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TURKEY EGG STUDY

San Diego County, California

CONTENTS

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Cooperating with
Turkey Growers of
San Diego County

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INTRODUCTION

This is the sixth annual report of the San Diego County turkey egg enterprise study. This study is being conducted by a group of local turkey egg producers in cooperation with the Agricultural Extension Service for the purpose of learning more about this rather unusual enterprise. Although the cost information obtained may be quite useful in working out a marketing program, it is not presumed that costs shown by these records should be made the basis for pricing hatching eggs but rather that the information developed may help local growers to obtain a profit at whatever price they are able to receive for their eggs.

There are three steps in turkey production: (1) securing the eggs, (2) hatching them, and (3) raising the poults. To a considerable extent each of these phases or steps is being undertaken by some producers who specialize more in that one line. The local climate allows the early hatching of poults and early egg production and hence enables local turkey growers to produce more eggs than they need for their own meat production. Since few other turkey districts obtain such early egg production, there is a rather good market for the eggs from this district, so hatching egg production has become quite a local business. It is hoped that this study may assist in the development of this industry by improving the quality and timeliness of the eggs and their efficiency and economy of production and marketing.

This report covers the production of hatching eggs only and hence is for only part of the year. Cooperators have, therefore, reported only the costs which are incurred in the production of eggs. Where land and equipment also serves for meat turkey production, costs have been allocated to both uses as carefully as can be done. The date each record was started and the date it was closed are shown in Table 2. Interest and depreciation on buildings and equipment, for purposes of simplicity have been figured for half a year in all cases where facilities were used for both meat and egg production. Breeding stock was either purchased at about the time the record opened or was selected from stock previously raised by these same growers. In the latter case it was usually given a value slightly higher than the probable returns if it had been sold for meat. The ultimate sale of this breeding stock at lower prices at the close of the laying season usually results in rather a considerable net cost of stock, as shown in Table 3.

Inspection of the ten individual flock records for 1943, in Tables 1 to 5, shows wide ranges in profits obtained and in methods followed. Table 1 shows the main factors which determine profit. These factors are the egg production per hen, the per cent of total eggs salable as hatching eggs, the price received for hatching eggs, and the net cost per hen of the hatching eggs sold. The first three determine the income per hen from hatching eggs sold, while income less cost determines net income or profit. To understand the various profit or earning figures, which are shown in Table 1, it will be necessary to read the definitions or explanations on the next page (Page 2). Table 1 shows egg production per hen to have had a greater influence on profits than any other factor and Table 2 shows some of the important factors influencing egg production. Costs are next in importance in determining profits and are shown in detail in Table 3 to 5. Averages for all six years of this study appear at the bottom of each table.

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Average number of hens. The turkey egg producer starts the breeding period with a certain number of hens but some die and others are sold before the close of the period so the number of hens is best expressed as an average for the period. The average number is obtained by dividing the total hen days by the number of days in the breeding period. The average number is usually about 5 to 10 per cent less than the starting number. All production, cost, and income figures are shown for the average hen.

Eggs laid per hen is the total eggs laid during the period divided by the average number of hens. Not all of these eggs meet hatching requirements, however, so the hatching eggs sold per hen is the significant production figure in terms of the main product. Eggs used for home hatching are considered as hatching eggs sold. On the average, about 80 to 90 per cent of the eggs laid were used or sold for hatching. The cull eggs are considered a by-product in this study and an income other than from hatching eggs.

Income not hatching eggs is income from cull eggs sold or eaten in the home and from sacks and fertilizer. This income is deducted from total costs to get the net cost of hatching eggs.

Hatching egg income is the amount received from hatching eggs sold and used for hatching. The per-hen figure is the product of the eggs sold per hen and the average price per hatching egg sold.

Net stock cost is the amount by which the value of all breeding turkeys at the start of the period exceeds the value of such turkeys when sold or on hand at the close of the period. Death losses, the seasonal decline in the value of turkeys, and the decline in their condition or quality combine to account for this item of cost.

Total expense of production is composed of all cash expenses and the value of farm-provided items including the value of the operator's own labor, depreciation on the facilities used, and interest on the investment. The net cost is this total with income not hatching eggs deducted.

Management income is the amount by which the total income from hatching eggs exceeds their net cost.

Labor income is the amount by which income exceeds all net costs except the value of the operator's labor, or it is management income plus the value of that labor. It is the amount received for management and labor.

Farm income is the labor income plus interest on investment. It is the operator's total net income from his enterprise and is composed of interest for the use of his capital, wages for the labor performed, and profit for his management.

Capital and management income is the management income plus the interest on investment. Where all labor is hired it is the operator's net income composed of the return to invested capital and a reward for good management.

Net profit is the net income as computed by the producer himself and because of differences in method, may not conform to any one of the four standard earning figures above.

Table 1. General Summary of Individual Turkey Hatching Egg Records, 1943 San Diego County

Ser. No.	Av. number of hens	Eggs laid per hen	Percent sold for hatching	Hatching eggs sold per hen	Av. price per hatching egg	Hatching egg income per hen	Net cost per hen	Management income per hen	Value operator's labor	Labor income per hen	Interest on investment	Farm income per hen	Investment per hen
13	548	87.0	89.0	77.0	21.1	$16.30	$3.77	$12.53	$.69	$13.22	$0.17	$13.39	$6.82
7	177	86.0	83.0	71.0	20.9	14.98	4.53	10.45	1.60	12.05	.18	12.23	7.15
26	639	78.0	93.0	73.0	19.8	14.40	5.77	8.63	.74	9.37	.20	9.57	8.11
18	253	63.0	87.0	55.0	25.3	13.95	6.52	7.43	1.58	9.01	.25	9.26	10.04
29	430	71.0	87.0	62.0	18.5	11.43	5.30	6.13	.81	6.94	.25	7.19	9.92
32	596	73.0	92.0	67.0	19.7	13.01	7.80	5.21	2.01	7.22	.22	7.44	8.70
28	368	62.0	91.0	56.0	21.7	12.19	7.66	4.53	3.06	7.59	.26	7.85	10.22
11	992	46.0	84.0	39.0	24.7	9.49	5.75	3.74	.32	4.06	.20	4.26	7.85
31	86	74.0	86.0	64.0	19.6	12.50	10.33	2.17	1.61	3.78	.24	4.02	9.49
30	739	45.0	90.0	41.0	23.5	9.55	7.46	2.09	.22	2.31	.25	2.56	9.97
1943	4835	64.1	89.0	57.0	21.4	12.21	6.23	5.93	1.00	6.98	.22	7.20	8.66
1942	2853	57.7	89.2	50.6	16.4	8.28	5.29	2.99	.58	3.57	.19	3.76	7.07
1941	2061	73.1	88.5	64.8	11.4	7.38	4.28	3.10	.75	3.85	.11	3.96	4.58
1940	2591	53.5	81.1	43.4	11.2	4.87	4.33	.54	.43	.97	.12	1.09	3.73
1939	5337	57.1	88.6	50.6	13.9	7.06	4.44	2.62	.43	3.05	.12	3.17	4.94
1938	3572	49.8	92.0	44.6	13.9	6.22	4.76	1.46	.57	2.03	.16	2.19	6.27
6 yr. aver.	3522	59.2	88.1	51.8	14.7	7.67	4.89	2.78	.63	3.41	.15	3.56	5.88

The above table shows why some records are able to obtain a much higher profit than others. The number of hatching eggs sold per hen, the average price per egg, and the net cost per hen are the three most important factors in determining net income. The first three records show over seventy eggs sold per hen and hence a very high hatching egg income. These three records also had low net cost of hatching eggs per hen, which enabled them to show a very large management income per hen. The fourth record, No. 18, is high in earnings despite a lower number of eggs sold because of a high price per hatching egg. Record No. 31 near the bottom of the individual records is low in earnings despite a fairly good number of eggs sold because of high costs. High labor, miscellaneous and net stock costs are shown in Table 5 to account for the high cost in this record.

A comparison of averages over the last six years shows that the 1943 records show by far the highest price per hatching egg and highest management income per hen. The hatching eggs sold per hen were higher than any other year except 1941.

Table 2. Production Factors and Production per Hen in Individual Flocks in 1943–San Diego County

Ser. No.	Record Dates: Began 1942	Record Dates: Closed 1943	No. days record	Date hens hatched	Date production 10%	Total eggs laid per hen	Per cent Production: Entire period	Jan.	Feb.	Mar.	Apr.	May	Lights used
13	10/14	5/25	224	3/12	11/19	87.0	38.6	35.0	56.2	60.5	58.4	56.2	A.M.
7	10/13	5/26	226	4/2	11/18	86.0	38.2	39.0	57.5	59.8	58.0	53.1	A.M.
26	11/1	6/2	214	3/1,5/20	11/5	78.0	36.4	16.8	19.0	52.5	54.3	48.0	None
18	10/16	5/23	219	3/20	12/23	63.0	28.9	23.3	21.2	51.0	56.5	45.2	A.M.
29	1/1	6/15	166	6/2	2/2	71.0	42.6	0.7	52.1	55.8	53.1	47.5	Yes
32	12/1	6/16	198	5/7	1/10	73.0	36.7	21.3	46.5	44.0	49.4	47.7	A.M.
28	2/1	6/30	150	4/6,6/6		62.0	41.1	-	17.5	61.2	52.4	38.8	A.M.
11	12/6	6/8	185	3/15-6/1	1/31	46.0	24.7	6.0	25.1	46.2	30.9	34.6	A.M.
31	11/1	6/27	239	3/23	12/29	74.0	31.0	17.2	36.0	57.6	57.1	49.0	All Night
30	12/1	6/7	189	4/5	1/20	45.0	23.8	6.5	27.0	44.7	38.8	29.1	A.M.&P.M.
1943	--	--	195	--	--	64.1	32.8	15.1	33.4	51.2	47.3	42.2	--
1942	--	--	161	--	--	57.7	35.7		Not available				
1941	--	--	214	--	--	73.1	34.2		Not available				
1940	--	--	202	--	--	53.5	26.5	20.7	39.4	53.1	49.2	34.1	--
1939	--	--	189	--	--	57.1	28.7	19.6	37.3	51.2	51.8	48.5	--
1938	--	--	168	--	--	49.8	28.4	7.9	17.1	45.2	64.0	47.2	--
6 yr. Aver.	--	--	188	--	--	59.2	31.1		Not available				--

Table 1 shows that the number of eggs sold as hatching eggs per hen is the most important single factor in determining net income. To have a high sale it is necessary to have high production per hen. The above table shows highest production in the first three flocks to have resulted from an early start and a good rate of production through a long period. Production in these three flocks reached 10% in November and except for Flock 26 was over 50% in February and was high for the following three months. The lowest production per hen was in Flock 30, in which the production rate was below average all through the entire period.

High production for the entire breeding season apparently requires fairly early hatching of the breeding hens and also a strain of stock with high egg-production tendencies. The use of lights contributes to early egg production and stimulates the birds to reach their peak earlier in the spring than would otherwise be the case.

It is suggested that 40-60 watt lights and not over 100 watt lights be used where a good portion of the pen is lighted.

Table 3. Stock Costs in Turkey Egg Production in Individual Flocks in 1943. San Diego County

Ser. No.	Number of hens		Hens per Tom	Per cent mortality		Average value per hen		Average value per tom		Value at start	Bought	Stock sold	Net stock cost
	At start	Average No.		Hens	Toms	Start	Sold	Start	Sold	Dollars per average hen			
13	560	548	8.2	1.6%	2.9%	$4.29	$4.73	$9.10	$9.39	5.51	-	5.89	* .38
7	177	177	6.6	1.1	3.7	3.60	4.64	6.90	7.62	4.65	-	5.70	*1.05
26	865	639	7.5	1.4	3.4	4.80	4.45	8.75	8.22	3.32	4.50	7.42	.40
18	265	253	9.8	3.2	14.8	5.00	4.16	7.00	8.07	1.37	4.83	5.15	1.05
29	450	430	8.2	2.3	9.1	5.25	4.43	7.59	7.50	6.46	-	5.40	1.06
32	616	596	7.1	6.0	3.4	4.90	3.79	7.82	6.65	6.21	-	4.63	1.58
28	440	368	6.5	7.5	4.4	5.28	5.86	9.30	8.30	8.03	-	7.53	.50
11	1043	992	6.8	5.5	32.4	5.00	5.03	9.00	8.07	6.65	-	5.85	.80
31	99	86	8.5	0.0	47.8	5.00	3.52	10.00	6.98	7.27	1.16	5.03	3.40
30	800	739	10.0	1.8	6.3	6.58	5.44	11.92	8.01	8.42	.09	6.68	1.83
1943	5325	4835	9.1	3.8	15.0	5.15	4.75	9.04	7.98	6.05	.88	6.06	.87
1942	2853	2736	7.0	1.8	6.3	3.67	3.04	5.83	5.59	4.65	.05	3.90	.80
1941	2191	2061	8.7	6.5	19.6	N.A.	2.01	N.A.	3.87	2.64	-	2.38	.26
1940	2942	2591	8.0	7.0	10.8	1.74	1.47	2.96	2.56	1.71	.79	1.89	.61
1939	5882	5337	9.7	3.9	12.2	N.A.	1.83	N.A.	3.50	3.43	.15	2.31	1.27
1938	3847	3572	7.7	3.6	7.0	N.A.	1.96	N.A.	3.54	3.84	-	2.81	1.03
6 yr. Aver.	3840	3522	8.4	4.4	11.8	-	2.51	-	4.51	3.72	.31	3.23	.80

*. Net stock income instead of costs, Numbers 13 and 7 sold breeding stock for more than its value at the beginning of the record. N.A. - Not available.

The net stock cost is the decline in value of breeding stock during the egg production period. Value declines through a decline in market value, through death losses, and through decline in weight and condition. At best, however, this figure is somewhat of an estimated, since in most cases birds were inventoried at estimated values at the opening of the breeding period. If the operator places a high value on his stock at that time he would tend to suffer a higher net stock cost for the period. If, however, he estimated a low value at that time and made advantageous sales at the end of the breeding period he might have a net stock income instead of a cost, as in records No. 13 and No. 7.

The high net stock cost of $3.40 per hen in Flock 31 was due to the high value of birds at the start and a below average selling price for birds at the close of the period. Heavy mortality among the toms also contributed to this high net stock cost.

Table 4. Feed and Labor Quantities and Prices in Individual Flocks, 1943. San Diego County

Ser. No.	Pounds per hen: Mash & pellets	Grain	Total concentrates	Total lbs. per hen day	Percent Feed: Mash & pellets	Feed cost, dollars per hundred weight: Mash & pel.	Grain	All conc.	Mash & Pellets	Grain	Other feeds	Total feed cost	Hours labor per hen
									Dollars per hen				
13	55.7	54.6	110.3	.49	50.5	3.06	1.97	2.51	1.70	1.08	.30	3.08	1.4
7	78.5	61.4	139.9	.63	56.1	2.75	1.98	2.42	2.16	1.22	.22	3.60	3.2
26	102.7	47.5	150.2	.70	68.2	2.83	1.72	2.47	2.89	.82	.16	3.87	1.9
18	29.5	82.2	111.7	.51	26.4	3.62	1.82	2.27	1.04	1.50	.62	3.16	3.1
29	33.9	36.6	70.5	.42	48.2	3.40	2.19	2.73	1.12	.80	.64	2.56	2.0
32	54.3	59.4	113.7	.57	47.8	3.39	2.24	2.79	1.84	1.33	.60	3.77	3.4
28	97.5	10.9	108.4	.72	90.0	3.32	2.87	3.27	3.24	.31	.15	3.70	2.0
11	82.3	26.0	108.3	.59	76.0	3.72	2.64	3.44	3.06	.69	.07	3.82	1.6
31	64.0	47.6	111.6	.47	57.2	3.31	2.19	2.82	2.12	1.04	.44	3.60	3.7
30	81.4	34.9	116.3	.62	70.0	3.38	2.29	3.06	2.75	.80	.27	3.82	1.9
1943	71.9	41.9	113.8	.58	63.2	3.29	2.13	2.86	2.37	.89	.30	3.56	2.1
1942	76.5	26.3	102.8	.63	74.4	3.18	2.01	2.88	2.43	.53	.25	3.21	2.3
1941	75.1	37.5	112.6	.53	66.7	2.45	1.52	2.14	1.84	.57	.34	2.75	2.0
1940	97.4	16.6	114.0	.56	85.4	2.49	1.56	2.36	2.43	.26	.14	2.83	2.0
1939	71.3	26.3	97.6	.52	73.0	2.24	1.33	2.01	1.60	.36	.20	2.16	2.0
1938	73.8	28.8	102.6	.61	71.9	2.40	1.60	2.18	1.77	.46	.32	2.55	2.2
6 yr. Aver.	77.6	29.6	107.2	.57	72.4	2.68	1.70	2.41	2.07	.51	.26	2.84	2.1

The above table shows a rather wide range in feed practices and costs. Mash and pellets both cost more than grain and hence the higher the proportion fed, the higher would ordinarily be the feed cost per hundred-weight. Prices for grain and mash for different producers also show a wide variation, so that concentrate feeds (grain and mash) are shown to vary from a low of $2.27 in Flock No. 18 to a high of $3.44 in Flock No. 11. Flock No. 18 obtained its low cost by the feeding of 26.4% of the feed in the form of high protein concentrates and the balance as grain.

The quantity fed likewise varies from flock to flock largely because of the difference in the length of the period covered, but also because of differences in the amount of feed per day. The fourth column above shows the total pounds of grain and mash or pellets fed per day per breeding hen. This you will note varied from a low of .42 lb. to a high of .71 lb. This wide range may in part be due to slight errors in reporting, but may also be due to different feeding rates and different proportions of feed wasted through feeding methods. A little over ½ lb. of feed per day per average hen should be enough, judging from records over the last few years. The use of fresh and dry greens reduces the quantity of feed required.

Table 5. Cost and Net Costs per Hen and per Hatching Egg Sold in Individual Flocks, 1943.- San Diego County

Ser. No.	Dollars per average hen for the period									Hatching eggs sold per hen	Net cost per h. egg	Av. price per h. egg	Mgt. income per h. egg
	Total feed	Hired labor	Operator's labor	Miscellaneous	Depreciation	Int. on invest.	Net stock cost	Total cost	Income net h. egg	Net cost hatching eggs				
13	3.08	.14	.69	.33	.13	.17	-.38	4.16	.39	3.77	77.0	4.9¢	21.1¢	16.2¢
7	3.60	-	1.60	.39	.15	.18	-1.05	4.87	.34	4.53	71.0	6.3	20.9	14.6
26	3.87	.18	.74	.43	.17	.20	.40	5.99	.22	5.77	73.0	7.9	19.8	11.9
18	3.16	.28	1.58	.46	.17	.25	1.05	6.95	.43	6.52	55.0	11.8	25.3	13.5
29	2.56	.34	.81	.47	.17	.25	1.06	5.66	.36	5.30	62.0	8.6	18.5	9.9
32	3.77	-	2.01	.37	.14	.22	1.58	8.09	.29	7.80	67.0	11.8	19.7	7.9
28	3.70	-	3.06	.26	.19	.26	.50	7.97	.31	7.66	56.0	13.7	21.7	8.0
11	3.82	.37	.32	.41	.08	.20	.80	6.00	.25	5.75	39.0	15.0	24.7	9.7
31	3.60	.08	1.61	1.68	.21	.24	3.40	10.82	.49	10.33	64.00	16.2	19.6	3.4
30	3.82	.95	.22	.50	.09	.25	1.83	7.66	.20	7.46	41.00	18.4	23.5	5.1
1943	3.56	.31	1.00	.43	.13	.22	.87	6.52	.29	6.23	57.0	10.9	21.4	10.5
1942	3.21	.28	.58	.35	.13	.19	.80	5.54	.25	5.29	50.6	10.5	16.4	5.9
1941	2.75	.10	.75	.39	.12	.11	.26	4.48	.20	4.28	64.8	6.6	11.4	4.8
1940	2.83	.20	.43	.24	.13	.12	.61	4.56	.23	4.33	43.4	10.0	11.2	1.2
1939	2.16	.18	.43	.30	.10	.12	1.27	4.56	.12	4.44	50.6	8.8	13.9	5.1
1938	2.55	.09	.57	.32	.12	.16	1.03	4.84	.08	4.76	44.6	10.6	13.9	3.3
6 yr. Aver.	2.84	.19	.63	.34	.12	.15	.81	5.08	.20	4.88	51.8	9.6	14.7	5.1

Costs in detail should be compared in the above table. It is interesting to note that the first five records had the lowest total cost and net cost of hatching eggs per hen. As cost rises profits are reduced or eliminated. Record No. 30 despite low production had rather high costs so had a net cost of hatching egg production at 18.4¢, which is almost four times as large as the lowest cost per hatching egg in Record 13.

Costs have not risen over the years as much as prices of hatching eggs. Feed cost, however, is almost 50% higher than it was in the early years of this study although the value of labor has more than doubled. It is expected that costs will continue to rise and that it will be necessary for growers to watch their expense items if they are to continue to enjoy a good profit.

by Months with Each Cooperator's lighting Program. San Diego County

Time lights burned on	No. lights per pen	Bulb size watts	Change of bulb size	Date bulb size changed	Percent Egg Production						Entire period	Bird Strain
					Dec.	Jan.	Feb.	Mar.	Apr.	May		
:30	1	40	-	-	24	35.0	56.2	60.5	58.4	56.2	38.6	Lewis&Price
:30	1	40	100	12/15/42	18.3	39.0	57.5	59.8	58.0	53.1	38.2	Lewis
-	-	-	-	-	16.4	16.8	19.0	52.5	54.3	48.0	36.4	Lewis&Price
:00	5	25	100	1/1/43	8.4	23.3	21.2	51.0	56.5	45.2	28.9	Lewis
:00	3	60	No	No	0.0	0.7	52.1	55.8	53.1	47.5	42.6	Lewis
:00	10	25	-	-	5.4	21.3	46.5	44.0	49.4	47.7	36.7	Lewis
:30	2½	40	No	No	0.0	0.0	17.5	61.2	52.4	38.8	41.1	Hamilton & Menefee
:00	3	60	No	No	2.7	6.0	25.1	46.2	30.9	34.6	24.7	Hamilton & Menefee
lNight	2	25	No	No	0.3	17.2	36.0	57.6	57.1	49.0	31.0	Lewis
M/5AM	7	25	60	2/10/43	0.5	6.5	27.0	44.7	38.8	29.1	23.8	Kaiser
						15.1	33.4	51.2	47.3	42.2	32.8	

igh egg production for the short period of lay and averaged a higher percent
sity recommended type lighting program with ten lights over the roosts and
laying season, but the birds did not lay at as high a peak as some of the
s heavy a lay in December, January and February that other March and April