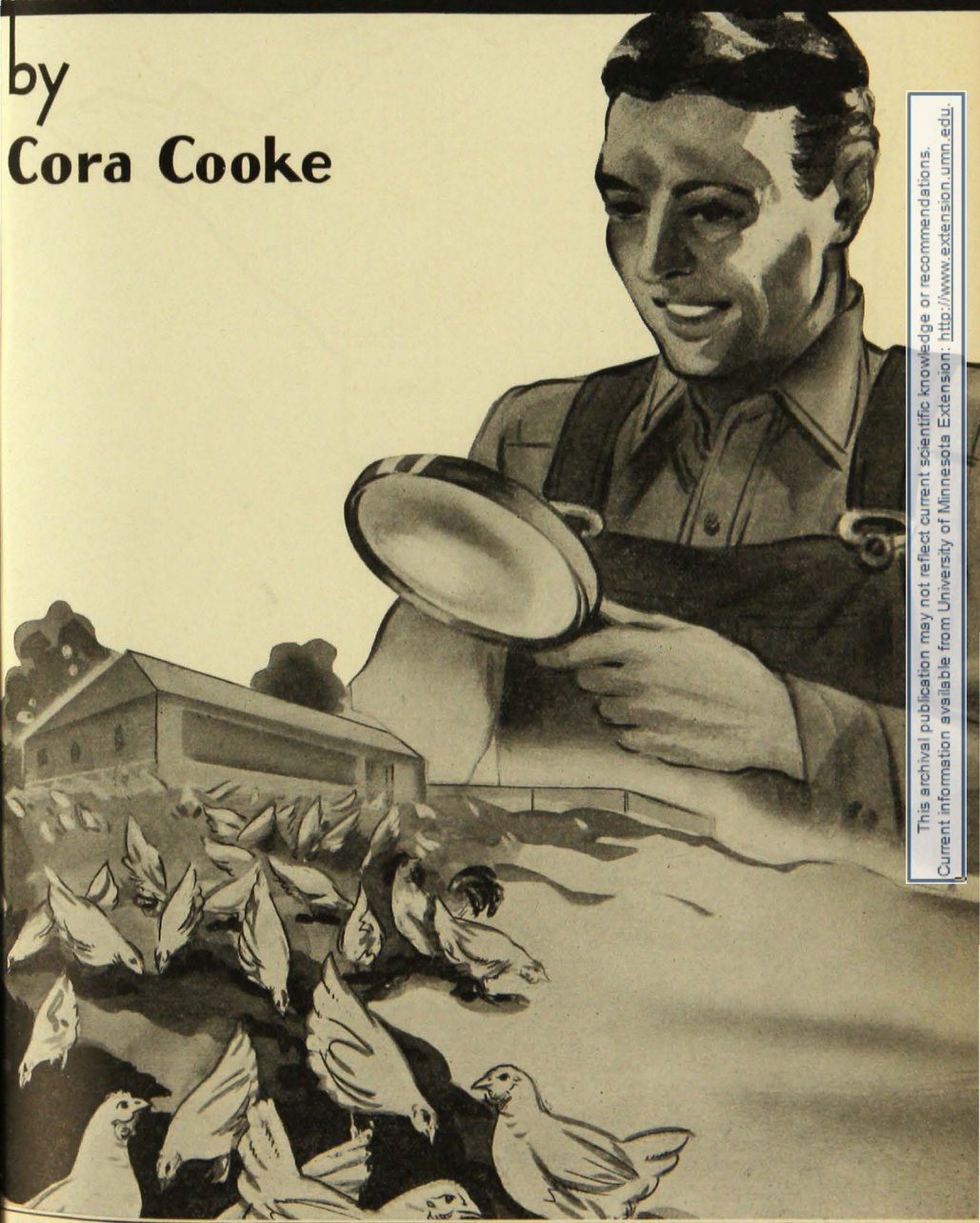
Let's look into this CHICKEN BUSINESS

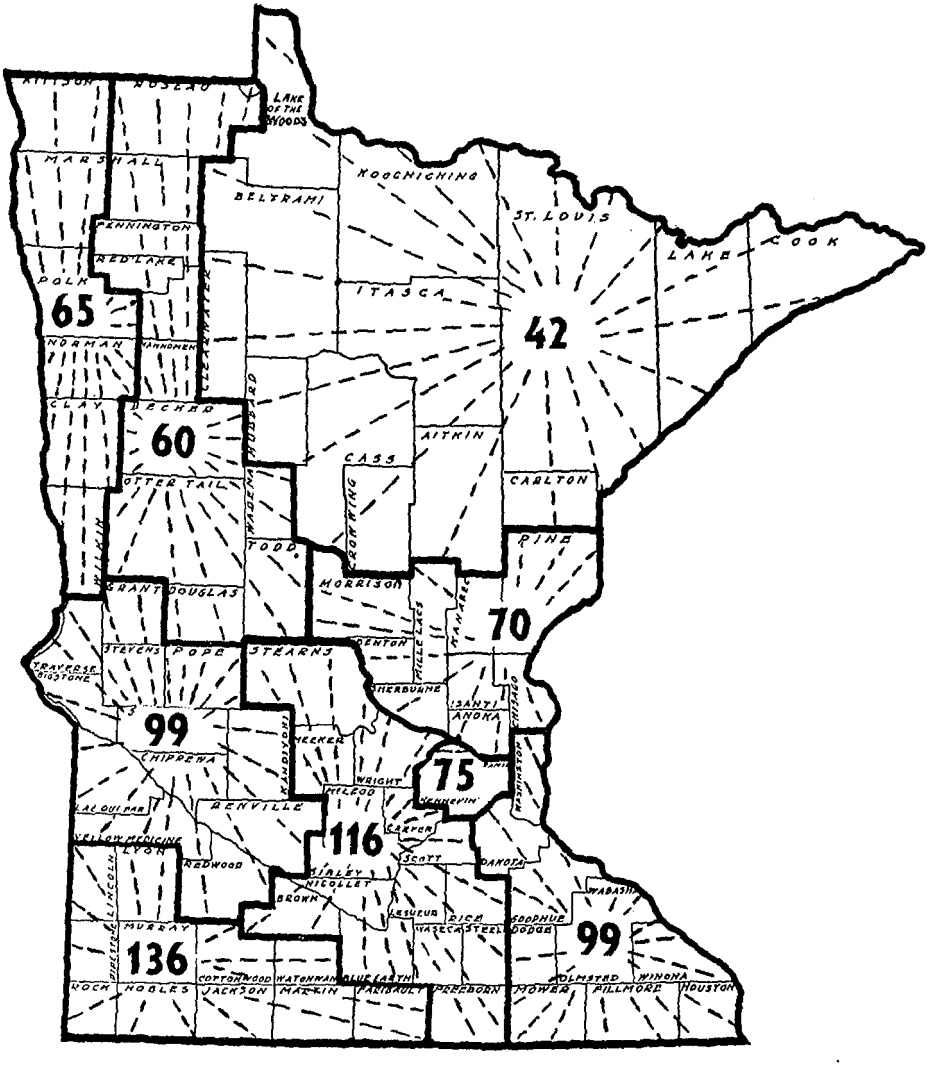
TENSION BULLETIN 186 REVISED FEBRUARY 1939

by

Cora Cooke



AGRICULTURAL EXTENSION DIVISION—UNIVERSITY OF MINNESOTA



Figures on the map show the average number of chickens kept per farm in each area, as shown by the U. S. Census of 1935. Each area represents a type of farming based on its particular location and conditions of soil and climate. The smallest flocks are found in the sections where little grain is raised and frequently yield little profit. Flockowners in this section might profit by keeping more hens, since record flocks in this area have consistently made a larger return than those in the grain-growing area. This advantage may be explained by the fact that the poultry flocks on which records were obtained in this area were larger in proportion to the size of the farm business than in other areas, and for this reason probably were better managed. At any rate, the results justify the conclusion that chickens can be made to pay even when all feeds must be purchased.

This Chicken Business

POULTRY is kept on 85 per cent of all farms in Minnesota, as shown by the United States Census. No other class of livestock is so widely distributed. If we were to ask individual farmers why poultry should be so popular we might call forth a variety of answers—might even bring out some such "reason" as that given by one elderly farmer in regard to the flock kept at his boyhood home, "Because they didn't die, and they didn't run away."

No doubt most flockowners hope that the chickens will earn a profit, or at least provide cheap eggs and meat for the table. Unfortunately, few flockowners keep good enough records to show how much income may be expected from a flock, what factors influence its income, or how much poultry may contribute to the family living when properly kept.

Records Give the Answer

Actual records of farm flockowners, kept under the supervision of the Minnesota Agricultural Extension Service, now provide much reliable information as to what a farm flock can do and how it should be handled for best results. These records, which are summarized in this bulletin, are particularly useful because they have been collected over a period of 10 years, representing an average of 54 flocks a year. Although these flocks averaged 239 hens each, the findings from the records may readily be applied to a flock of any particular size since the results have been broken down to fit the 100-hen flock, which, according to the census, is typical of the state. Flock size varies in different sections. (See map on page 2.)

The size of flock that will be best for any individual farm will depend largely upon the labor available, particularly at those seasons when chickens require most attention. Facilities for housing and for range, as well as local prices of feeds, eggs, and poultry, must also be considered.

Watch Your Share

Raw Material and Output of 100-Hen Factory

While this report does not show specifically what the size of flock has to do with rate of return, the records indicate that flocks of less than 100 hens are likely to suffer from neglect and therefore to be unprofitable.

Flocks Earned a Profit

According to the records of Minnesota record project co-operators, if you have an average flock of 100 hens, you may expect to get 15,300 eggs a year, valued at $295, and have surplus poultry worth $125.

Your gross income (including poultry and eggs used and any increase in stock and equipment) would amount to $453.

Your feed bill for the year would come to $185, and the total expense would be $300. This total expense would include not only feed, but also such other costs as chicks for replacement, fuel, depreciation, and interest.

The amount left to pay for your labor and management would be $153. This we shall call labor return.

Also, if your flock performed according to the average, it would need about five tons of feed for the laying flock and to raise chicks for replacement. You would have to count on losing 14 per cent of your hens through death and 21 per cent of your chicks.

Results Have Improved

During the 10-year period covered by the foregoing figures certain changes have taken place. Production per hen in these record flocks stepped up from 137 eggs in 1927 to 159 in 1936. This increase may have come from various causes, but a large part of it undoubtedly was due to a big increase in the proportion of mash used in the ration. In 1927 the average hen in the project received 39 pounds of mash and 50 pounds of scratch. In 1936 the mash amounted to 65 pounds for each 48½ pounds of scratch. This would be 78 pounds of mash per 100 pounds of scratch in 1927 and 131 pounds of mash per 100 pounds of

scratch in 1936. Although these figures represent feed used for the entire flock, both chicks and grown birds, it is clear that the layers received a good deal more mash in 1936 and that this helped increase the eggs laid per hen.

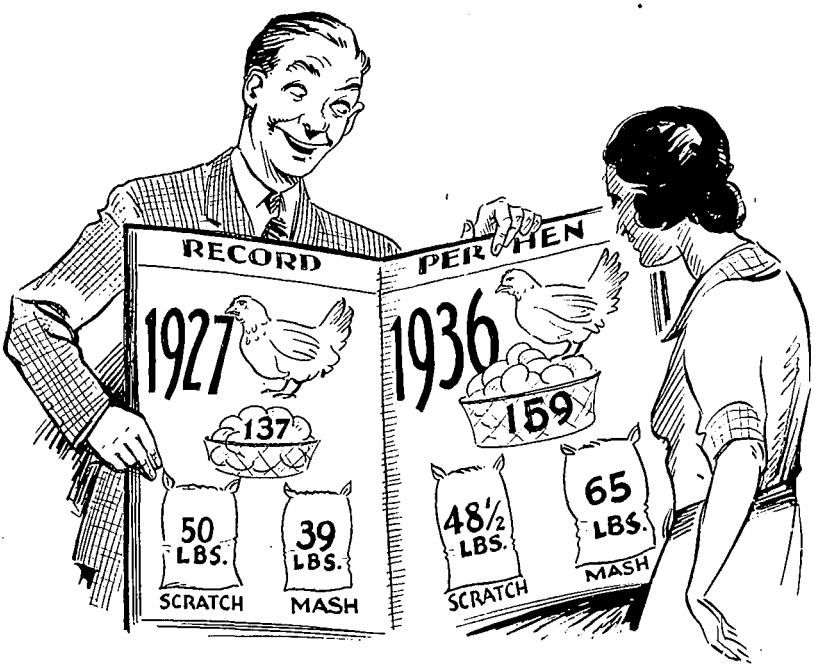
Death loss in hens rose from 13 per cent in 1927 to 18 per cent in 1936. At the same time, chick deaths fell from 23 per cent in 1927 to 16½ per cent in 1936.

Your chances of making a satisfactory return will vary with conditions. During the 10 years, 9 out of 10 flocks obtained some labor return, despite the fact that feed and egg prices rose and fell seemingly with no relation to one another. In the low point in the depression, only 8½ flocks out of 10 in the record group made a labor return, while in 2 of the 10 years the number rose to 9½ out of 10.

A Dependable Business

For all flocks, the labor return per 100 hens averaged $153 a year over this 10-year period, ranging from $96 for the lowest year up to $254 for the highest. The average return advanced steadily from the low point in 1932.

Today's Hen Lays More Eggs



The Hen Dollar

These facts point to the farm poultry business as one of relative stability on many farms, a business which, when established on any individual farm at a size that can be handled efficiently, may be counted on to yield a substantial and regular yearly income.

Eggs Count, So Count the Eggs

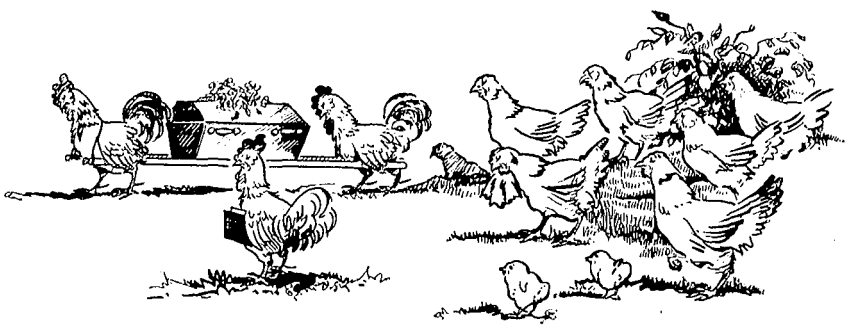
Census figures say the average Minnesota hen lays only 80 eggs a year. Flock records should show whether this is enough to pay. They should show, for one thing, whether poultry raisers are correct in the opinion they sometimes express that the sale of poultry can make up for a lack of eggs. This question was answered definitely in the records for 1936 when six of the flocks averaged slightly above 80 eggs per hen, making an average labor return of only 29 cents per hen. Three of the six flocks showed an actual loss.

Figures for the 10 years prove that the rate of labor return was directly in line with the rate of laying. This is clear from the following table:

Table 1. Egg Production and Labor Return, Average of 10 Years

	Number flocks	Eggs per hen per year	Labor return per 100 hens per year
High-producing flocks	183	185	$223.00
Medium-producing flocks	183	147	130.00
Low-producing flocks	176	111	71.00

Death Losses Cut Returns



Feed Makes a Difference

Not once in the 10 years did this relationship change, indicating that egg production is the greatest single factor in the returns made. This is not hard to understand when we consider that 65 per cent of the gross income in these flocks came from eggs.

Not all of the factors which make for increased production are evident from the records, but differences in feeding methods indicate that better results are obtained when the mash used equals or exceeds the scratch feed. Proportionate amounts of scratch and mash in the three groups of flocks are shown in Table 2.

Throughout the 10 years the high-producing flocks received more mash than scratch, while the low-producing group had less mash than scratch. In the medium group the scratch outweighed the mash 6 years out of the 10.

Table 2. Eggs in Relation to Feed, Average of 10 Years

	Eggs per hen	Pounds scratch	Pounds mash
High-producing flocks	185	46	63
Medium-producing flocks	147	52	53
Low-producing flocks	111	54	43

Is High Production Worth What It Costs?

As might be expected, the total cost of high production was greater than for low production; however, the cost per unit of production was lower. This resulted in a labor return from the high-producing flocks that averaged three times as much as the labor returns from the low-producing flocks.

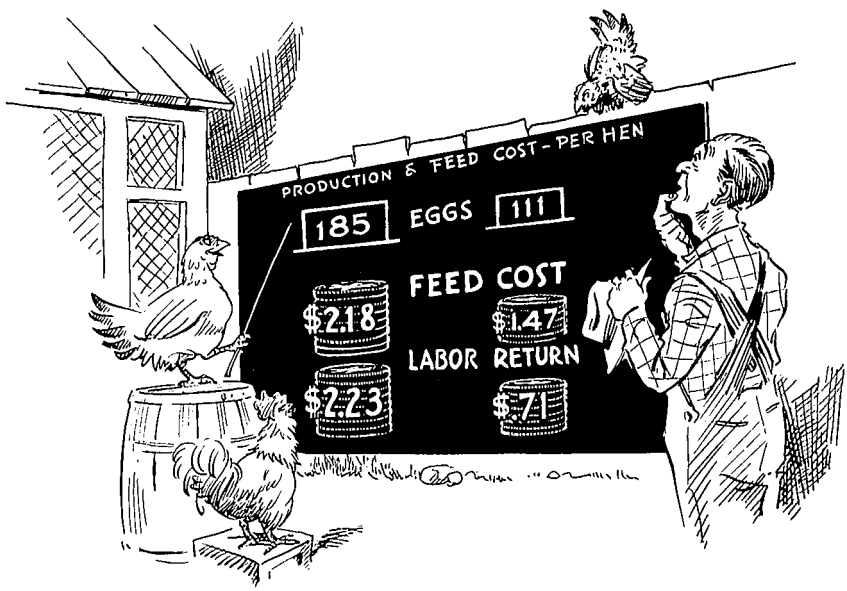
A knowledge of the probable costs is essential to the planning of a successful year's business. Feed cost was the greatest single expense, representing, on the average, 61 per cent of the total cost. Amounts and costs of feed in the different groups are given in Table 3.

Table 3. Amounts of Feed and Cost, Average of 10 Years

	Eggs per hen	Total feed, pounds	Feed cost per hen
High-producing flocks	185	109	$2.18
Medium-producing flocks	147	105	1.83
Low-producing flocks	111	97	1.45

Let's put it another way. It would take 166 of the low-producing hens to lay as many eggs as 100 of the high-producing group. Now the

Proving the Case for Good Feeding



feed bill for these 166 hens, at the cost quoted for that group, would be $241 or $21 more than would be required for 100 of the best layers. Moreover, in keeping the larger number of low-producing hens, you would have extra expense for housing and in supplying chicks for replacement.

The great difference in feed costs of the three groups of hens points to a difference in quality of feed, since the amounts used varied so little. As stated earlier, one marked difference was the proportionate amounts of scratch and mash fed, the better laying flocks receiving the greater proportion of mash.

Does High Production Increase Death Loss?

Often the statement is heard that higher production carries with it a heavier death loss. The records indicate just the opposite:

Table 4. Death Losses in Record Flocks, Average of 10 Years

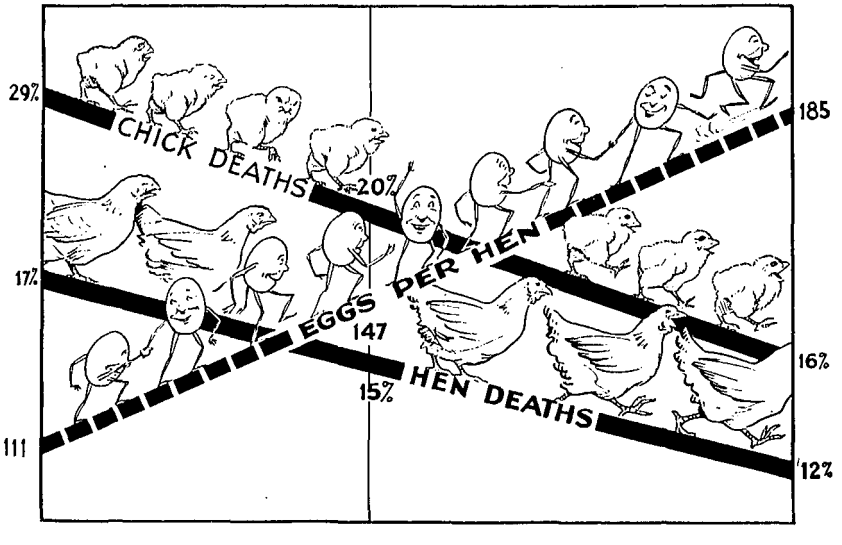
	Eggs per hen	Hen deaths, per cent	Chick deaths, per cent
High-producing flocks	185	12	16
Medium-producing flocks	147	15	20½
Low-producing flocks	111	17	29

The percentages given in Table 4 are based on the number of birds at the beginning of the season. Each year, without exception, the low-producing flocks showed a greater death loss than the high-producing flocks. This fact points to the conclusion that disease lowers production and not that stepping up production increases deaths. It also indicates that a low death rate and good production are twin signposts of good management.

Will Summer Eggs Make Up for Low Winter Production?

Judging from these records, two factors make for a high labor return: (1) High egg production per hen, and (2) a high percentage of production in the fall of the year when egg prices are relatively high.

Death Losses Fall As Egg Lay Rises



It has already been shown in Table 3 that these high-producing flocks, which are also the ones with a high percentage of the year's lay in the fall, are the ones that were most profitable. The poultryman who neg-

lects to manage the flock for a high fall production is missing a real opportunity to increase his earnings.

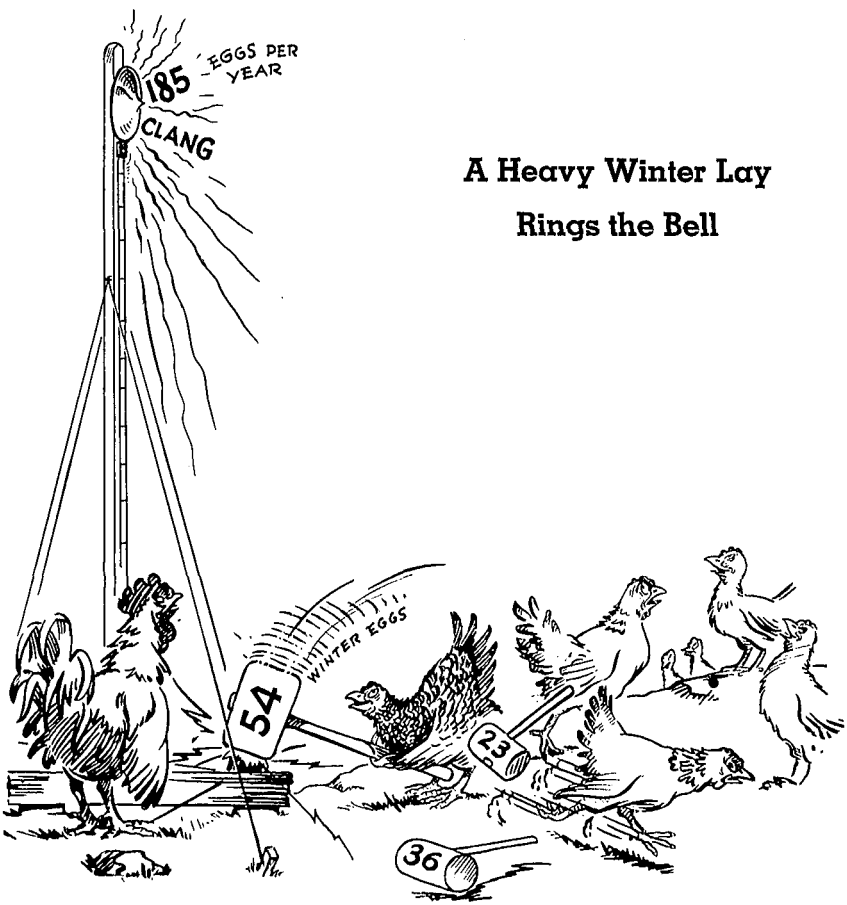
Since a 45 per cent production in the November-February period can come only from fully matured pullets, it is clear that the pullets in these highest-producing flocks must have been hatched not later than May.

Table 5. Fall Egg Lay and Total Production for the Year, Average of 10 Years

	Eggs per hen		
	High group	Medium group	Low group
Entire year	185	147	111
November-February	54	36	23
Per cent of total in fall	29	24	20

Is There One Best Breed?

In these record-keeping flocks there were more Leghorns than birds of all the dual-purpose breeds put together, so these heavier flocks have



been considered as a group. A few flocks each year were a combination of a light and a dual-purpose breed.

Table 6 shows the differences that existed among these groups in the more important results.

In six of the 10 years the light breeds led in labor return, but for the whole period there was a difference of only three cents per hen, in favor of the Leghorns in spite of the fact that the Leghorns laid 34 more eggs per hen than did the dual-purpose hens and required less feed. An explanation lies in the following facts:

1. The income from meat was larger in the heavy flocks.
2. The heavy flocks had a feed cost no higher than that of the Leghorns both because more of them were located in areas of cheap feed supplies and because their rations included less of the costlier feeds that are necessary for good egg production.

This leads to the conclusion that improved feeding and management for egg production might enable the heavy breeds to surpass the Leghorns in labor return. The records indicate that such an increase would require a more generous allowance of mash to stimulate egg production. Another change that could be expected to increase the annual egg production is earlier hatching, which would improve production especially in the period from November through February.

Combination Flocks Not Satisfactory

In the flocks that combined both types, the labor return was, *each year,* below that in the flocks consisting of a single light or dual-purpose breed.

Table 6. Light and Heavy Breeds Compared, Average of 10 Years

	Dual-purpose	Light
Number flocks	147	356
Hens (average flock)	150	277
Eggs per hen per year	126	160
Winter eggs per hen per year	28	43
Summer eggs per hen per year (5-year average)	40	50
Pullets reared, per cent of average hens	117%	93%
Income from eggs per hen	$2.36	$3.18
Income from poultry and miscellaneous per hen	$2.14	$1.10
Labor return per hen per year	$1.59	$1.62
Feed cost per hen	$1.88	$1.88
Pounds scratch per hen	70	46
Pounds mash per hen	57	54

A study of these records indicates that choice of breed is not dependent upon the breed itself, but rather on management and local conditions. Since the dual-purpose flocks required about one fourth more feed than the light-breed flocks, the Leghorns have an advantage in sections where little grain is raised and feed is high in price. A further advantage for Leghorns in that area, with its shorter growing season, is the fact that they can be hatched a full month later.

WITH Good Management Come Good Returns

Recent Records Best Guide

To this point we have been considering average results over a 10-year period, but figures for recent years offer the most reliable guide for plans for the immediate future. For the year 1938, 59 flockowners completed their records on 14,811 hens. Flocks varied in size from 26 hens to 1,412. Some of the more important findings are given in Table 7.

Feed costs were higher in proportion to the price of eggs in 1938 than for any year between 1928 and 1936, but they were more favorable than in the years 1927 and 1937. In spite of an unfavorable price rela-

Table 7. Facts from 1938 Records

	Average	Lowest	Highest
Average number hens per flock	251	26	1,412
Eggs per hen, annual	163	79	222
Eggs per hen, November-February	47	8½	78
Price per dozen eggs	$0.21	$0.16	$0.28
Death loss—hens	16%	2%	51%
Death loss—chicks	16%	1%	59%
Price of feed per cwt.	$1.43	$0.96	$2.23
Feed cost per hen	$1.74	$0.61	$2.70
Labor return per hen	$1.55	—$0.94	$3.87

WITHOUT Good Management Hens Don't Pay

tion, the better fed flocks paid well enough to offset the higher costs.

The high-producing flocks received 84 pounds of mash to 33 pounds of scratch, whereas the low-producing flocks had 54 pounds of mash and 51 pounds of scratch.

Table 8. Production, Feed Cost, and Returns per Hen, 1938

	Eggs	Feed cost	Labor return
20 High-producing flocks	193	$1.87	$2.03
20 Medium-producing flocks	154	1.79	1.51
19 Low-producing flocks	123	1.43	0.73

The year 1938 showed the heavy-breed flocks leading the light-breed flocks in labor return by 45 cents per hen, in spite of the fact that their production was 147 eggs per hen compared with 170 eggs per hen in the Leghorn flocks. Although throughout most of 1938 the farm price of eggs was relatively more favorable than the price of chickens as compared with the 10-year period 1927-1936, the heavy-breed flocks made up for this handicap by a greater increase in the number of chickens raised.

Is Home-Grown Grain Essential?

The remark is often heard that poultry can pay only in sections where all necessary grains are raised and where, as a result, feed is relatively

cheap. True enough, Table 9 shows that feed costs were 34 cents a hundred pounds higher in the section where practically no home-grown grain is fed than in the grain-growing area of the state. But it also shows that flocks in the non-grain section earned 70 cents per hen more than those in the grain section.

Table 9. Flocks Compared According to Location, 1938

	Grain section	Non-grain section
Number flocks	30	29
Average hens per flock	245	257
Eggs per hen	154	172
Price of eggs per dozen	$0.19	$0.23
Price of feed per cwt.	$1.26	$1.60
Feed used per hen, lbs.	115	114
Death loss—hens	19%	13%
Death loss—chicks	17%	14½%
Labor return per hen	$1.20	$1.90

A partial explanation is that eggs in the non-grain section brought four cents a dozen more. Crediting the eggs laid by hens in the grain section with this price advantage would make 51 cents difference. But we must not overlook the fact that hens in the non-grain section had to pay 37 cents apiece more for feed, because they paid higher prices for their feed. The higher earning power of the hens in the non-grain area cannot be credited to greater meat production, for 25 of the 29 flocks in that section were Leghorns, whereas 14 of the 30 flocks in the grain section were of dual-purpose breeds, or dual-purpose combined with Leghorns.

The real answer lies in the higher production of the flocks in the non-grain section—an advantage of 1½ dozen eggs per hen. This greater production plus the higher price per dozen brought them $0.87 per hen more from eggs alone. Some of the higher earning power is accounted for in better prices for poultry and for hatching eggs, chicks, and breeding stock. A still further gain is seen in the lower death loss of both chicks and hens in the non-grain section flocks.

The Management's the Thing

Good management, then, best explains why flocks in the non-grain section provided a larger labor return in spite of having to purchase practically all their feeds. This good management is reflected in the fact that the hens in the non-grain section received a larger proportion of mash. It resulted in more eggs per hen and in fewer deaths. The same good management given to flocks in the cheap grain area could be expected to bring similar gains. Such good management includes hatching early enough in the spring for fall laying, as well as better balanced feeding of all birds the year round.

RECORDS cited in this bulletin were kept by poultrymen enrolled in the *Minnesota Poultry Record Project,* conducted by the State Agricultural Extension Service. Not only do these record project members know how much money they are making, but, better yet, they can study the strong and the weak points in their management as a guide in improving their methods. Thus their experiences and methods should be of great value to all Minnesota flockowners.

Each co-operator in the *Minnesota Poultry Record Project* keeps a daily record of eggs laid. He records the value of eggs and poultry sold and used, and of feeds used, whether purchased or home-grown. Miscellaneous items of income or expense are also recorded, as well as death losses in both old birds and chicks. Depreciation is charged from one year to the next, and interest is figured at 6 per cent of the average inventory.

Feed for chicks is not booked separately, but all feed is charged against the hens. Thus the cost per hen represents the cost of raising chicks for replacement in addition to the cost of egg production. All income or return likewise is credited to the hens, the purpose of this project being to determine the probable earnings from a 100-hen flock and the risks that must be met.

The number of hens used in making averages is the number on hand at the beginning of each month. Monthly figures are averaged to determine the number of hens for the year.

UNIVERSITY FARM, ST. PAUL, MINNESOTA

Cooperative Extension Work in Agriculture and Home Economics, University of Minnesota, Agricultural Extension Division and United States Department of Agriculture Cooperating, P. E. Miller, Director. Published in furtherance of Agricultural Extension Acts of May 8 and June 30, 1914. 10M—3-39

Poultry Records .... WHAT THEY SHOW