thus the profit spread between the profit and loss group amounted to 28.8 cents per dozen. These results show that either market eggs or hatching eggs can be produced profitably in Alabama. Some 54 per cent of the market egg

producers produced eggs at a profit, while 73 per cent of the hatching egg producers produced at a profit.

RECOMMENDATIONS

The egg producer individually can do little about the general price level of eggs. He can seek to obtain the best market for his product and in other ways make improvements in his income by doing a better job of marketing. Basically, he can do most to improve his profit condition by increasing his production efficiency, lowering his cost of production, and obtaining top market prices. Since profits represent the difference between selling price and cost of production, egg producers should make intensive efforts to reduce production costs per unit of product wherever possible.

Reductions in production costs of a dozen eggs can best be achieved by the following:

(1) Increasing size of flock. In some cases, this would not be feasible. However, where possible, the minimum size flock for commercial egg production should be 500 or more layers.

(2) Increasing rate of lay. The minimum goal should be 50 per cent production, or 180 eggs per layer. Over half of the market egg flocks were below this level, while many of the remaining half exceeded 200 eggs per layer per year. The average rate of lay of all hatching egg flocks was below this level. This minimum goal of production would be difficult only for those hatching egg flocks producing eggs from certain strains of layers for broiler chick production.

(3) Improve feed efficiency. Market egg flock owners should strive to produce a dozen eggs with 6.0 pounds or less of total feed. Approximately 47 per cent of the market egg producers included in this study were using no more than this amount of feed. Hatching egg producers should attempt a conversion ratio of 1 dozen eggs for 7.5 pounds of feed or less. Approximately half the hatching egg producers studied had attained this goal.

(4) Increase labor efficiency. Operators with market egg flocks should set a goal of 6.0 minutes of total labor per dozen eggs produced. Operators of hatching egg flocks may be able to reach a goal of 5.0 to 5.5 minutes of labor per dozen eggs. Many adjustments could be made in building arrangements, location of nests, door size, feed storage, water facilities, and other items to reduce the amount of chore time required to care for layers. All operators should plan to do three or more jobs each time a trip is made to the laying house.

(5) Decrease mortality. The percentage of mortality, when expressed as the number of birds that died divided by the average number of birds on hand during the year, averaged 18 per cent on the 130 farms studied. A goal of no more than 10 per cent should be attempted. The present mortality rate could be lowered by the use of better sanitation and disease control practices and more rigid culling. Unprofitable hens should be culled and sold.

(6) Make improvements in all production factors. Producers should avoid the mistake of concentrating all their efforts on one production factor, such as labor efficiency, and overlooking such other factors as size of flock, rate of lay, feed efficiency, and mortality. Operators should strive to be above average in all of these factors.

(7) Closer supervision on the part of management in production, buying, and selling. The average farm included in this study had cash sales from eggs, feed bags, etc., of approximately $7,300. Cash expenses for feed bought, labor hired, flock replacements, taxes, insurance, miscellaneous items, and other purchased items averaged close to $5,000 per farm. This is sufficient business to merit close supervision. Egg producers should give attention to the possibilities of buying at wholesale, buying at times when products can be purchased cheapest, and buying in large quantities.

(8) Growing grain to be used in the grain ration. Most of the grain was purchased. Much of this feed could be grown on the farm. This is an individual problem for each producer to consider. Some commercial egg producers will always find it to their advantage to purchase grain. Others could use available land, labor, and manure to produce grain at a cost that would be less than buying.

APPENDIX

APPENDIX TABLE 1. ITEMIZED GROSS RETURNS FROM EGG PRODUCTION, BY MARKET AND HATCHING EGG PRODUCERS, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951 - AUGUST 31, 1952

Source of receipts	Average returns for 81 market egg flocks			Average returns for 49 hatching egg flocks		
	Per 100 layers	Per dozen eggs	Percentage of total returns	Per 100 layers	Per dozen eggs	Percentage of total returns
	Dollars	*Cents*	*Per cent*	*Dollars*	*Cents*	*Per cent*
Eggs sold	830.96	51.4	96.0	1,045.06	71.6	95.5
Eggs consumed	12.35	.8	1.4	9.64	.7	.9
Feed bags	11.06	.7	1.3	11.91	.8	1.1
Manure credits	11.53	.7	1.3	28.17[1]	1.9	2.5
TOTAL	865.90	53.6	100.0	1,094.78	75.0	100.0

[1] Manure credits for hatching egg flocks averaged more than that of market egg flocks because of manure sales by one poultryman. The average returns from 48 hatching egg flocks, when adjusted for the one farm with high sales, were $13.64 per 100 birds for manure credits, or 0.9 cent per dozen eggs produced. This adjustment would reduce the average of the 48 flocks to total receipts of 73.1 cents per dozen eggs produced.

APPENDIX TABLE 2. RELATION OF SIZE OF FLOCK TO ITEMIZED COSTS PER DOZEN EGGS, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951 - AUGUST 31, 1952

Item	Average costs per dozen eggs produced by size of flock			Average
	Under 400 layers	400 - 699 layers	700 or more layers	
	Cents	*Cents*	*Cents*	*Cents*
Feed	37.6	32.5	34.4	34.3
Labor	11.6	9.0	6.4	7.6
Flock depreciation	7.8	7.4	7.1	7.2
Laying houses	2.8	2.3	2.3	2.3
Miscellaneous	2.2	1.5	1.8	1.8
Taxes, insurance	.1	.1	.2	.2
Litter	.1	.1	.2	.1
Equipment	.5	.5	.6	.5
Land	.1	.1	.1	.1
Other buildings	.0[1]	.0[1]	.1	.1
TOTAL	62.8	53.5	53.2	54.2

[1] Less than 0.05 cent.

APPENDIX TABLE 3. RELATION OF SIZE OF FLOCK TO RATE OF LAY, LABOR EFFICIENCY, FEED EFFICIENCY, MORTALITY, AND RETURNS PER DOLLAR OF EXPENDITURE, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951 - AUGUST 31, 1952

Average number of layers in flock	Number of flocks	Average size of flock	Rate of lay	Minutes of labor per dozen eggs	Feed consumed per dozen eggs	Mortality	Returns per dollar of expenditure
	Number	*Number*	*Number*	*Number*	*Pounds*	*Per cent*	*Dollars*
Under 400	33	307	194	10.9	7.6	25	0.94
400 - 699	49	498	191	8.5	6.6	18	1.14
700 or more	48	1,404	184	6.0	6.9	17	1.17
TOTAL OR AV.	130	784	186	7.1	6.9	18	1.14

APPENDIX TABLE 4. RELATION OF RATE OF LAY TO ITEMIZED COSTS PER DOZEN EGGS, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951 - AUGUST 31, 1952

Item	Average costs per dozen eggs by rate of lay per hen			Average
	Under 150 eggs	150 - 199 eggs	200 or more eggs	
	Cents	*Cents*	*Cents*	*Cents*
Feed	50.7	37.5	27.9	34.3
Labor	10.5	7.7	6.7	7.6
Flock depreciation	9.8	7.6	6.3	7.2
Laying houses	3.9	2.1	2.1	2.3
Miscellaneous	3.0	1.4	1.7	1.8
Taxes, insurance	.5	.2	.1	.2
Litter	.2	.2	.1	.1
Equipment	1.1	.6	.4	.5
Land	.2	.1	.1	.1
Other buildings	.2	.1	.0[1]	.1
TOTAL	80.1	57.5	45.4	54.2

[1] Less than 0.05 cent per dozen eggs.

APPENDIX TABLE 5. RELATION OF RATE OF LAY TO SIZE OF FLOCK, LABOR EFFICIENCY, FEED EFFICIENCY, MORTALITY, AND RETURNS PER DOLLAR OF EXPENDITURE, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951 - AUGUST 31, 1952

Rate of lay per layer	Number of flocks	Average rate of lay	Average number of layers	Minutes of labor per dozen eggs	Feed consumed per dozen eggs	Mortality	Returns per dollar of expenditure
	Number	*Number*	*Number*	*Number*	*Pounds*	*Per cent*	*Dollars*
Under 150	23	114	987	10.4	10.0	24	0.87
150 - 199	53	179	682	7.3	7.3	16	1.07
200 or more	54	231	797	6.1	5.8	16	1.31
TOTAL OR AV.	130	186	784	7.1	6.9	18	1.14

APPENDIX TABLE 6. RELATION OF FEED EFFICIENCY TO ITEMIZED COSTS PER DOZEN EGGS, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951 - AUGUST 31, 1952

Item	Average costs per dozen eggs by pounds of feed consumed					Average
	Under 5 pounds	5.0 - 6.9 pounds	7.0 - 8.9 pounds	9.0 - 10.9 pounds	11.0 lb. or more	
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
Feed	22.3	29.0	38.2	51.3	65.5	34.3
Labor	7.5	6.9	6.7	10.4	10.5	7.6
Flock depreciation	6.7	7.0	7.0	8.7	9.9	7.2
Laying houses	2.2	2.1	2.0	2.8	5.6	2.3
Miscellaneous	1.5	1.7	1.5	2.6	2.8	1.8
Taxes, insurance	.2	.1	.1	.2	.8	.2
Litter	.1	.2	.1	.2	.1	.1
Equipment	.6	.5	.3	.6	2.0	.5
Land	.0[1]	.1	.0[1]	.1	.3	.1
Other buildings	.1	.0[1]	.0[1]	.1	.3	.1
TOTAL	41.2	47.6	55.9	77.0	97.8	54.2

[1] Less than 0.05 cent per dozen eggs.

APPENDIX TABLE 7. RELATION OF FEED EFFICIENCY TO SIZE OF FLOCK, RATE OF LAY, LABOR EFFICIENCY, MORTALITY, AND RETURNS PER DOLLAR OF EXPENDITURE, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951 - AUGUST 31, 1952

Feed consumed per dozen eggs	Number of flocks	Feed consumed per dozen eggs	Average size of flock	Rate of lay	Minutes of labor per dozen eggs	Mortality	Returns per dollar of expenditure
	Number	*Pounds*	*Number*	*Number*	*Number*	*Per cent*	*Dollars*
Under 5	25	4.5	824	228	6.2	18	1.31
5.0-6.9	36	5.9	811	205	6.8	13	1.25
7.0-8.9	39	7.7	754	176	9.9	16	1.18
9.0-10.9	21	9.9	671	151	9.5	21	.88
11.0 or more	9	13.6	960	117	9.7	36	.75
TOTAL OR AV.	130	6.9	784	186	7.1	18	1.14

APPENDIX TABLE 8. RELATION OF LABOR EFFICIENCY TO ITEMIZED COSTS PER DOZEN EGGS, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951 - AUGUST 31, 1952

Item	Average costs per dozen eggs produced by minutes of labor required				Average
	Under 5	5.0-7.9	8.0-10.9	11.0 or more	
	Cents	*Cents*	*Cents*	*Cents*	*Cents*
Feed	34.3	32.6	31.6	43.5	34.3
Labor	4.2	6.8	9.4	16.0	7.6
Flock depreciation	6.7	7.1	7.2	9.1	7.2
Laying houses	2.3	2.2	2.1	3.4	2.3
Miscellaneous	1.2	1.5	2.1	3.5	1.8
Taxes, insurance	.3	.1	.1	.3	.2
Litter	.2	.1	.1	.2	.1
Equipment	.7	.4	.5	.8	.5
Land	.1	.1	.1	.1	.1
Other buildings	.0[1]	.1	.0[1]	.1	.1
TOTAL	50.0	51.0	53.2	77.0	54.2

[1] Less than 0.05 cent per dozen eggs.

APPENDIX TABLE 9. RELATION OF LABOR EFFICIENCY TO SIZE OF FLOCK, RATE OF LAY, FEED EFFICIENCY, MORTALITY, AND RETURNS PER DOLLAR OF EXPENDITURE, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951 - AUGUST 31, 1952

Minutes of labor per dozen eggs	Number of flocks	Minutes of labor per dozen eggs	Average size of flock	Rate of lay	Feed consumed per dozen eggs	Mortality	Returns per dollar of expenditure
	Number	*Number*	*Number*	*Number*	*Pounds*	*Per cent*	*Dollars*
Under 5	22	3.6	1,326	200	6.7	15	1.30
5.0-7.9	45	6.3	860	190	6.7	17	1.13
8.0-10.9	32	9.2	535	196	6.6	19	1.14
11.0 or more	31	15.7	520	144	8.4	24	.85
TOTAL OR AV.	130	7.1	784	186	6.9	18	1.14

APPENDIX TABLE 10. RELATION OF MORTALITY TO ITEMIZED COSTS PER DOZEN EGGS, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951 - AUGUST 31, 1952

Item	Average costs per dozen eggs by percentage mortality				Average
	Under 10 per cent	10.0-19.9 per cent	20.0-29.9 per cent	30.0 per cent or more	
	Cents	*Cents*	*Cents*	*Cents*	*Cents*
Feed	33.9	32.7	34.5	41.9	34.3
Labor	6.2	7.9	8.4	8.4	7.6
Flock depreciation	5.8	7.1	7.7	11.4	7.2
Laying houses	1.6	2.4	3.2	2.9	2.3
Miscellaneous	1.3	1.5	2.5	2.4	1.8
Taxes, insurance	.1	.2	.4	.1	.2
Litter	.2	.1	.2	.1	.1
Equipment	.5	.5	.7	.4	.5
Land	.1	.1	.1	.1	.1
Other buildings	.0[1]	.0[1]	.2	.0[1]	.1
TOTAL	49.7	52.5	57.9	67.7	54.2

[1] Less than 0.05 cent per dozen eggs.

APPENDIX TABLE 11. RELATION OF MORTALITY TO SIZE OF FLOCK, RATE OF LAY, LABOR EFFICIENCY, FEED EFFICIENCY, AND RETURNS PER DOLLAR OF EXPENDITURE, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951 - AUGUST 31, 1952

Percentage mortality	Number of flocks	Average mortality	Average size of flock	Rate of lay	Minutes of labor per dozen eggs	Feed consumed per dozen eggs	Returns per dollar of expenditure
	Number	*Per cent*	*Number*	*Number*	*Number*	*Pounds*	*Dollars*
Under 10.0	28	7	992	198	5.8	6.7	1.27
10.0-19.9	58	14	708	186	7.5	6.6	1.17
20.0-29.9	27	25	852	182	7.5	6.8	1.04
30.0 or more	17	48	596	168	8.7	9.2	.89
TOTAL OR AV.	130	18	784	186	7.1	6.9	1.14

APPENDIX TABLE 12. RELATION OF ALL PRODUCTION FACTORS TO ITEMIZED COSTS PER DOZEN EGGS, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951 - AUGUST 31, 1952

Item	Average costs per dozen eggs produced by number of production factors					Average
	0	1	2	3	4 or more	
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
Feed	48.4	44.7	39.4	33.5	28.6	34.3
Labor	12.1	12.5	9.0	6.9	5.6	7.6
Flock depreciation	11.6	10.3	7.8	6.6	6.2	7.2
Laying houses	3.5	2.6	3.2	2.2	1.9	2.3
Miscellaneous	2.5	2.7	2.1	1.5	1.4	1.8
Taxes, insurance	.2	.3	.3	.1	.2	.2
Litter	.2	.1	.1	.1	.2	.1
Equipment	.8	.7	.6	.5	.4	.5
Land	.1	.1	.1	.1	.1	.1
Other buildings	.0[1]	.1	.1	.1	.0[1]	.1
TOTAL	79.4	74.1	62.7	51.6	44.6	54.2

[1] Less than 0.05 cent per dozen.

APPENDIX TABLE 13. RELATION OF PRODUCTION FACTORS TO SIZE OF FLOCK, RATE OF LAY, LABOR EFFICIENCY, FEED EFFICIENCY, MORTALITY, AND RETURNS PER DOLLAR OF EXPENDITURE, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951 - AUGUST 31, 1952

Rating on production factors	Number of flocks	Average size of flock	Rate of lay	Minutes of labor per dozen eggs	Feed consumed per dozen eggs	Mortality	Returns per dollar of expenditure
	Number	*Number*	*Number*	*Number*	*Pounds*	*Per cent*	*Dollars*
0	13	426	131	11.6	9.8	34	0.81
1	26	557	151	12.1	8.9	22	.88
2	33	660	163	8.6	8.0	24	1.03
3	30	730	189	7.0	6.6	16	1.13
4 or more	28	1,366	220	4.8	5.8	12	1.36
TOTAL OR AV.	130	784	186	7.1	6.9	18	1.14

APPENDIX TABLE 14. RELATION OF RECEIPTS PER DOLLAR OF EXPENSES TO ITEMIZED COSTS PER DOZEN EGGS, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951 - AUGUST 31, 1952

Item	Average costs per dozen eggs by range in receipts per dollar of expenses					Average
	Under 80 cents	80 cents-99 cents	$1.00-$1.19	$1.20-$1.39	$1.40 or more	
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
Feed	53.4	45.1	32.3	26.6	29.2	34.3
Labor	12.7	8.6	7.2	6.9	5.7	7.6
Flock depreciation	10.9	7.1	7.3	7.7	5.2	7.2
Laying houses	3.2	2.9	2.4	2.0	1.9	2.3
Miscellaneous	3.6	1.9	1.4	1.8	1.3	1.8
Taxes, insurance	.2	.3	.2	.1	.2	.2
Litter	.2	.1	.1	.2	.2	.1
Equipment	.5	.9	.4	.5	.4	.5
Land	.1	.2	.1	.1	.0[1]	.1
Other buildings	.2	.1	.1	.0[1]	.0[1]	.1
TOTAL	85.0	67.2	51.5	45.9	44.1	54.2

[1] Less than 0.05 cent per dozen eggs.

APPENDIX TABLE 15. RELATION OF RECEIPTS PER DOLLAR OF EXPENSES TO SIZE OF FLOCK, RATE OF LAY, LABOR EFFICIENCY, FEED EFFICIENCY, AND MORTALITY, 130 COMMERCIAL EGG PRODUCING FARMS, ALABAMA, SEPTEMBER 1, 1951 - AUGUST 31, 1952

Receipts per dollar of expenses	Average receipts per dollar of expenses	Number of flocks	Average number of layers	Rate of lay	Minutes of labor per dozen eggs	Feed consumed per dozen eggs	Mortality
	Dollars	*Number*	*Number*	*Number*	*Number*	*Pounds*	*Per cent*
Under 80 cents	0.68	20	661	134	12.0	11.0	32
80-99 cents	.90	30	710	154	8.4	8.5	20
$1.00-$1.19	1.11	34	730	194	6.9	6.5	16
$1.20-$1.39	1.30	27	843	219	6.5	5.5	15
$1.40 or more	1.62	19	1,044	209	4.9	6.0	13
TOTAL OR AV.	1.14	130	784	186	7.1	6.9	18

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