

grain omitted. Mortality 63.7 per cent. of which 85.8 per cent. had digestive troubles, chiefly diarrhoea.

The results of this experiment indicate that if the dead chicks are found immediately after or even before death to show a green stain in the flesh of the right side of the abdomen, close to the posterior end of the breast-bone, the amount of animal proteid in the diet is insufficient and must be increased. Liver (beef, pig, sheep, goat), fresh fish, or refuse meat, boiled and chopped fine, skim milk, or commercial "animal meal," are recommended.

The same experiment also indicates that the increased amount of animal proteid in combination with the grain ration not only reduced the mortality, but

it caused a much more rapid growth of the survivors.

At the end of thirty days the surviving individuals in each pen were carefully weighed, with the results shown in the table given below:

It will be noticed by the following table that pen 10A, to which was fed the largest amount of animal proteid in addition to a certain quantity of carbohydrate food (starch etc.), showed the greatest average weight for all breeds, and the highest minimum weight. This advantage was maintained through the balance of the season and resulted in earlier maturity. Note further that this pen had the lowest rate of mortality, 3.9 per cent. (Losses by rats not counted.)

Pen 13A, fed on egg, liver, and

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green stuff, shows the next best results in average weights of the survivors. The great mortality was plainly due to lack of starchy food.

It may be of interest to note in passing that the average weight of all the Leghorns (brown, white, and black) from the above four pens was 141.53 grams at thirty days old; of the R. I. Reds, 108.9 grams; and of all the other birds, 106.9 grams. Weight of the largest Leghorn was 257 grams, and of the smallest 55.5 grams; of the largest R. I. Red 210 grams, and the smallest 44.3 grams.

In conclusion special attention is called to the following facts, confirmed by the experiments:

(1) Careful external and internal examination (such as any one can readily make) of the dead chick will generally disclose the cause of death. The necessary remedies are usually not difficult to find.

(2) Death from overcrowding, suffocation, and trampling can be readily corrected. It is more frequent than is generally suspected.

(3) For guarding against tuberculosis, give the interior of the brooders all the sun and air possible on pleasant days.

(4) Trouble of the liver and gall bladder are usually easily recognizable from the green stain. For correcting this, feed more animal food. The use of the proper proportion of animal food will pay a handsome profit through decreased mortality and increased weight of the chicks. In feeding bear in mind that chicks in

#### Pen 10A. FOOD—EGG, LIVER, GRAIN, GREENS.

23 Rhode Island Reds,	1 Black Langshan,
5 White Wyandottes,	3 Black Langshan, cross,
4 Barred Rocks,	2 Mongrel.
3 White Rocks,	—
Total 41 birds.	
Maximum.	Minimum.
210.0 grams,	113.5 grams,
188.5 grams,	137.0 grams,
	23 R. I. Reds average 158.08 grams,
	6 Leghorns average 167.8 grams,
	13 Miscellaneous average 153.1 grams.

#### Pen 13A. FOOD—EGG, LIVER, AND GREENS.

3 Rhode Island Reds,	1 Mongrel.
8 Leghorns,	—
Total 12 birds.	
Max.	Min.
180.9 grams,	44.3 grams,
257.0 grams,	75.6 grams,
	3 R. I. Reds average 99.2 grams,
	*8 Leghorns average 159.0 grams,

#### Pen 12A. FOOD—GRAIN ALONE.

16 Rhode Island Reds,	1 White Rock,
10 Leghorns,	1 Black Langshan cross,
3 Barred Rocks.	1 White Wyandotte,
	3 Mongrels.
Total 35 birds.	
Max.	Min.
133.9 grams,	49.8 grams,
216.8 grams,	62.5 grams,
	16 R. I. Reds average 87.03 grams,
	10 Leghorns average 137.65 grams,
	9 Miscellaneous average 104.7 grams.

#### Pen 8A. FOOD—GRAIN, AND GREENS.

25 Rhode Island Reds,	3 Barred Rock, cross,
6 Leghorns,	2 Black Langshan,
10 Barred Rocks,	2 Rhode Island Red, cross,
3 White Plymouth Rocks,	3 Mongrel.
3 White Wyandottes,	—
Total 57 birds.	
Max.	Min.
113.0 grams,	48.2 grams,
140.0 grams,	55.5 grams,
	25 R. I. Reds average 78.88 grams,
	6 Leghorns average 98.45 grams,
	26 Miscellaneous average 81.08.

\*The largest bird in entire lot was a black Leghorn cockerel of this pen: weight 257 grams.