COSTS AND RETURNS FROM POULTRY

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INTRODUCTION

The feed costs and returns from more than 500 farm poultry flocks for each of the years 1947, 1948, and 1949 are presented in this report. This information was obtained from records kept by the cooperators in the three farm management services in the state. [2] It represents the results from poultry handled under ordinary farm conditions in Minnesota. For the year 1949, the information for the rearing flock and the laying flock are shown separately for a portion of these farms. This separation makes possible a more detailed analysis of the poultry enterprise and provides more adequate information for planning adjustments in poultry management.

COSTS AND RETURNS FROM COMBINED REARING AND LAYING FLOCKS

A statement showing the costs and returns from combined rearing and laying flocks for the three-year period 1947 to 1949 is shown in table 1. The farm-raised feeds were valued at average prices at the farm. The commercial feeds were valued at the price the farmer paid for them. The net increase in value of chickens represents the gross return and is calculated by subtracting the value of purchases of chicks and hens and the value of poultry on hand at the beginning of the year from the combined value of birds sold, butchered for home use, and birds on hand at the end of the year. The addition of the value of eggs sold and used in the home to the net increase in value of chickens gives the total value produced. The pounds of poultry produced is determined in a manner similar to the method of calculating net increase in value.

The statements also show the amount by which the total return from the enterprise exceeds the feed cost. Since the value of feed consumed normally represents approximately two-thirds of the total cost of maintaining poultry, the return above feed cost indicates the relative profitability of the enterprise. The return above feed cost is not a net return but rather the amount available from the gross income, after paying the cost of feed, to cover other costs such as labor, buildings, equipment, and miscellaneous cash items and to provide a return for management.

The farmers included in this study maintained an average of approximately 200 laying hens during the three-year period. The average number of hens is determined by adding the number on hand at the beginning of each month

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1/ Bureau of Agricultural Economics, U. S. Department of Agriculture.

2/ Southeast Minnesota Farm Management Service, Southwest Minnesota Farm Management Service and the Farm Management Service for Veterans Taking On-The-Farm Training.

and dividing this sum by 12. In addition to the laying hens, these farmers purchased an average of 382 chicks in 1947, 287 in 1948, and 366 in 1949. Approximately 75 per cent of the laying flock were replaced each year by pullets. Nearly all the replacements for the laying flock came from the purchased chicks; few laying hens were purchased.

Table 1. Feed Costs and Returns From Combined Rearing and Laying Flocks, 1947 - 1949

	1947	1948	1949
Number of farms	516	549	532
Feed per hen, lbs.:			
Grain	98	86	99
Commercial feed	43	38	42
Total	141	124	141
Skim milk	6	7	7
Total feed cost per hen	$5.07	$4.42	$3.76
Value of produce per hen:			
Eggs sold and used in home	$5.33	$5.61	$5.59
Net increase in value of chickens	.76	.83	.57
Total value produced	6.09	6.44	6.16
Return above feed cost per hen	$1.02	$2.02	$2.40
Return per $100 feed consumed	$128	$154	$177
Price received per doz. eggs sold (cts)	39.9	41.6	39.6
Eggs laid per hen	159	162	170
Average number of hens on farm during year	198	199	201
% of hens that are pullets	79	72	76
% death loss of hens	13	13	12
Number of chicks purchased	382	287	366
Pounds of poultry produced	1094	876	1059

The quantityof feed required per hen was 141 pounds in 1947 and 1949 and 124 pounds in 1948. The feed for the chickens raised as well as that for the laying hens is included in this figure. The smaller amount of feed used per hen in 1948 is due to the fact that a smaller number of chicks were purchased and raised that year.

THE REARING FLOCK

The rearing flock includes the chicks from the time of purchase until they are transferred to the laying flock or sold as broilers or fryers. The months in which the chicks were purchased are shown in table 2.

Table 2. Month Chicks Were Purchased, 1949

Month	Number of purchases	Per cent of purchases
January	1	.6
February	4	2.6
March	31	20.0
April	83	53.6
May	31	20.0
June	5	3.2

Seventy-four per cent of the 150 flock owners bought pullet chicks either alone or in some combination which included straight run and cockerels (table 3). Few farmers bought more than 100 cockerels.

Table 3. Kind and Number of Chicks Purchased Per Flock, 1949

Kind	Number of cases	Avg. number of chicks purchased		
		Pullets	Straight run	Cockerels
Pullets	55	428	--	--
Straight run	36	--	480	--
Pullets and cockerels	36	394	--	63
Pullets and straight run	17	349	151	--
Pullets, straight run and cockerels	3	258	350	483
Straight run and cockerels	3	--	783	67

The feed costs and returns per 100 birds raised in the rearing flocks are shown in table 4. Of the 477 chicks purchased, 391 were raised and 86 died. The 391 chickens raised were either sold, used in the home, or transferred to the laying flock.

Each 100 birds raised consumed 1,285 pounds of farm raised grains and 950 pounds of commercial feeds. In addition, a small amount of skim milk was fed. A total of 533 pounds of feed were required to produce 100 pounds of poultry.

The cost of feed exceeded the net increase in value per 100 chicks raised by $5.87. The net increase in value was determined by subtracting the cost of obtaining the chicks from the gross income. This gross income includes the amount received from sales and the farmers' estimate of the value of birds butchered for home use and transferred to the laying flock. These flock owners not only failed to recover the cost of feed consumed by chicks but they also failed to cover their other costs such as labor, use of equipment, interest on investment, and miscellaneous cash expense.

Table 4. Feed Costs and Returns Per 100 Birds Raised in Rearing Flocks, 1949

Item	Your farm	Average of 150 flocks
Feed per 100 chicks raised, lbs:		
Grain	_____	1285
Commercial feeds	_____	950
Total	_____	2235
Skim milk	_____	13
Total feed cost per 100 chicks raised	_____	$70.92
Net increase in value per 100 chicks raised	_____	65.05
Return over feed cost per 100 chicks raised	_____	-5.87
Return for $100 feed consumed	_____	$92
Number of chicks purchased as:		
Pullets	_____	296
Straight run	_____	155
Cockerels	_____	26
Total number purchased	_____	477
Price paid per 100 chicks purchased as:		
Pullets	_____	$39.83
Straight run	_____	20.13
Cockerels	_____	14.30
Number chicks raised	_____	391
Pounds poultry produced	_____	1638

The low returns received from the rearing flock are due in part to an underestimate of the value of chicks butchered for home use, and of the value of pullets transferred to the laying flock. The data in table 5 show the numbers of chicks per flock, pounds produced, value per flock and value per bird as reported by the farmer cooperators when chicks were purchased as pullets, straight run and a mixture of pullets, straight run and cockerels. The value per bird butchered for home use is less than the value received per bird sold. The estimated value of pullets transferred to the laying flock was only slightly higher than the sale price of birds which were sold for meat purposes at earlier dates and presumably lighter weights. No doubt these farmers could have received a price for their pullets considerably above this estimate if they sold them to other poultrymen as layers. This would have resulted in a greater increase in value per 100 birds raised and would have produced a return large enough to cover feed cost.

Table 5. Number, Weight, and Value of Birds in Rearing Flock, 1949

	All flocks	Chicks purchased as: Pullets	Straight run	Mixture of pullets, straight run and cockerels
Number of cases	150	55	36	59
Numbers per flock				
Used in home	20	9	26	25
Transferred to layers	295	319	207	325
Sold	76	25	166	71
Death loss	86	75	81	101
Total purchased	477	428	480	522
Pounds per flock				
Used in home	80	36	108	105
Transferred to layers	1259	1324	968	1375
Sold	299	100	657	267
Total pounds produced	1638	1460	1733	1747
Value per flock				
Used in home	$16.51	$6.86	$22.82	$21.65
Transferred to layers	318.85	337.77	214.35	364.96
Sold	72.91	25.82	151.28	64.82
Total value per flock	408.27	370.45	388.45	451.43
Value per bird as reported by farmers				
Used in home	$ .83	$ .76	$ .88	$ .87
Transferred to layers	1.08	1.06	1.04	1.12
Sold	.96	1.03	.91	.91

Another reason for the low returns received from the rearing flocks is the high rate of mortality experienced by some of the flock owners. There was a considerable range in the amount of death loss among the flocks on the farms studied (table 6). Much of it represents the loss of small chicks soon after purchase. On some farms, however, loss of chicks occurred several weeks after purchase. In either case, the cost of chicks and the overhead charge of feeds consumed by chicks that die must be borne by the remaining birds in the flock. Consequently a high death loss is associated with a high feed charge for each 100 birds raised.

Table 6. Relation of Death Loss to Returns From Rearing Flocks per Farm, 1949

	Per cent death loss of chicks			
	Below 10	10.0-19.9	20.0-29.9	30 and over
Number of farms	42	54	35	19
Feed per 100 chicks raised, lbs:				
Grain	1077	1265	1178	2002
Commercial	840	897	1061	1140
Total	1917	2162	2239	3142
Skim milk	-	35	-	-
Total feed cost per 100 chicks raised	$63.19	$66.66	$73.01	$96.23
Net value produced	71.38	61.11	62.64	66.69
Return over feed cost per 100 chicks raised	8.19	-5.55	-10.37	-29.54
Return for $100 feed consumed	113	92	86	69
Number chicks purchased:				
Pullets	240	325	311	311
Straight run	185	157	134	124
Cockerels	16	16	20	86
Per cent death loss	6.3	14.7	24.5	42.7
Pounds poultry produced	1705	1768	1508	1360

THE LAYING FLOCK

The quantity and value of feed consumed per laying hen, returns per hen, number of hens per flock, eggs laid per hen, and price received per dozen eggs sold are shown in table 7. The average number of layers was 229 with an average production of 182 eggs per hen. Home-grown feed constituted 75 per cent of the total feed consumed.

The total feed consumed per hen varied only slightly with the level of egg production. However, there was some variation in the amount of commercial feeds used. Flock owners who secured less than 150 eggs per hen, fed 23 pounds of commercial feed per hen as compared to 32 pounds of commercial feed for the flocks laying 210 eggs and over. Ordinarily, one would expect a greater increase in feed consumption to be associated with increased egg production. However, quality of feed is also a factor. The additional commercial feeds used by flock owners with the relatively high levels of production resulted in better balanced rations. Death loss was less with the high producing flocks.

Table 7. Feed Costs and Returns From Laying Flock, 1949

	Your farm	All farms	Eggs laid per hen: Below 150	150-179	180-209	210 and over
Number of farms		160	37	47	31	45
Feed per hen, lbs:						
Grain		81	82	81	83	79
Commercial feed		27	23	24	29	32
Total		108	105	105	112	111
Skim milk		4	6	6	-	3
Feed cost per hen		$2.77	$2.61	$2.71	$2.86	$2.91
Value produced per hen:						
Eggs sold and used in the home		$5.89	$4.20	$5.42	$6.29	$7.50
Less death loss and depreciation		.55	.41	.69	.65	.43
Net value produced		5.34	3.79	4.73	5.64	7.07
Return above feed cost per hen		2.57	1.18	2.02	2.78	4.16
Return for $100 feed consumed		193	145	175	197	243
Average number of hens		229	206	210	255	249
Eggs laid per hen		182	130	166	195	232
Price received per doz. eggs sold (cts.)		39.5	39.8	39.7	39.3	39.3

Flock owners with a high level of production reported feed costs per hen 11 per cent higher than the owners of flocks with a low level of production. However, they also reported 78 per cent more eggs laid per hen. The increased production was more than enough to offset the additional cost of feed necessary to secure the additional production.

The number, weight and value of birds in the laying flock is presented in table 8. The number of mature birds purchased as layers was very small. Most of the replacements for the laying flocks each year come from the rearing flocks on the same farm. The price paid for purchased laying hens was considerably higher than the farmer's estimate of the pullets transferred from the rearing flocks or his estimate of the value of the birds on hand at the beginning or at the end of the year. If all the layers were valued at a price equal to the price paid for the few which were purchased, the net result would be a higher rate of depreciation and less return above feed cost per hen. The compative position of the rearing flock, on the other hand, would be improved from that shown in the previous discussion.

The ratio of pullets to hens over one year of age appears to be an important factor in poultry production. The data in table 9 show the relation of percentage of pullets in the laying flock to various production factors. Approximately 50 per cent of the farmers sold all the old hens each year and replaced the entire laying flock with pullets in the fall; 26 per cent kept over a small number of old hens and on 23 per cent of the farms, old hens comprised approximately one-half of the total birds maintained.

Table 8. Number, Weight and Value of Birds in Laying Flock, 1949

	All farms	Eggs laid per hen: Below 150	150-179	180-209	210 and over
		Number per flock			
On hand beginning of year	272	252	244	312	289
Transferred from rearing flock	258	189	229	302	317
Purchased	11	3	13	29	2
Total	541	444	486	643	608
Sold	189	149	142	235	239
Used in home	11	8	10	18	10
On hand at end of year	281	238	260	322	311
Total	481	395	412	575	560
Death loss	60	49	74	68	48
		Pounds per flock			
On hand beginning of year	1166	1063	1054	1334	1254
Transferred from rearing flock	1107	838	983	1264	1349
Purchased	48	10	61	131	9
Total	2321	1911	2098	2729	2612
Sold	871	676	651	1077	1118
Used in home	50	42	43	76	46
On hand at end of year	1246	1051	1150	1438	1375
Total	2167	1769	1844	2591	2539
Net loss in pounds	154	142	254	138	73
		Value per flock			
On hand beginning of year	$316.22	$266.54	$295.11	$384.58	$332.01
Transferred from rearing flock	277.08	179.71	248.39	322.93	355.53
Purchased	16.49	4.36	17.39	48.98	3.15
Total	609.79	450.61	560.89	756.49	690.69
Sold	173.50	136.76	124.14	212.82	228.17
Used in home	9.89	8.03	7.81	16.01	9.39
On hand at end of year	294.04	220.13	268.82	356.63	338.05
Total	477.43	364.92	400.77	585.46	575.61
Net loss in value	132.36	85.69	160.12	171.03	115.08
		Value per bird as reported by farmers			
On hand beginning of year	$ 1.16	$ 1.06	$ 1.21	$ 1.23	$ 1.15
Transferred from rearing flock	1.07	.95	1.08	1.07	1.12
Purchased	1.50	1.45	1.34	1.69	1.58
Sold	.92	.92	.87	.91	.95
Used in home	.90	1.00	.78	.89	.94
On hand at end of year	1.05	.92	1.03	1.11	1.09

An increase in egg production and lower death losses are associated with a high percentage of pullets in the flock. The net result is higher return above feed cost for the young hens than for the flocks containing a relatively large proportion of old hens.

Table 9. Relation of Percentage of Pullets in the Laying Flock to Various Production Factors, 1949

	Per cent of laying flock that are pullets		
	Below 60	60-99	100
Number of farms	37	42	81
Feed per hen, lbs.:			
Grain	82	80	81
Commercial feeds	23	29	28
Total	105	109	109
Feed cost per hen	$2.67	$2.81	$2.80
Value produced per hen:			
Eggs	$4.82	$5.93	$6.37
Less depreciation and death loss	.47	.68	.52
Net value produced	4.35	5.25	5.85
Return above feed cost per hen	1.68	2.44	3.05
Return for $100 feed consumed	163	187	209
Eggs laid per hen	154	176	197
Average number of hens	163	284	230
Per cent of hens that are pullets	46	83	100
Per cent death loss	16	14	10

RECORDS ARE A GUIDE

This report points out that some poultry raisers are securing a relatively good return from both the rearing and laying flocks. Others are not securing a return sufficiently large to cover the cost of feed. A complete and accurate set of records of the poultry enterprise as well as of the entire farm business provides the farmer a useful guide in planning his operation. Records will show him where his management is weak and where improvements need to be made in order to increase his earnings.